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AIR 24

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KPMG

Prachi Nandu
Inter CA May 23

Ednovate has been the pillar of my CA journey. A hearty thanks to Sagar Sir & Dhawal Sir who have been academic mentors and life coaches. “Thank you Sirs' for making our sessions lively and fun.”

AIR 33

Articleship with
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Vatsal Mehta
Inter CA May 23

I was excited to join Ednovate for my Inter CA Course. After the first class I was overwhelmed seeing the energy and enthusiasm of the faculty and the whole Ednovate team. Learning here was easy & fun. The faculty was supportive throughout the journey and even for articleship.

AIR 34

Articleship with
KPMG

Piyush Kothari
Inter CA May 23

Time at Ednovate was very amazing and fun. The teachers have a bond with their students & are approachable for any doubts. The flexi test system here has helped me a lot in time management. Thanks for everything Ednovate.

AIR 39

Articleship with
Deloitte

Himanshi Chhajed
Inter CA May 23

This class has given me immense support throughout my Inter CA journey especially during study leaves. Special thanks to Prof. Dhawal & Prof. Sagar for their guidance and support. Indeed the best classes for CA!

EDNOVATE

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AIR 40

Articleship with
EY

Marvi Lodha
Inter CA May 23

This place offers you the best guidance, knowledge & experience in the most innovate way possible. With teachers like Dhawal Sir, I never felt lost in this long journey. These years at Ednovate will always remain as my fond memories in my life.

AIR 46

Articleship with
Dhruva

Pranjal Mundra
Inter CA May 23

Ednovate has been the fuel of my milestone of the Inter CA achievement. The immense practice that I got from the uncountable tests that I wrote gave me the confidence in my final exams. Their consistent academic approach has borne the fruit for me.

AIR 47

Articleship with
KPMG

Rishabh Jain
Inter CA May 23

Ednovate was a beautiful journey. Apart from knowledge & education that we gain there we also have created amazing life lasting memories. Sagar sir's & Gaurang sir's innovative style of teaching will always remain in my memory.

AIR 47

Articleship with
KPMG

Shruthi Shivaram
Inter CA Nov. 23

“I was a student at Ednovate's Mulund branch for CA Intermediate level. It was an incredible and fulfilling experience. The teaching and faculty were extremely helpful and guided me to achieve a high rank. I owe my success entirely to my professors who motivated me at every step of the way. .....

EDNOVATE

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COST AND MANAGEMENT ACCOUNTING

PREFACE

Welcome to the threshold of a defining journey in your pursuit of becoming a Chartered Accountant. The Inter CA examination is more than a test; it's a gateway to your future, shaping your path towards achieving your dream articleship and beyond.

At Team EDNOVATE, we stand with you at this crossroads, ready to illuminate the path with expert guidance and unwavering support. The transition from CAFC to Inter CA is a leap that demands more than just hard work; it requires a strategic mindset, a deep understanding of the subject matter, and the resilience to meet the ICAI's standards.

We are here to ensure that you are not just prepared, but primed to excel in both groups of the Inter CA exam on your very first attempt.

Our mission is clear: to transform your potential into success by providing focused, tailored guidance that addresses the unique challenges of this critical phase.

Let this book be your companion on this journey, offering insights, strategies, and encouragement every step of the way. Together, through your commitment and our expert guidance, we strive to forge a promising future for you.

Thank you for choosing us as your guide. Here's to a journey of growth, success, and excellence. Welcome aboard!

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COST AND MANAGEMENT ACCOUNTING

INDEX : PRACTICAL SECTION

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COST AND MANAGEMENT ACCOUNTING

MEANING AND DEFINITION:

Cost	Amount of resource given up in exchange of goods or services.
Costing	The technique and process of ascertaining cost
Cost accounting	The process of accounting for cost which begins with the recording of income & expenditure or the bases on which they are calculated and ends with the preparation of periodical statements & reports for ascertaining & controlling costs.
Cost Accountancy	The application of costing and cost accounting principle, methods & techniques to the science, art & practice of cost control & ascertainment of profit.
Management Accounting	Application of principles of accounting & financial management to create, protect, preserve & increase value for stakeholders of for-profit & not for profit enterprises in the public and private sector.
Cost Management	It is an application of management accounting concepts, methods of collections, analysis & presentation of data to provide the information needed to plan, monitor & control costs.

OBJECTIVES OF COST ACCOUNTING:

- Ascertainment of cost
- Determination of Selling Price & Profitability
- Cost Control
- Cost Reduction
- Assisting management in decision making

DIFFERENCE BETWEEN COST CONTROL AND COST REDUCTION

Cost Control	Cost Reduction
1. Cost control aims at maintaining the costs in accordance with the established standards.	1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to improvise them continuously
2. Cost control seeks to attain lowest possible cost under existing conditions.	2. Cost reduction recognises no condition as permanent, since a change will result in lower cost.
3. In case of cost control, emphasis is on past and present.	3. In case of cost reduction, it is on present and future
4. Cost control is a preventive function.	4. Cost reduction is a corrective function. It operates even when an efficient cost control system exists.
5. Cost control ends when targets are achieved.	5. Cost reduction has no visible end and is a continuous process.

DIFFERENCE BETWEEN COST CONTROL AND COST REDUCTION

Scope of cost accounting consists of the following functions:-

1) Costing
2) Cost accounting
3) Cost analysis
4) Cost comparisons
5) Cost analysis
6) Cost reports
7) Statutory Compliances

RELATIONSHIP OF COST & MANAGEMENT ACCOUNTING WITH OTHER RELATED DISCIPLINES

- Difference between Cost Accounting & Management Accounting

	Basis	Cost Accounting	Management Accounting
(i)	Nature	It records the quantitative aspect only.	It records both qualitative and quantitative aspect.
(ii)	Objective	It records the cost of producing a product and providing a service.	It provides information to management for planning and co-ordination.
(iii)	Area	It only deals with cost ascertainment.	It is wider in scope as it includes financial accounting, budgeting, taxation, planning etc.
(iv)	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
(v)	Development	Its development is related to industrial revolution.	Its development is related to the need of modern business world.
(vi)	Rules and Regulation	It follows certain principles and procedures for recording costs of different products.	It does not follow any specific rules and regulations.

- Difference between Financial Accounting & Cost Accounting.

	Basis	Financial Accounting	Cost Accounting
(i)	Objective	It provides information about the financial performance of an entity.	Ascertainment of cost for the purpose of cost control and decision making.
(ii)	Nature	It classifies records, present and interprets transactions in monetary terms.	It classifies, costs records, present, and interprets it in a significant manner.
(iii)	Recording of data	It records Historical data.	It makes use of both historical and pre-determined costs.
(iv)	Users of information	The users of financial accounting statements are shareholders, creditors, financial analysts and government and its agencies, etc.	The cost accounting information is generally used by internal management. But sometimes regulatory authorities also.
(v)	Analysis of cost and profit	It shows profit or loss of the organization either segment wise or as a whole.	It provides the cost details for each cost object i.e. product, process, job, operation, contracts, etc.
(vi)	Time period	Financial Statements are prepared usually for a year.	Reports and statements are prepared as and when required.
(vii)	Presentation of information	A set format is used for presenting financial information.	In general, no set formats for presenting cost information is followed.

ROLE & FUNCTION OF COST & MANAGEMENT ACCOUNTING:

The role of a cost & management accounting system is to:-

- Provide relevant information to management for decision making

- Assist management for planning, measurement, evaluation & controlling of business activities.
- Help in allocation of cost to products & inventories for both external & internal users.

Cost Accounting is concerned with accumulation and allocation of costs to different cost objects, whereas, Management Accounting concerned with provision of information to internal users for decision making.

The functions of cost & management accounting include:

(i) Collection & accumulation of cost for each element of cost

(ii) Assigning costs to cost objects to ascertain cost

(iii) Cost & Management accounting department sets budget & standards for a particular period and activity. Any deviation with the set standards are analysed and reported.

(iv) Provision of relevant information to management for decision making.

(v) To gather data like time taken, wastages, process idleness etc., analyse the data, prepare reports and take necessary actions.

USERS OF COST AND MANAGEMENT ACCOUNTING:

Internal Users	External Users
Managers	Regulatory Authority
Operational Level Staff	Auditors
Employees	Shareholders
	Creditors & Lenders

ESSENTIALS OF GOOD COST ACCOUNTING SYSTEM:

The essential features, which a good cost accounting system should possess, are as follows:-

- Informative & simple
- Accurate & authentic
- Uniformity & consistency
- Integrated & inclusive
- Flexible & adaptive
- Trust on the system

INSTALLATION OF COSTING SYSTEM:

Before setting up a system of cost accounting the factors mentioned below should be studied:-

(a) Objective

(b) Nature of Business or Industry

(c) Organisational Hierarchy

(d) Knowing the product

(e) Knowing the production process

(f) Information synchronisation

(g) Method of maintenance of cost records

(h) Statutory compliances and audit

(i) Information Attributes

COST ACCOUNTING WITH THE USE OF INFORMATION TECHNOLOGY:

Information technology has changed the cost and management accounting functions dramatically with the introduction of ERP system. The impact of IT on cost accounting may include the following:-

a) Different functional activities get integrated & as a result, a single entry into accounting system provides custom report.

b) A move towards paperless environment can be seen where documents are no longer required to be prepared in multiple copies, instead e-copies can be maintained.

c) Information technology with the help of internet are helping in resource procurement & mobilisation.

d) Cost information for a cost centre or cost object is ascertained with accuracy in timely manner. Each cost centre a cost object is codified and all related costs are assigned to the cost objects or cost centres using assigned codes. This automates the cost accumulation & ascertainment process. The cost information can be customised as per the requirement.

e) Uniformity in preparation of reports, budgets and standards can be achieved with the help of IT.

f) Cost & revenue variance reports are generated in real time basis which enables the management to take control measures immediately.

g) It enables an entity to monitor and analyse each process of manufacturing or service activity closely to eliminate non value added activities.

COST OBJECTS:

Cost object is anything for which a separate measurement of cost is required. Cost object maybe a product, service, project, activity, etc.

- Cost units

  It is a unit of product, service or time in relation to which costs may be ascertained or expressed. Cost units are usually the units of physical measurement like number, weight, area, volume, length, time & value.

Example

Industry/ Product	Cost unit basis
Automobile	Number
Cement	Ton/ per bag etc.
Transport	Passenger- kilometre

-

- Cost Driver

  A cost driver is a factor or variable which effect level of cost. It is an activity which is responsible for cost incurrence. Level of activity or volume of production is the example of cost driver.

RESPONSIBILITY CENTRES:

To have a better control over the organisation, management delegates its responsibility and authority to various departments or persons. These departments or persons are known as responsibility centres & are held responsible for performance in terms of expenditure, revenue, profitability & return on investment.

Types of responsibility centres

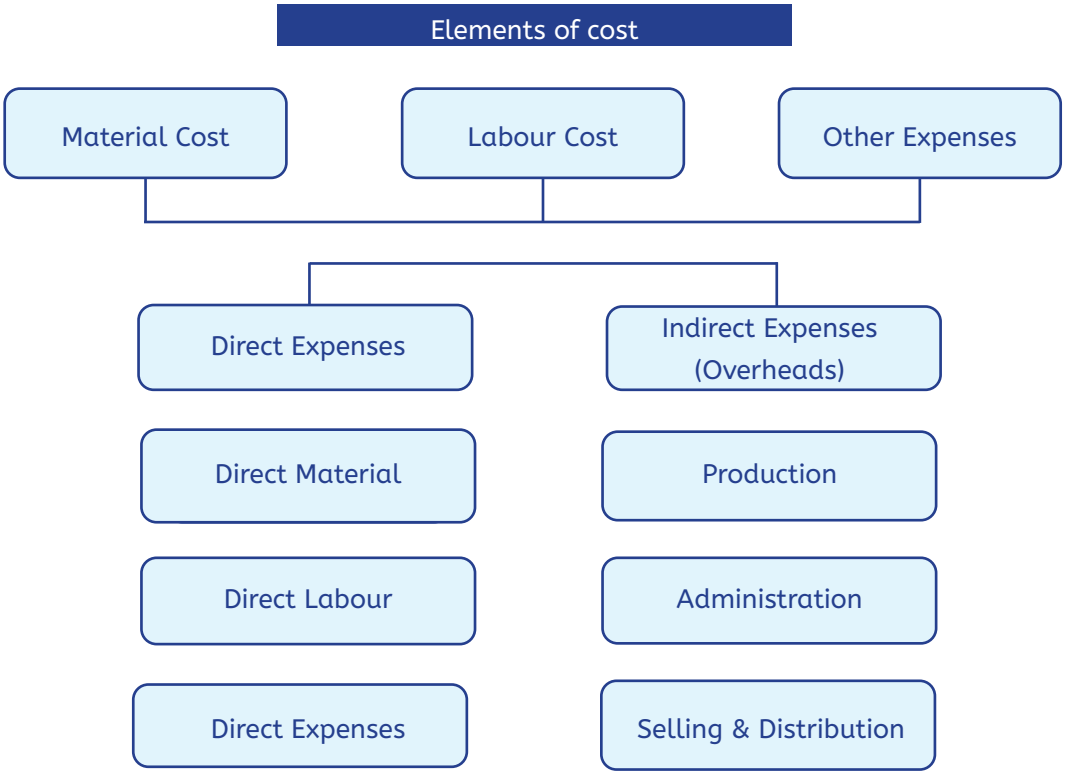
- Cost Centres
- Revenue Centres
- Profit Centres
- Investment Centres

LIMITATIONS OF COST ACCOUNTING:

Like other branches of accounting, cost accounting also has certain limitations. The limitations of cost accounting are as follows:

1. Expensive
2. Requirement of reconciliation
3. Duplication of work

CLASSIFICATION OF COSTS:



- Classification by Functions:

  Under this classification, costs are divided according to the function for which they have been incurred. It includes the following:-

Direct Material Direct Employees (Labours) Direct Expenses		Prime Cost
Indirect Material Indirect Labour Indirect Expenses	Factory Overheads Administration Overheads Selling and Distribution Overheads	Factory Cost or Works Cost Cost of Goods Sold Cost of Sales

- Classification by variability or behaviour:
  - Fixed Cost
  - Variable Cost
  - Semi Variable Cost

- Classification by Controllability:
  - Controllable cost
  - Uncontrollable cost

- Classification by normality:
  - Normal Cost
  - Abnormal Cost

- Classification by cost used in managerial decision making:

a)	Pre-determined cost	b)	Standard cost
c)	Marginal cost	d)	Estimated cost
e)	Differential cost	f)	Imputed cost
g)	Capitalized cost	h)	Product cost
i)	Opportunity cost	j)	Out of pocket cost
k)	Shut down cost	l)	Sunk cost
m)	Absolute cost	n)	Discretionary cost
o)	Period cost	p)	Engineered cost
q)	Explicit cost	r)	Implicit Cost

16. Methods of costing

a)	Single or output costing	b)	Batch costing
c)	Job costing	d)	Contract costing
e)	Process costing	f)	Operating cost
g)	Multiple costing		

17. Techniques of Costing:
    1) Uniform costing
    2) Marginal costing
    3) Standard costing & variance analysis
    4) Historical costing
    5) Absorption costing

CLASSWORK SECTION

Q.1. Calculate the Economic Order Quantity from the following information. Also state the number of orders to be placed in a year.

Consumption of materials per annum	:	10,000 kg.
Order placing cost per order	:	₹ 50
Cost per kg. of raw materials	:	₹ 2
Storage costs	:	8% on average inventory

Q.2. (i) Compute E.O.Q. and the total variable cost for the following:

Annual Demand	= 5,000 units
Unit price	= ₹ 20.00
Order cost	= ₹ 16.00
Storage rate	= 2% per annum
Interest rate	= 12% per annum
Obsolescence rate	= 6% per annum

(ii) Determine the total cost that would result for the items if an incorrect price of ₹ 12.80 is used.

Q.3. G. Ltd. produces a product which has a monthly demand of 4,000 units. The product requires a component X which is purchased at ₹ 20. For every finished product, one unit of component is required. The ordering cost is ₹ 120 per order and the holding cost is 10% p.a. You are required to calculate:

(i) Economic order quantity.

(ii) If the minimum lot size to be supplied is 4,000 units, what is the extra cost, the company has to incur?

(iii) What is the minimum carrying cost, the company has to incur?

Q.4. ZED Company supplies plastic crockery to fast food restaurants in metropolitan city. One of its products is a special bowl, disposable after initial use, for serving soups to its customer.

Bowls are sold in pack 10 pieces at a price of ₹ 50 per pack.
The demand for plastic bowl has been forecasted at a fairly steady rate of 40,000 packs every year. The company purchases the bowl direct from manufacturer at ₹ 40 per pack within a three days lead time. The ordering and related cost is ₹ 8 per order. The storage cost is 10% per annum of average inventory investment.

Required:

(i) Calculate Economic Order Quantity.

(ii) Calculate number of orders needed every year.

(iii) Calculate the total cost of ordering and storage bowls for the year.

(iv) Determine when should the next order to be placed. (Assuming that the company does maintain a safety stock and that the present inventory level is 333 packs with a year of 360 working days.

Q.5. A company manufactures a product from a raw material, which is purchased at ₹ 60 per kg. The company incurs a handling cost of ₹ 360 plus freight of ₹ 390 per order. The incremental carrying cost of inventory of raw material is ₹ 0.50 per kg. per month. In addition, the cost of working capital finance on the investment in inventory of raw material is ₹ 9 per kg. per annum. The annual production of the product is 1,00,000 units and 2.5 units are obtained from one kg of raw material.

Required

(i) Calculate the economic order quantity of raw materials.

(ii) Advise, how frequently should orders for procurement be placed.

(iii) If the company proposes to rationalize placement of orders on quarterly basis, what percentage of discount in the price of raw materials should be negotiated?

Q.6. (a) EXE Limited has received an offer of quantity discounts on its order of materials as under:

Category	Price per ton (₹)	Ton (Nos.)
1	1,200	Less than 500
2	1,180	500 and less than 1,000
3	1,160	1,000 and less than 2,000
4	1,140	2,000 and less than 3,000
5	1,120	3,000 and above.

The annual requirement for the material is 5,000 tons. The ordering cost per order is ₹ 1,200 and the stock holding cost is estimated at 20% of material cost per annum. You are required to compute the most economical purchase level.

(b) What will be your answer to the above question if there are no discounts offered and the price per ton is ₹ 1,500?

Q. 7. Aditya Agro Ltd. produces edible oils of different varieties. The monthly demand pattern for the finished products are as follows:

Mustard oil 45,000 Litre
Soybean oil 15,000 Litre
Olive oil 3,000 Litre

To produce one litre of Mustard oil, Soybean oil and Olive oil, 5 kg. of mustards, 6 kg. of soybeans and 4.5 kg. of olives are required respectively. There is no opening and closing stock of materials.

Aditya Agro Ltd. can purchase the materials either from the farmers directly or from the wholesale market. The company can purchase any quantity of materials from the wholesale market but in case of purchase from the farmers, it has to purchase the minimum specified quantity of materials at a time. Following is the material-wise summary related with the purchase of materials:

	Wholesaler	Farmer
Mustard :		
Minimum Quantity to be purchased	Any quantity	13,50,000 kg.
Purchase price per kg. (₹)	15.00	12.50
Central Sales Tax (CST)*	2%	---
Transportation cost per purchase	6,000	15,000

Sorting and piling cost per purchase	---	1,200
Loading cost per 50 kg.	10.00	5.00
Unloading cost per 50 kg.	2.00	2.00
Soybean:		
Minimum Quantity to be purchased	Any quantity	2,70,000 kg.
Purchase price per kg. (₹)	11.00	9.00
Value Added Tax (VAT)**	4%	---
Transportation cost per purchase	9,000	12,000
Sorting and piling cost per purchase	---	800
Loading cost per 50 kg.	10.00	3.00
Unloading cost per 50 kg.	2.00	2.00
Olive:		
Minimum Quantity to be purchased	Any quantity	1,62,000 kg.
Purchase price per kg. (₹)	36.00	28.00
Import duty***	---	10%
Transportation Cost per purchase (₹)	3,000	11,000
Sorting and piling cost per purchase	1,800	---
Loading cost per 50 kg.	10.00	25.00
Unloading cost per 50 kg.	2.00	2.00

The company is paying 12.5% p.a. as interest to its bank for cash credit facility and ₹ 100 per 100 kg. as rent to the warehouse.

[*CST will be added with the purchase price of mustards; **VAT will not be added with the purchase price of soybeans; ***Import duty will be added with the purchase price of olives.]

You are required to

(i) Calculate the purchase cost of each material
  (a) from Wholesale market
  (b) from the Farmers

(ii) Calculate Economic Order Quantity of each material under the both options.

(iii) Recommend the best purchase option for the material 'olive'.

Q. 8. Two components, A and B are used as follows:

Normal usage	50 per week each
Maximum usage	75 per week each
Minimum usage	25 per week each
Re-order quantity	A: 300; B: 500
Re-order period	A: 4 to 6 weeks
	B: 2 to 4 weeks

Calculate for each component (a) Re-ordering level, (b) Minimum level, (c) Maximum level, (d) Average stock level.

Q.9. From the details given below, calculate:

(i) Re-ordering level

(ii) Maximum level

(iii) Minimum level

(iv) Danger level.

Re-ordering quantity is to be calculated on the basis of following information:
Cost of placing a purchase order is ₹ 20
Number of units to be purchased during the year is 5,000
Purchase price per unit inclusive of transportation cost is ₹ 50
Annual cost of storage per units is ₹ 5.
Details of lead time : Average- 10 days, Maximum- 15 days, Minimum-5 days.
For emergency purchases - 4 days.
Rate of consumption : Average: 15 units per day, Maximum: 20 units per day.

Q.10. A Company uses three raw materials A, B and C for a particular product for which the following data apply:

Raw Material	Usage per unit of Product (Kgs.)	Re-order quantity (Kgs.)	Price per Kg (₹)	Delivery period (In weeks)			Re-order level (Kgs)	Minimum level (Kgs.)
				Minimum	Average	Maximum		
A	10	10,000	10	1	2	3	8,000	?
B	4	5,000	30	3	4	5	4,750	?
C	6	10,000	15	2	3	4	?	2,000

Weekly production varies from 175 to 225 units, averaging 200 units of the said product.
What would be the following quantities:
(i) Minimum stock of A,
(ii) Maximum stock of B,
(iii) Re-order level of C,
(iv) Average stock level of A.

Q.11. IPL Limited uses a small casting in one of its finished products. The castings are purchased from a foundry. IPL Limited purchases 54,000 castings per year at a cost of ₹ 800 per casting.

The castings are used evenly throughout the year in the production process on a 360-days-per-year basis. The company estimates that it costs ₹ 9,000 to place a single purchase order and about ₹ 300 to carry one casting in inventory for a year. The high carrying costs result from the need to keep the castings in carefully controlled temperature and humidity conditions, and from the high cost of insurance.

Delivery from the foundry generally takes 6 days, but it can take as much as 10 days. The days of delivery time and percentage of their occurrence are shown in the following tabulation:

Delivery time (days)	6	7	8	9	10
Percentage of occurrence	75	10	5	5	5

Required:
(i) Compute the economic order quantity (EOQ).

(ii) Assume the company is willing to assume a 15% risk of being out of stock. What would be the safety stock? The re-order point?

(iii) Assume the company is willing to assume a 5% risk of being out of stock. What would be the safety stock? The re-order point?

(iv) Assume 5% stock-out risk. What would be the total cost of ordering and carrying inventory for one year?

(v) Refer to the original data. Assume that using process re-engineering the company reduces its cost of placing a purchase order to only ₹ 600. In addition company estimates that when the waste and inefficiency caused by inventories are considered, the true cost of carrying a unit in stock is ₹ 720 per year.

(a) Compute the new EOQ.
(b) How frequently would the company be placing an order, as compared to the old purchasing policy?

Q.12. Raw materials 'AXE' costing ₹ 150 per kg. and 'BXE' costing ₹ 90 per kg. are mixed in equal proportions for making product 'A'. The loss of material in processing works out to 25% of the product. The production expenses are allocated at 40% of direct material cost.
The end product is priced with a margin of 20% over the total cost.
Material 'BXE' is not easily available and substitute raw material 'CXE' has been found for 'BXE' costing ₹ 75 per kg. It is required to keep the proportion of this substitute material in the mixture as low as possible and at the same time maintain the selling price of the end product at existing level and ensure the same quantum of profit as at present.
You are required to compute the ratio of the mix of the raw materials 'AXE' and 'CXE'.

Q.13. M/s Tyrotubes trades in four wheeler tyres and tubes. It stocks sufficient quantity of tyres of almost every vehicle. In year-end 20X1-X2, the report of sales manager revealed that M/s Tyrotubes experienced stock-out of tyres.

The stock-out data is as follows:

Stock – out of Tyres	No. of times
100	2
80	5
50	10
20	20
10	30
0	33

M/s Tyrotubes loses ₹ 150 per unit due to stock-out and spends ₹ 50 per unit on carrying of inventory. Determine optimum safest stock level.

Q.14. An invoice in respect of a consignment of chemicals A and B provides the following Information:

	(₹)
Chemical A: 10,000 Kgs. at ₹ 10 per Kg.	1,00,000
Chemical B: 8,000 Kgs. at ₹ 13 per Kg.	1,04,000
Basic custom duty @ 10% (Credit is not allowed)	20,400
Railway freight	3,840
Total cost	2,28,240

A shortage of 500 kgs. in chemical A and 320 kgs. in chemical B is noticed due to normal breakages. You are required to determine the rate per kg. of each chemical, assuming a provision of 2% for further deterioration.

Q.15. Sky & Co., an unregistered supplier under GST, purchased material from Vye Ltd. which is registered under GST. The following information is available for one lot of 5,000 units of material purchased:

Listed price of one lot	₹ 2,50,000
Trade discount	@ 10% on listed price
CGST and SGST (Credit Not available)	12% (6% CGST + 6% SGST)
Cash discount	@ 10%
(Will be given only if payment is made within 30 days.)	
Toll Tax paid	₹ 5,000
Freight and Insurance	₹ 17,000
Demurrage paid to transporter	₹ 5,000
Commission and brokerage on purchases	₹ 10,000 Amount deposited
for returnable containers	₹ 30,000 Amount of refund
on returning the container	₹ 20,000
Other Expenses	@ 2% of total cost

20% of material shortage is due to normal reasons.

The payment to the supplier was made within 21 days of the purchases.

You are required to CALCULATE cost per unit of material purchased by Sky & Co.

[RTP May 2022]

STOCK VALUATION AND STOCK CONTROL

Q.16. The following transactions in respect of material Y occurred during the six months ended 30th June, 20X1:

Month	Purchase (units)	Price per unit (₹)	Issued units
January	200	25	Nil
February	300	24	250
March	425	26	300
April	475	23	550
May	500	25	800
June	600	20	400

Required:

(a) The Chief Accountant argues that the value of closing stock remains the same no matter which method of pricing of material issues is used. Do you agree? Why or why not? Detailed stores ledgers are not required.

(b) When and why would you recommend the LIFO method of pricing material issues?

Q.17. The following information is extracted from the Stores Ledger:

Material X	
Opening Stock	Nil
Purchases:	
Jan. 1	100 @ ₹ 1 per unit
Jan. 20	100 @ ₹ 2 per unit
Issues:	
Jan.22	60 for Job W 16
Jan. 23	60 for Job W 17

Complete the receipts and issues valuation by adopting the First-In-First-Out, Last- In-First-Out and the Weighted Average Method. Tabulate the values allocated to Job W 16, Job W 17 and the closing stock under the methods aforesaid and discuss from different points of view which method you would prefer ?

Q.18. 'AT' Ltd. furnishes the following store transactions for September, 20X1:

1-9-X1	Opening balance	25 units value ₹ 162.50
4-9-X1	Issues Req. No. 85	8 units
6-9-X1	Receipts from B & Co. GRN No. 26	50 units @ ₹ 5.75 per unit
7-9-X1	Issues Req. No. 97	12 units
10-9-X1	Return to B & Co.	10 units
12-9-X1	Issues Req. No. 108	15 units
13-9-X1	Issues Req. No. 110	20 units
15-9-X1	Receipts from M & Co.GRN. No. 33	25 units @ ₹ 6.10 per unit
17-9-X1	Issues Req. No. 121	10 units
19-9-X1	Received replacement from B & Co.GRN No. 38	10 units
20-9-X1	Returned from department, material of	
M & Co.	MRR No. 4	5 units
22-9-X1	Transfer from Job 182 to Job 187 in the	
	dept. MTR 6	5 units
26-9-X1	Issues Req. No. 146	10 units
29-9-X1	Transfer from Dept. "A" to Dept. "B" MTR 10	5 units
30-9-X1	Shortage in stock taking	2 units

Write up the priced stores ledger on FIFO method and discuss how would you treat the shortage in stock taking.

Q.19. From the following details, draw a plan of ABC selective control:

Items	Units	Unit cost (₹)
1	7,000	5.00
2	24,000	3.00
3	1,500	10.00
4	600	22.00
5	38,000	1.50
6	40,000	0.50
7	60,000	0.20
8	3,000	3.50
9	300	8.00
10	29,000	0.40
11	11,500	7.10
12	4,100	6.20

Q.20. From the following data for the year ended 31st December, 20X1, calculate the inventory turnover ratio of the two items and put forward your comments on them.

	Material A (₹)	Material B (₹)
Opening stock 1.1.20X1	10,000	9,000
Purchase during the year	52,000	27,000
Closing stock 31.12.20X1	6,000	11,000

Q.21. MM Ltd. has provided the following information about the items in its inventory.

Item Code Number	Units	Unit Cost (₹)
101	25	50
102	300	01
103	50	80
104	75	08
105	225	02
106	75	12

MM Ltd. has adopted the policy of classifying the items constituting 15% or above of Total Inventory Cost as 'A' category, items constituting 6% or less of Total Inventory Cost as 'C' category and the remaining items as 'B' category.

You are required to:

(i) Rank the items on the basis of % of Total Inventory Cost.

(ii) Classify the items into A, B and C categories as per ABC Analysis of Inventory Control adopted by MM Ltd. **[Sugg.Jul'21, 5 Marks]**

HOME WORK SECTION

Q.1. A Ltd. produces a product 'Exe' using a raw material Dee. To produce one unit of Exe, 2 kg of Dee is required. As per the sales forecast conducted by the company, it will able to sale 20,000 units of Exe in the coming year. The following is the information regarding the raw material Dee:

(i) The Re-order quantity is 200 kg. less than the Economic Order Quantity (EOQ).

(ii) Maximum consumption per day is 20 kg. more than the average consumption per day.

(iii) There is an opening stock of 2,000 kg.

(iv) Time required to get the raw materials from the suppliers is 4 to 8 days.

(v) The purchase price is ₹125 per kg.

There is an opening stock of 1,800 units of the finished product Exe.

The rate of interest charged by bank on Cash Credit facility is 13.76%.

To place an order company has to incur ₹ 720 on paper and documentation work.

From the above information COMPUTE the followings in relation to raw material Dee:

(a) Re-order Quantity

(b) Maximum Stock level

(c) Minimum Stock level

(d) Impact on the profitability of the company by not ordering the EOQ.

[Take 364 days for a year] [MTP April '19, 10 Marks]

Q.2. A store keeper has prepared the below list of items kept in the store of the factory.

Item	Units	Unit cost (₹)
A	12,000	30.00
B	18,000	3.00
C	6,000	35.00
D	750	220.00
E	3,800	75.00
F	400	105.00
G	600	300.00
H	300	350.00
I	3,000	250.00
J	20,000	7.50
K	11,500	27.50
L	2,100	75.00

The store keeper requires your help to classify the items for prioritization. You are required to APPLY ABC analysis to classify the store items as follows:

Store items which constitutes approx 70%, 20% and 10% of total value as A, B and C respectively. [MTP March '18, 10 Marks]

Q.3. The annual demand for an item of raw material is 4,000 units and the purchase price is expected to be ₹ 90 per unit. The incremental cost of processing an order is ₹ 135 and the annual cost of storage is estimated to be ₹ 12 per unit. COMPUTE the optimal order quantity and total relevant cost of this order quantity? Suppose that ₹ 135 as estimated to be the incremental cost of processing an order is incorrect and should have been ₹ 80. All other estimates are correct. ESTIMATE the difference in cost on account of this error? Assume at the commencement of the period that a supplier offers 4,000 units at a price of ₹ 86. The materials will be delivered immediately and placed in the stores. Assume

that the incremental cost of placing the order is zero and original estimate of ₹ 135 for placing an order for the economic batch is correct. ANALYSE, should the order be accepted?

[MTP Aug '18, 10 Marks]

Q.4. A company manufactures a product from a raw material, which is purchased at ₹ 54 per kg. The company incurs a handling cost of ₹1,500 plus freight of ₹4,000 per order. The incremental carrying cost of inventory of raw material is ₹1.50 per kg per month. In addition, the cost of working capital finance on the investment in inventory of raw material is ₹8 per kg per annum. The annual production of the product is 96,000 units and 4 units are obtained from one kg of raw material. Required:

(i) CALCULATE the economic order quantity of raw materials.

(ii) ADVISE, how frequently orders should be placed for procurement.

(iii) If the company proposes to rationalize placement of orders on quarterly basis, DETERMINE what percentage of discount in the price of raw materials should be negotiated?

[MTP Oct. '18, 5 Marks]

Q.5. Arnav Motors Ltd. manufactures pistons used in car engines. As per the study conducted by the Auto Parts Manufacturers Association, there will be a demand of 80 million pistons in the coming year. Arnav Motors Ltd. is expected to have a market share of 1.15% of the total market demand of the pistons in the coming year. It is estimated that it costs ₹1.50 as inventory holding cost per piston per month and that the set-up cost per run of piston manufacture is ₹ 3,500.

(i) DETERMINE the optimum run size for piston manufacturing?

(ii) Assuming that the company has a policy of manufacturing 40,000 pistons per run, CALCULATE the extra costs company would be incurring as compared to the optimum run suggested in (i) above?

(iii) IDENTIFY variability of cost with respect to unit and batch level from the following cost: (a) Inventory carrying cost; (b) Designing cost for a job; (c) Machine set-up cost to run production and (d) Depreciation of factory building.

[MTP Oct '18, 10 Marks]

Q.6. At WHAT price per unit would Part No. A 32 be entered in the Stores Ledger, if the following invoice was received from a supplier:

Invoice	(₹)
200 units Part No. A 32 @ ₹ 5	1,000.00
Less: 20% discount	(200.00)
	800.00
Add: IGST @ 12%	96.00
	896.00
Add: Packing charges (5 non-returnable boxes)	50.00
	946.00

(i) A 2 per cent cash discount will be given if payment is made in 30 days.

(ii) Documents substantiating payment of IGST are enclosed for claiming Input credit.

Q.7. A factory uses 4,000 varieties of inventory. In terms of inventory holding and inventory usage, the following information is compiled:

No. of varieties of inventory	%	% value of inventory holding (average)	% of inventory usage (in end- product)
3,875	96.875	20	5
110	2.750	30	10
15	0.375	50	85
4,000	100.00	100	100

CLASSIFY the items of inventory as per ABC analysis with reasons.

Q.8. The following data are available in respect of material X for the year ended 31st March, 2020.

	(₹)
Opening stock	90,000
Purchases during the year	2,70,000
Closing stock	1,10,000

CALCULATE:

(i) Inventory turnover ratio, and

(ii) The number of days for which the average inventory is held.

Q.9. The following information is provided by Sunrise Industries for the fortnight of April, 2020:

Material Exe:

Stock on 1-4-2020 100 units at ₹ 5 per unit.

Purchases

5-4-2020, 300 units at ₹ 6

8-4-2020, 500 units at ₹ 7

12-4-2020, 600 units at ₹ 8

Issues

6-4-2020, 250 units

10-4-2020, 400 units

14-4-2020, 500 units

Required:

(A) CALCULATE using FIFO and LIFO methods of pricing issues:

(a) the value of materials consumed during the period

(b) the value of stock of materials on 15-4-2020.

(B) EXPLAIN why the figures in (a) and (b) in part A of this question are different under the two methods of pricing of material issues used. You need not draw up the Stores Ledger.

Q.10. M/s Tanishka Materials Private Limited produces a product which names "ESS". The consumption of raw material for the production of "ESS" is 210 Kgs to 350 Kgs per week. Other information is as follows:

Procurement Time:	5 to 9 Days
Purchase price of Raw Materials:	₹ 100 per kg
Ordering Cost per Order:	₹ 200
Storage Cost:	1% per month plus ₹ 2 per unit per annum

Consider 365 days a year.

You are required to CALCULATE:

(a) Economic Order Quantity

(b) Re-Order Level (ROL)

(c) Maximum Stock Level

(d) Minimum Stock Level

(e) Average Stock Level

(f) Number of Orders to be placed per year

(g) Total Inventory Cost

(h) If the supplier is willing to offer 1% discount on purchase of total annual quantity in two orders, whether offer is acceptable?

(i) If the answer is no, what should be the counteroffer w.r.t. percentage of discount?

[RTP Nov. 22]

Q.11. An automobile company purchases 27,000 spare parts for its annual requirements. The cost per order is ₹ 240 and the annual carrying cost of average inventory is 12.5%. Each spare part costs ₹ 50. At present, the order size is 3,000 spare parts. (Assume that number of days in a year = 360 days) Find out:

(i) How much the company's cost would be saved by opting EOQ model?

(ii) The Re-order point under EOQ model if lead time is 12 days.

(iii) How frequently should orders for procurement be placed under EOQ model?

[Sugg.Nov'20, 10 Marks]

Q.12. AUX Ltd. has an Annual demand from a single customer for 60,000 Covid-19 vaccines. The customer prefers to order in the lot of 15,000 vaccines per order. The production cost of vaccine is ₹ 5,000 per vaccine. The set-up cost per production run of Covid-19 vaccines is ₹ 4,800. The carrying cost is ₹ 12 per vaccine per month.

You are required to:

(i) Find the most Economical Production Run.

(ii) Calculate the extra cost that company incurs due to production of 15,000 vaccines in a batch.

[Sugg.Jul'21, 5 Marks]

CLASS TEST

Q.1. The following are the details of receipt and issue of material 'CXE' in a manufacturing Co. during the month of April 2019:

Date	Particulars	Quantity (kg)	Rate per kg
April 4	Purchase	3,000	₹ 16
April8	Issue	1,000	
April15	Purchase	1,500	₹ 18
April 20	Issue	1,200	
April 25	Return to supplier out of purchase made on April 15	300	
April 26	Issue	1,000	
April 28	Purchase	500	₹ 17

Opening stock as on 01-04-2019 is 1,000 kg @ ₹ 15 per kg. On 30th April, 2019 it was found that 50 kg of material 'CXE' was fraudulently misappropriated by the store assistant and never recovered by the Company. Required:

(i) Prepare a store ledger account under each of the following method of pricing the issue:
(a) Weighted Average Method (b) LIFO

(ii) What would be the value of material consumed and value of closing stock as on 30-04-2019 as per these two methods?

Q.2. M/s. X Private Limited is manufacturing a special product which requires a component "SKY BLUE". The following particulars are available for the year ended 31st March, 2018:

Annual demand of "SKY BLUE"	12000 Units
Cost of placing an order	` 1,800
Cost per unit of "SKY BLUE	` 640
Carrying cost per annum	18.75%

The company has been offered a quantity discount of 5 on the purchases of "SKY BLUE" provided the order size is 3000 components at a time.

You are required to:

(i) Compute the Economic Order Quantity.

(ii) Advise whether the quantity discount offer can be accepted.

[Sugg.May '18, 5 Marks]

Q.3. M/s. SJ Private Limited manufactures 20,000 units of a product per month. The cost of placing an order is ₹ 1,500. The purchase price of the raw material is ₹ 100 per kg. The re-order period is 5 to 7 weeks. The consumption of raw materials varies from 200 kg to 300 kg per week, the average consumption being 250 kg. The carrying cost of inventory is 9.75% per annum. You are required to calculate:

(i) Re-order quantity

(ii) Re-order level

(iii) Maximum level

(iv) Minimum level

(v) Average stock level [Sugg.Nov '18, 5 Marks]

Q.4. M/s. KBC Bearings Ltd. is committed to supply 48,000 bearings per annum to M/s. KMR Fans on a steady daily basis. It is estimated that it costs ₹ 1 as inventory holding cost per bearing per month and that the set up cost per run of bearing manufacture is ₹ 3,200 (i) DETERMINE what would be the optimum run size of bearing manufacture? (ii) DETERMINE What would be the interval between two consecutive optimum runs? (iii) CALCULATE the minimum inventory cost?

(MTP, April '19,5 Marks)

Q.5. Anil & Company buys its annual requirement of 36,000 units in 6 instalments. Each unit costs ₹ 1 and the ordering cost is ₹25. The inventory carrying cost is estimated at 20% of unit value. FIND the total annual cost of the existing inventory policy. CALCULATE, how much money can be saved by Economic Order Quantity?

Q.6. The complete Gardener is deciding on the economic order quantity for two brands of lawn fertilizer - Super Grow and Nature's Own. The following information is collected:

	FERTILIZER	
	Super Grow	Nature's Own
Annual demand	2,000 bags	1,280 bags
Relevant ordering cost per purchase order	₹ 1,200	₹ 1,400
Annual relevant carrying cost per bag	₹ 480	₹ 560

Required:

(i) COMPUTE EOQ for Super Grow and Nature's own.

(ii) For the EOQ, WHAT is the sum of the total annual relevant ordering costs and total annual relevant carrying costs for Super Grow and Nature's own?

(iii) For the EOQ, COMPUTE the number of deliveries per year for Super Grow and Nature's own.

Q.7. From the details given below, CALCULATE:

(i) Re-ordering level

(ii) Maximum level

(iii) Minimum level

(iv) Danger level.

Re-ordering quantity is to be calculated on the basis of following information: Cost of placing a purchase order is ₹ 4,000

Number of units to be purchased during the year is 5,00,000 Purchase price per unit, inclusive of transportation cost is ₹ 50 Annual cost of storage per unit is ₹ 10.

Details of lead time: Average- 10 days, Maximum- 15 days, Minimum- 5 days, for emergency purchases- 4 days.

Rate of consumption: Average: 1,500 units per day,

Maximum: 2,000 units per day.

CLASSWORK SECTION

Q. 1. You are given the following information of a worker:

(i)	Name of worker	:	Mr. Roger
(ii)	Ticket No.	:	002
(iii)	Work started	:	1-4-19 at 8 a.m.
(iv)	Work finished	:	5-4-19 at 12 noon
(v)	Work allotted	:	Production of 2,160 units
(vi)	Work done and approved	:	2,000 units
(vii)	Time and units allowed	:	40 units per hour
(viii)	Wage rate	:	₹ 25 per hour
(ix)	Mr. Roger worked 9 hours a day.		

You are required to calculate the remuneration of Mr. Roger on the following basis:

(i) Halsey plan and

(ii) Rowan plan

Q. 2. Two workmen, 'A' and 'B', produce the same product using the same material. Their normal wage rate is also the same. 'A' is paid bonus according to the Rowan system, while 'B' is paid bonus according to the Halsey system. The time allowed to make the product is 50 hours. 'A' takes 30 hours while 'B' takes 40 hours to complete the product. The factory overhead rate is ₹ 5 per man-hour actually worked. The factory cost for the product for 'A' is ₹ 3,490 and for 'B' it is ₹ 3,600.

Required:

(a) Compute the normal rate of wages;

(b) Compute the cost of materials cost;

(c) Prepare a statement comparing the factory cost of the products as made by the two workmen.

Q. 3. Jigyasa Boutiques LLP. (JBL) takes contract on job works basis. It works for various fashion houses and retail stores. It has employed 26 workers and pays them on time rate basis. On an average an employee is allowed 2 hours for boutique work on a piece of garment. In the month of March two workers Margaret and Jennifer were given 30 pieces and 42 pieces of garments respectively for boutique work. The following are the details of their work:

	Margaret	Jennifer
Work assigned	30 pcs	42 pcs.
Time taken	28 hours	40 hours

Workers are paid bonus as per Halsey System. The existing rate of wages is ₹ 50 per hour. As per the new wages agreement the workers will be paid ₹ 55 per hour w.e.f. 1st April. At the end of the month March the accountant of the company has calculated wages to these two workers taking ₹ 55 per hour.

(i) From the above information calculate the amount of loss that the company has incurred due to incorrect rate selection.

(ii) What would be the loss incurred by the JBL due to incorrect rate selection if it had followed Rowan scheme of bonus payment.

(iii) Amount that could have been saved if Rowan scheme of bonus payment was followed.

(iv) Do you think Rowan scheme of bonus payment is suitable for JBL?

Q. 4. (a) Bonus paid under the Halsey Plan with bonus at 50% for the time saved equals the bonus paid under the Rowan System. When will this statement hold good?
(Your answer should contain the proof).

(b) The time allowed for a job is 8 hours. The hourly rate is ₹ 8. Prepare a statement showing:

i. The bonus earned

ii. The total earnings of employee and

iii. Hourly earnings.

Under the Halsey System with 50% bonus for time saved and Rowan System for each hour saved progressively.

Q. 5. A factory having the latest sophisticated machines wants to introduce an incentive scheme for its workers, keeping in view the following:

(i) The entire gains of improved production should not go to the workers.

(ii) In the name of speed, quality should not suffer.

(iii) The rate setting department being newly established are liable to commit mistakes.

You are required to devise a suitable incentive scheme and demonstrate by an illustrative numerical example how your scheme answers to all the requirements of the management.

Q. 6. The finishing shop of a company employs 60 direct workers. Each worker is paid ₹ 400 as wages per week of 40 hours. When necessary, overtime is worked up to a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The workers will, if necessary, continue to work overtime up to the specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of wages incentive system. The budgeted weekly output is 19,200 units. The selling price is ₹11 per unit and the direct material cost is ₹ 8 per unit. The variable overheads amount to ₹ 0.50 per direct labour hour and the fixed overhead is ₹ 9,000 per week.

Prepare a statement to show the effect on the company's weekly profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme.

Q. 7. Mr. A. is working by employing 10 skilled workers. He is considering the introduction of some incentive scheme - either Halsey Scheme (with 50% bonus) or Rowan Scheme of wage payment for increasing the Employee productivity to cope with the increased demand for the product by 25%. He feels that if the proposed incentive scheme could bring about an average 20% increase over the present earnings of the workers, it could act as sufficient incentive for them to produce more and he has accordingly given this assurance to the workers.As a result of the assurance, the increase in productivity has been observed as revealed by the following figures for the current month:

Hourly rate of wages (guaranteed)	₹ 40
Average time for producing 1 piece by one worker at the previous performance (This may be taken as time allowed	2 hours
No. of working days in the month	25
No. of working hours per day for each worker	8
Actual production during the month	1,250 units

Required:

(i) Calculate effective rate of earnings per hour under Halsey Scheme and Rowan Scheme.

(ii) Calculate the savings to Mr. A in terms of direct labour cost per piece under the schemes.

Q.8. Wage negotiations are going on with the recognised employees' union, and the management wants you as the as an executive of the company to formulate an incentive scheme with a view to increase productivity.

The case of three typical workers A, B and C who produce respectively 180, 120 and 100 units of the company's product in a normal day of 8 hours is taken up for study.

Assuming that day wages would be guaranteed at ₹ 75 per hour and the piece rate would be based on a standard hourly output of 10 units, calculate the earnings of each of the three workers and the employee cost per 100 pieces under (i) Day wages, (ii) Piece rate, (iii) Halsey scheme, and (iv) The Rowan scheme.

Also calculate under the above schemes the average cost of labour for the company to produce 100 pieces.

Q.9. The existing Incentive system of Alpha Limited is as under:

Normal working week	5 days of 8 hours each plus 3 late shifts of 3 hours each
Rate of Payment	Day work: ₹ 160 per hour Late shift: ₹ 225 per hour
Average output per operator for 49-hours week i.e. including 3 late shifts	120 articles

In order to increase output and eliminate overtime, it was decided to switch on to a system of payment by results. The following information is obtained:

Time-rate (as usual)	:	₹ 160 per hour
Basic time allowed for 15 articles	:	5 hours
Piece-work rate	:	Add 20% to basic piece-rate
Premium Bonus	:	Add 50% to time.

Required:

(i) Prepare a Statement showing hours worked, weekly earnings, number of articles produced and labour cost per article for one operator under the following systems:

(a) Existing time-rate

(b) Straight piece-work

(c) Rowan system

(d) Halsey premium system

Assume that 135 articles are produced in a 40-hour week under straight piece work, Rowan Premium system, and Halsey premium system above and worker earns half the time saved under Halsey premium system.

Q.10. The standard hours of job X is 100 hours. The job has been completed by Amar in 60 hours, Akbar in 70 hours and Anthony in 95 hours.

The bonus system applicable to the job is as follows:-

Percentage of time saved to time allowed (Slab rate)	Bonus
Saving upto 10%	10% of time saved
From 11% to 20%	15% of time saved
From 21% to 40%	20% of time saved
From 41% to 100%	25% of time saved

The rate of pay is ₹ 1 per hour, Calculate the total earnings of each worker and also the rate of earnings per hour.

Q.11. Both direct and indirect employees of a department in a factory are entitled to production bonus in accordance with a group incentive scheme, the outline of which is as follows:

(a) For any production in excess of the standard rate fixed at 16,800 tons per month (of 28 days) a general incentive of ₹ 1,500 per ton is paid in aggregate. The total amount payable to each separate group is determined on the basis of an assumed percentage of such excess production being contributed by it, namely @ 65% by direct employee, @ 15% by inspection staff, @ 12% by maintenance staff and @ 8% by supervisory staff.

(b) Moreover, if the excess production is more than 20% above the standard, direct employees also get a special bonus @ ₹ 500 per ton for all production in excess of 120% of standard.

(c) Inspection staff are penalized @ ₹ 2,000 per ton for rejection by customer in excess of 2% of production.

(d) Maintenance staff are also penalized @ ₹ 2,000 per hour for breakdown.

From the following particulars for a month, compute production bonus earned by each group:

(a) Actual working days : 25

(b) Production : 21,000 tons

(c) Rejection by customer : 500 tons

(d) Machine breakdown : 40 hours

Q.12. A, B and C were engaged on a group task for which a payment of ₹ 72,500 was to be made. A's time basis wages are ₹ 800 per day, B's ₹ 600 per day and C's ₹ 500 per day. A worked for 25 days; B worked for 30 days; and C for 40 days. Calculate the share of bonus to be distributed among the workers and total earnings thereof.

Q.13. An article passes through five hand operations as follows:

Operation No.	Time per article	Grade of worker	Wage rate per hour (₹)
1	15 minutes	A	0.65
2	25 minutes	B	0.50
3	10 minutes	C	0.40
4	30 minutes	D	0.35
5	20 minutes	E	0.30

The factory works 40 hours a week and the production target is 600 dozens per week.

Prepare a statement showing for each operation and in total the number of operators required, the labour cost per dozen and the total labour cost per week to produce the total targeted output.

Q.14. It is seen from the job card for repair of the customer's equipment that a total of 154 labour hours have been put in as detailed below:

	Worker 'A' paid at ₹ 200 per day of 8 Hours	Worker 'B' paid at ₹ 100 per day of 8 hours	Worker 'C' paid at ₹ 300 per day of 8 hours
Monday (hours)	10.5	8.0	10.5
Tuesday (hours)	8.0	8.0	8.0
Wednesday (hours)	10.5	t8.0	10.5
Thursday (hours)	9.5	8.0	9.5
Friday (hours)	10.5	8.0	10.5
Saturday (hours)	--	8.0	8.0
Total (hours)	49.0	48.0	57.0

In terms of an award in an employee conciliation, the workers are to be paid dearness allowance on the basis of cost of living index figures relating to each month which works out @ ₹ 968 for the relevant month. The dearness allowance is payable to all workers irrespective of wages rate if they are present or are on leave with wages on all working days.

Sunday is a weekly holiday and each worker has to work for 8 hours on all week days and 4 hours on Saturdays; the workers are however paid full wages for Saturday (8 hours for 4 hours worked).

Workers are paid overtime according to the Factories Act, 1948. Excluding holidays, the total number of hours works out to 176 in the relevant month. The company's contribution to Provident Fund and Employees State Insurance Premium are absorbed into overheads. Work out the wages payable to each worker.

Q.15. In a factory, the basic wage rate is ₹ 100 per hour and overtime rates are as follows:

Before and after normal working hours	175% of basic wage rate
Sundays and holidays	225% of basic wage rate
During the previous year, the following hours	
were worked	
- Normal time	1,00,000 hours
- Overtime before and after working hours	20,000 hours
Overtime on Sundays and holidays	5,000 hours
Total	1,25,000 hours

The following hours have been worked on job 'Z'

Normal	1,000 hours
Overtime before and after working hrs	100 hours.
Sundays and holidays	25 hours.
Total	1,125 hours

You are required to calculate the labour cost chargeable to job 'Z' and overhead in each of the following instances:

(a) Where overtime is worked regularly throughout the year as a policy due to the workers' shortage.

(b) Where overtime is worked irregularly to meet the requirements of production.

(c) Where overtime is worked at the request of the customer to expedite the job.

Q.16. From the following information, calculate Labour turnover rate and Labour flux rate:

No. of workers as on 01.01.2013 = 7,600

No. of workers as on 31.12.2013 = 8,400

During the year, 80 workers left while 320 workers were discharged 1,500 workers were recruited during the year of these, 300 workers were recruited because of exits and the rest were recruited in accordance with expansion plans.

Q.17. Corrs Consultancy Ltd. is engaged in BPO industry. One of its trainee executives in the Personnel department has calculated labour turnover rate 24.92% for the last year using Flux method.

Following is the some data provided by the Personnel department for the last year:

Employees	At the beginning	Joined	Left	At the end
Data Processors	540	1,080	60	1,560
Payroll Processors	?	20	60	40
Supervisors	?	60	--	?
Voice Agents	?	20	20	?
Assistant Managers	?	20	--	30
Senior Voice				
Agents	4	---	--	12
Processors				
Senior Data	8	--	--	34
Team Leaders	?	--	--	?
Employees transferred from the Subsidiary Company				
Senior Voice				
Agents	--	8	--	--
Senior Data				
Processors	--	26	--	--
Employees transferred to the Subsidiary Company				
Team Leaders	---	--	60	--
Assistant Managers	---	--	10	--

At the beginning of the year there were total 772 employees on the payroll of the company. The opening strength of the Supervisors, Voice Agents and Assistant Managers were in the ratio of 3 : 3 : 2.

The company has decided to abandon the post of Team Leaders and consequently all the Team Leaders were transferred to the subsidiary company.

The company and its subsidiary are maintaining separate set of books of account and separate Personnel Department.

You are required to calculate:

(a) Labour Turnover rate using Replacement method and Separation method.

(b) Verify the Labour turnover rate calculated under Flux method by the trainee executive of the Corrs Consultancy Ltd.

Q.18. The management of B.R Ltd. is worried about their increasing employee turnover in the factory and before analyzing the causes and taking remedial steps, it wants to have an idea of the profit foregone as a result of employee turnover in the last year.

Last year sales amounted to ₹ 83,03,300 and P/V ratio was 20 per cent. The total number of actual hours worked by the direct employee force was 4.45 lakhs. As a result of the delays by the Personnel Department in filling vacancies due to employee turnover, 1,00,000 potentially productive hours were lost. The actual direct employee hours included 30,000 hours attributable to training new recruits, out of which half of the hours were unproductive.

The costs incurred consequent on employee turnover revealed, on analysis, the following:

Settlement cost due to leaving	₹43,820
Recruitment costs	₹ 26,740
Selection costs	₹12,750
Training costs	₹ 30,490

Assuming that the potential production lost as a consequence of employee turnover could have been sold at prevailing prices, find the profit foregone last year on account of employee turnover.

Q.19. In a factory working six days in a week and eight hours each day, a worker is paid at the rate of ₹ 100 per day basic plus D.A. @ 120% of basic. He is allowed to take 30 minutes off during his hours shift for meals-break and a 10 minutes recess for rest. During a week, his card showed that his time was chargeable to :

Job X	15 hrs.
Job Y	12 hrs.
Job Z	13 hrs.

The time not booked was wasted while waiting for a job. In Cost Accounting, how would you allocate the wages of the workers for the week?

Q.20. Following data have been extracted from the books of M/s. ABC Private Limited:

(i)	Salary (each employee, per month)	₹ 30,000
(ii)	Bonus	25% of salary
(iii)	Employer's contribution to PF, ESI etc.	15% of salary
(iv)	Total cost at employees' welfare activities	₹ 6,61,500 per annum
(v)	Total leave permitted during the year	30 days
(v)	No. of employees	175
(vii)	Normal idle time	70 hours per annum
(viii)	Abnormal idle time (due to failure of power supply)	50 hours
(ix)	Working days per annum	310 days of 8 hours

You are required to calculate:

1. Annual cost of each employee
2. Employee cost per hour
3. Cost of abnormal idle time, per employee **[Sugg. Nov '18, 5 Marks]**

HOME WORK SECTION

Q. 1. The Accountant of Y Ltd. has computed employee turnover rates for the quarter ended 31st March, 20X1 as 10%, 5% and 3% respectively under 'Flux method', 'Replacement method' and 'Separation method' respectively. If the number of workers replaced during that quarter is 30, find out the number of workers for the quarter

(i) recruited and joined and

(ii) left and discharged and

(iii) Equivalent employee turnover rates for the year.

Q.2. A job can be executed either through workman A or B. A takes 32 hours to complete the job while B finishes it in 30 hours. The standard time to finish the job is 40 hours. The hourly wage rate is same for both the workers. In addition workman A is entitled to receive bonus according to Halsey plan (50%) sharing while B is paid bonus as per Rowan plan. The works overheads are absorbed on the job at ₹ 7.50 per labour hour worked. The factory cost of the job comes to ₹ 2,600 irrespective of the workman engaged.

INTERPRET the hourly wage rate and cost of raw materials input. Also show cost against each element of cost included in factory cost. **[RTP Nov.'18]**

Q.3. Jyoti Ltd. wants to ascertain the profit lost during the year 2017-18 due to increased labour turnover. For this purpose, it has given you the following information:

(1) Training period of the new recruits is 50,000 hours. During this period their productivity is 60% of the experienced workers. Time required by an experienced worker is 10 hours per unit.

(2) 20% of the output during training period was defective. Cost of rectification of a defective unit was ₹ 25.

(3) Potential productive hours lost due to delay in recruitment were 1,00,000 hours

(4) Selling price per unit is ₹ 180 and P/V ratio is 20%.

(5) Settlement cost of the workers leaving the organization was ₹ 1,83,480.

(6) Recruitment cost was ₹ 1,56,340

(7) Training cost was ₹ 1,13,180

Required:

CALCULATE the profit lost by the company due to increased labour turnover during theyear 2017-18. **[RTP May'18]**

Q.4. M/s Zeba Private Limited allotted a standard time of 40 hours for a job and the rate per hour is ₹ 75. The actual time taken by a worker is 30 hours.

You are required to calculate the total earnings under the following plans:

(i) Halsey Premium Plan (Rate 50%) (ii) Rowan Plan

(iii) Time Wage System (iv) Piece Rate System

[Sugg.May '19, 4 Marks]

Q.5. A worker takes 15 hours to complete a piece of work for which time allowed is 20 hours. His wage rate is ₹ 5 per hour. Following additional informa tion are also available:

Material cost of work	₹ 50
Factory overheads	100% of wages

Calculate the factory cost of work under the following methods of wage payments:

(i) Rowan Plan

(ii) Halsey Plan **[Sugg.May '18, 5 Marks]**

Q.6. 'X' an employee of ABC Co. gets the following emoluments and benefits:

(a)	Basic pay	₹ 10,000 p.m.
(b)	Dearness allowance	₹ 2,000 p.m.
(c)	Bonus	20% of salary and D.A.
(d)	Other allowances	₹ 2,500 p.m.
(e)	Employer's contribution to P.F.	10% of salary and D.A.

'X' works for 2,400 hours per annum, out of which 400 hours are non-productive and treated as normal idle time. You are required to COMPUTE the effective hourly cost of employee 'X'.

Q.7. CALCULATE the earnings of A and B from the following particulars for a month and allocate the employee cost to each job X, Y and Z:

		A	B
(i)	Basic Wages (₹)	10,000	16,000
(ii)	Dearness Allowance	50%	50%
(iii)	Contribution to provident Fund (on basic wages)	8%	8%
(iv)	Contribution to Employee's State Insurance (on basic wages)	2%	2%
(v)	Overtime (Hours)	10	--

The normal working hours for the month are 200. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contribution to state Insurance and Provident Fund are at equal rates with employees' contributions. The two workers were employed on jobs X, Y and Z in the following proportions:

Jobs	X	Y	Z
Worker A	40%	30%	30%
Worker B	50%	20%	30%

Overtime was done on job Y.

Q.8. CALCULATE the earnings of a worker under Halsey System. The relevant data is as below:

Time Rate (per hour)	₹ 60
Time allowed	8 hours
Time taken	6 hours
Time saved	2 hours

Q.9. CALCULATE the earnings of a worker under Rowan System. The relevant data is given as below:

Time rate (per Hour)	₹ 60
Time allowed	8 hours.
Time taken	6 hours.
Time saved	2 hours.

Q.10. A skilled worker in XYZ Ltd. is paid a guaranteed wage rate of ₹ 30 per hour. The standard time per unit for a particular product is 4 hours. Mr. P, a machine man, has been paid wages under the Rowan Incentive Plan and he had earned an effective hourly rate of ₹ 37.50 on the manufacture of that particular product.

STATE what could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)?

Q.11. A worker is paid ₹10,000 per month and a dearness allowance of ₹2,000 p.m. Worker contribution to provident fund is @ 10% and employer also contributes the same amount as the employee. The Employees State Insurance Corporation premium is 6.5% of wages of which 1.75% is paid by the employees. It is the firm's practice to pay 2 months' wages as bonus each year.

The number of working days in a year are 300 of 8 hours each. Out of these the worker is entitled to 15 days leave on full pay. CALCULATE the wage rate per hour for costing purposes.

Q.12. CALCULATE the Employee hour rate of a worker X from the following data:

Basic pay	₹ 10,000 p.m.
D.A.	₹ 3,000 p.m.
Fringe benefits	₹ 1,000 p.m.

Number of working days in a year 300. 20 days are availed off as holidays on full pay in a year. Assume a day of 8 hours.

Q.13. Zico Ltd. has its factory at two locations viz Nasik and Satara. Rowan plan is used at Nasik factory and Halsey plan at Satara factory.

Standard time and basic rate of wages are same for a job which is similar and is carried out on similar machinery. Normal working hours is 8 hours per day in a 5 day week.

Job at Nasik factory is completed in 32 hours while at Satara factory it has taken 30 hours. Conversion costs at Nasik and Satara are ₹ 5,408 and ₹ 4,950 respectively. Overheads account for ₹ 25 per hour.

Required:

(i) To find out the normal wage; and

(ii) To compare the respective conversion costs.

[Sugg.Nov'19, 10 Marks]

CLASS TEST

Q.1. The information regarding number of employees on roll in a shopping mall for the month of December 2017 are given below:

Number of employees as on 01-12-2017	900
Number of employees as on 31-12-2017	1100

During December, 2017, 40 employees resigned and 60 employees were discharged. 300 employees were recruited during the month. Out of these 300 employees, 225 employees were recruited for an expansion project of the mall and rest were recruited due to exit of employees. Assuming 365 days in a year, calculate Employee Turnover Rate and Equivalent Annual' Employee Turnover Rate by applying the following:

(i) Replacement Method

(ii) Separation Method

(iii) Flux Method **[Sugg.May '18, 10 Marks]**

Q.2. Two workers 'A' and 'B' produce the same product using the same material. Their normal wage rate is also the same. 'A' is paid bonus according to Rowan scheme while 'B' is paid bonus according to Halsey scheme. The time allowed to make the product is 120 hours. 'A' takes 90 hours while 'B' takes 100 hours to complete the product. The factory overhead rate is ₹ 50 per hour actually worked. The factory cost of product manufactured by 'A' is ₹ 80,200 and for product manufactured by 'B' is ₹ 79,400.

Required:

(i) COMPUTE the normal rate of wages.

(ii) CALCULATE the material cost.

(iii) PREPARE a statement comparing the factory cost of the product as made by two workers.

[MTP March '18, 5 Marks]

Q.3. PQR Limited has replaced 72 workers during the quarter ended 31st March 2022. The labour rates for the quarter are as follows:

Flux method	16%
Replacement method	8%
Separation method	5%

You are required to ascertain:

(i) Average number of workers on roll (for the quarter),

(ii) Number of workers left and discharged during the quarter,

(iii) Number of workers recruited and joined during the quarter,

(iv) Equivalent employee turnover rates for the year. **[Sugg.May'22, 10 Marks]**

CLASSWORK SECTION

Q. 1. Nirmal Ltd. is a company which undertakes a variety of jobs for its customer.

Budgeted Profit and Loss statement for the year ending 31st March, 2021

	₹	₹
Sales		20,00,000
Cost : Direct Material	2,00,000	
Direct Labour	4,00,000	
Prime Cost	6,00,000	
Fixed Production overheads	4,00,000	
Production Cost	10,00,000	
Selling, distribution and administration cost	2,50,000	12,50,000
Profit		7,50,000

Budgeted Data :	
Machine hours for the year	20,000
Labour hours for the year	25,000
Number of jobs for the year	200

An enquiry has been received and the production department has produced estimates of the prime cost involved and of the hours required to complete job AK-47, which is shown below :

	₹
Direct Material	2,000
Direct Labour	4,000
Prime cost	6,000
Labour hours required	100
Machine hour required	120

You are required to :

(a) Calculate by different methods, six overheads absorption rates ;

(b) Calculate cost estimates for job AK-47 using in turn each of the six overheads absorption rates calculated in (a).

Q. 2. The Alpha Manufacturing Company processes production through two departments (i) Machining. (ii) Finishing. Overhead rates are predetermined on the basis of machine hours in the Machine department and direct labour cost in the Finishing department.

Figures for the year based on which overhead rates were arrived at are furnished below:

	Machine Dept.	Finishing Dept.
Direct labour cost (₹)	36,00,000	40,00,000
Factory overhead (₹)	80,00,000	60,00,000
Direct labour hours	24,00,000	50,00,000
Machine hours	20,00,000	5,00,000

The cost sheet of job order No. 1478 indicates :

	Machine Dept.	Finishing Dept.
Material consumed (₹)	50	77
Direct labour cost (₹)	45	40
Direct labour hours	24	35
Machine hours	15	5

Assume that production order no. 1478 consisted of 10 Nos of part no. 1865. Prepare a cost sheet

showing the unit cost of each part.

Q.3. In a manufacturing unit, factory overhead was recovered at a pre-determined rate of ₹ 25 per man-day. The total factory overhead expenses incurred and the mandays actually worked were ₹ 41.50 lakhs and 1.5 lakh man-days respectively. Out of the 40,000 units produced during a period, 30,000 were sold. On analysing the reasons, it was found that 60% of the unabsorbed overheads were due to defective planning and the rest were attributable to increase in overhead costs.

How would unabsorbed overheads be treated in Cost Accounts ?

Q.4. PLR Ltd. manufacturers a single product and recovers the overheads by adopting a single blanket rate based on machine hour The budgeted production overheads of the factory for the FY 2019-20 are ₹50,40,000 and budgeted machine hours are 6,000.

For a period of first six months of the financial year 2019-20, following information were extracted from the books:

Actual production overheads	₹34,08,000
Amount included in the production overheads:	
Paid as per court's order	₹4,50,000
Expenses of previous year booked in current year	₹1,00,000
Paid to workers for strike period under an award	₹4,20,000
Obsolete stores written off	₹36,000
Production and sales data of the concern for the first six months are as under:	
Production:	
Finished goods	1,10,000 units
Works-in-progress	
(50% complete in every respect)	80,000 units
Sale:	
Finished goods	90,000 units

The actual machine hours worked during the period were 3,000 hour It is revealed from the analysis of information that 40% of the over/under-absorption was due to defective production policies and the balance was attributable to increase in costs.

You are required:

(i) to determine the amount of over/ under absorption of production overheads for the period,

(ii) to show the accounting treatment of over/ under-absorption of production overheads,and

(iii) to apportion the over/ under-absorbed overheads over the items. **[RTP Nov'19]**

Q.5. A light engineering factory fabricates machine parts to customer The factory commenced fabrication of 12 Nos. machine parts to customers' specifications and the expenditure incurred on the job for the week ending 21st August, 20X1 is given below:

	₹	₹
Director materials (all items)		780
Direct labour (manual) 20 hours @ ₹ 15 per hour		300
Machine facilities :		
Machine No. I : 4 hours @ ₹ 45	180.00	
Machine No. II : 6 hours @ ₹ 65	390.00	570.00
Total		1650.00
Overheads @ ₹ 8 per hour on 20 manual hours		160.00
Total cost		1810.00

The overhead rate of ₹ 8 per hour is based on 3,000 man hours per week; similarly, the machine hour

rates are based on the normal working of Machine Nos. I and II for 40 hours out of 45 hours per week. After the close of each week, the factory levies a supplementary rate for the recovery of full overhead expenses on the basis of actual hours worked during the week. During the week ending 21st August, 20X1, the total labour hours worked was 2,400 and Machine Nos. I and II had worked for 30 hours and 32.5 hours respectively.

Prepare a Cost Sheet for the job for the fabrication of 12 Nos. machine parts duly levying the supplementary rates.

Q.6. Job No. 198 was commenced on October 10, 20X1 and completed on November 1, 20X1. Materials used were ₹ 6,000 and labour charged directly to the job was ₹ 4,000. Other information is as follows:

Machine No. 215 used for 40 hours, the machine hour rate being ₹ 35.

Machine No. 160 used for 30 hours, the machine hour rate being ₹ 40. 6 welders worked on the job for five days of 8 hours each : the Direct labour hour per welder is ₹ 20.

Expenses not included for calculating the machine hour or direct labour hour rate total led ₹ 20,000, total direct wages for the period being ₹ 2,00,000. Ascertain the works costs of job No. 198.

Q.7. In the current quarter, a company has undertaken two jobs. The data relating to these jobs are as under:

	Job 1102	Job 1108
Selling price	₹ 1,07,325	₹ 1,57,920
Profit as percentage on cost	8%	12%
Direct Materials	₹ 37,500	₹ 54,000
Direct Wages	₹ 30,000	₹ 42,000

It is the policy of the company to charge Factory overheads as percentage on direct wages and Selling and Administration overheads as percentage on Factory cost.

The company has received a new order for manufacturing of a similar job. The estimate of direct materials and direct wages relating to the new order are ₹ 64,000 and ₹ 50,000 respectively. A profit of 20% on sales is required.

You are required to compute

(i) The rates of Factory overheads and Selling and Administration overheads to be charged.

(ii) The Selling price of the new order

Q.8. Maximum production capacity of JK Ltd. is 5,20,000 units per annum. Details of estimated cost of production are as follows:

- Direct material ₹ 15 per unit.
- Direct wages ₹ 9 per unit (subject to a minimum of ₹ 2,50,000 per month).
- Fixed overheads ₹ 9,60,000 per annum.
- Variable overheads ₹ 8 per unit.
- Semi-variable overheads are ₹ 5,60,000 per annum up to 50 per cent capacity and additional ₹ 1,50,000 per annum for every 25 per cent increase in capacity or a part of it.

JK Ltd. worked at 60 per cent capacity for the first three months during the year 2018-19, but it is expected to work at 90 per cent capacity for the remaining nine months.

The selling price per unit was ₹ 44 during the first three months.

You are required, what selling price per unit should be fixed for the remaining nine months to yield

a total profit of ₹ 15,62,500 for the whole year.

Q.9. Deccan Manufacturing Ltd., have three departments which are regarded as production departments.

Department	Factory overhead	Direct labour hours	No. of employees	Area in sq.m.
Production :				
X	1,93,000	4,000	100	3,000
Y	64,000	3,000	125	1,500
Z	83,000	4,000	85	1,500
Service :				
P	45,000	1,000	10	500
Q	75,000	5,000	50	1,500
R	1,05,000	6,000	40	1,000
S	30,000	3,000	50	1,000

The overhead costs of the four service departments are distributed in the same order, viz., P,Q,R and S respectively on the following basis.

Department	Basis
P	Number of employees
Q	Direct labour hours
R	Area in square metres
S	Direct labour hours

You are required to :

(a) Prepare a schedule showing the distribution of overhead costs of the four service departments to the three production departments; and

(b) Calculate the overhead recovery rate per direct labour hour for each of the three production departments.

Q.10. The ABC Company has the following account balances and distribution of direct charges on 31st March.

	Total	Production Depts		Service Depts.	
		Machine Shop	Packing	Gen. Plants	Store & Maintenance
	(₹)	(₹)	(₹)	(₹)	(₹)
Allocated Overheads :					
Indirect labour	14,650	4,000	3,000	2,000	5,650
Maintenance material	5,020	1,800	700	1,020	1,500
Misc. supplies	1,750	400	1,000	150	200
Superintendent's salary	4,000	--	--	4,000	--
Cost & payroll salary	10,000	--	--	10,000	--
Overheads to be apportioned :					
Power	8,000				
Rent	12,000				
Fuel and heat	6,000				
Insurance	1,000				
Taxes	2,000				
Depreciation	1,00,000				
	1,64,420	6,200	4,700	17,170	7,350

The following data were compiled by means of the factory survey made in the previous year:

	Floor Space (in Sq.ft.)	Radiator Sections	No. of Employees	Investment	H.P hours
Machine Shop	2,000	45	20	6,40,000	3,500
Packing	800	90	10	2,00,000	500
General Plant	400	30	3	10,000	----
Store & Maint.	1,600	60	5	1,50,000	1,000
	4,800	225	38	10,00,000	5,000

Expenses charged to the stores and maintenance departments are to be distributed to the other departments by the following percentages:

Machine shop 50%; Packing 20%; General Plant 30%; General Plant overheads is distributed on the basis of number of employees:

(a) Prepare an overhead distribution statement with supporting schedules to show computations and basis of distribution including distribution of the service department expenses to producing department.

(b) Determine the service department distribution by the method of continued distribution. Carry through 3 cycles. Show all calculations to the nearest rupees.

Q.11. Sanz Ltd., is a manufacturing company having three production departments, 'A', 'B' and 'C' and two service departments 'X' and 'Y'. The following is the budget for December 2020:

	Total (₹)	A (₹)	B (₹)	C (₹)	X (₹)	Y (₹)
Direct material		1,00,000	2,00,000	4,00,000	2,00,000	1,00,000
Direct wages		5,00,000	2,00,000	8,00,000	1,00,000	2,00,000
Factory rent	4,00,000					
Power	2,50,000					
Depreciation	1,00,000					
Other overheads	9,00,000					
Additional information:						
Area (Sq. ft.)		500	250	500	250	500
Capital value of assets (₹ lakhs)		20	40	20	10	10
Machine hours		1,000	2,000	4,000	1,000	1,000
Horse power of machines		50	40	20	15	25

A technical assessment of the apportionment of expenses of service departments is as under:

	A	B	C	X	Y
Service Dept. 'X' (%)	45	15	30	-	10
Service Dept. 'Y' (%)	60	35	-	5	-

Required:

(i) A statement showing distribution of overheads to various departments.

(ii) A statement showing re-distribution of service departments expenses to production departments.

Q.12. E-books is an online book retailer. The Company has four departments. The two sales departments are Corporate Sales and Consumer Sales. The two support – departments are Administrative (Human Resources Accounting) and Information Systems each of the sales departments conducts merchandising and marketing operations independently.

The following data are available for October:

Departments	Revenues	Number of Employees	Processing time used (in minutes)
Corporate Sales	₹ 16,67,750	42	2,400
Consumer Sales	₹ 8,33,875	28	2,000
Administrative	----	14	400
Information system	----	21	1,400

Cost incurred in each of four departments for October are as follows :

Corporate Sales	₹ 12,97,751
Consumer Sales	₹ 6,36,818
Administrative	₹ 94,510
Information systems	₹ 3,04,720

The company uses number of employees as a basis to allocate Administrative costs and processing time as a basis to allocate Information systems costs.

Required:

(i) Allocate the support department costs to the sales departments using the direct method.

(ii) Rank the support departments based on percentage of their services rendered to other support departments. Use this ranking to allocate support costs based on the step-down allocation method.

(iii) How could you have ranked the support departments differently?

(iv) Allocate the support department costs to two sales departments using the reciprocal allocation method.

Q.13. A Ltd., manufactures two products A and B. The manufacturing division consists of two production departments P1 and P2 and two service departments S1 and S2.

Budgeted overhead rates are used in the production departments to absorb factory overheads to the products. The rate of Department P1 is based on direct machine hours, while the rate of Department P2 is based on direct labour hour In applying overheads, the pre-determined rates are multiplied by actual hour.

For allocating the service department costs to production departments, the basis adopted is as follows:

(i) Cost of Department S1 to Department P1 and P2 equally, and

(ii) Cost of Department S2 to Department P1 and P2 in the ratio of 2:1 respectively.The following budgeted and actual data are available:

Annual profit plan data:

Factory overheads budgeted for the year:

Production Departments		Service Departments	
P1	P2	S1	S2
₹ 25, 50,000	₹ 21, 75,000	₹ 6, 00,000	₹ 4, 50,000

Budgeted output in units:
Product A 50,000; B 30,000.
Budgeted raw-material cost per unit:
Product A ₹ 120; Product B ₹ 150.

Budgeted time required for production per unit:
Department P1 : Product A : 1.5 machine hours
Product B : 1.0 machine hour
Department P2 : Product A : 2 Direct labour hours
Product B : 2.5 Direct labour hours
Average wage rates budgeted in Department P2 are:
Product A - ₹ 72 per hour and Product B – ₹ 75 per hour.

You are required to:
(i) Compute the pre-determined overhead rate for each production department.

Q.14. A machine shop has 8 identical Drilling machines manned by 6 operator The machine cannot be worked without an operator wholly engaged on it. The original cost of all these machines works out to ₹ 8 lakhs. These particulars are furnished for a 6 months period :

Normal available hours per month	208
Absenteeism (without pay) hours	18
Leave (with pay) hours	20
Normal idle time unavoidable-hours	10
Average rate of wages per worker for 8 hours a day.	₹ 20
Production bonus estimated	15% on wages
Value of power consumed	₹ 8,050
Supervision and indirect labour	₹ 3,300
Lighting and electricity	₹ 1,200

These particulars are for a year
Repairs and maintenance including consumables 3% of value of machines.
Insurance ₹ 40,000 Depreciation 10% of original cost.
Other sundry works expenses ₹ 12,000
General management expenses allocated ₹ 54,530.
You are required to work out a comprehensive machine hour rate for the machine shop.

Q.15. In a factory, a machine is considered to work for 208 hours in a month. It includes maintenance time of 8 hours and set up time of 20 hour
The expense data relating to the machine are as under:

- Cost of the machine is ₹ 5,00,000. Life 10 years. Estimated scrap value at the end of life is ₹ 20,000.

	(₹)
Repairs and maintenance per annum	60,480
Consumable stores per annum	47,520
Rent of building per annum (The machine under reference occupies 1/6 of the area)	72,000

Supervisor's salary per month (Common to three machines)	6,000
Wages of operator per month per machine	2,500
General lighting charges per month allocated to the machine	1,000
Power 25 units per hour at ₹ 2 per unit	

Power is required for productive purposes only. Set up time, though productive, does not require power. The Supervisor and Operator are permanent. Repairs and maintenance and consumable stores vary with the running of the machine.

Required

Calculate a two-tier machine hour rate for (a) set up time, and (b) running time.

Q.16. A manufacturing unit has purchased and installed a new machine of ₹ 12,70,000 to its fleet of 7 existing machines. The new machine has an estimated life of 12 years and is expected to realise ₹ 70,000 as scrap at the end of its working life. Other relevant data are as follows:

(i) Budgeted working hours are 2,592 based on 8 hours per day for 324 days. This includes 300 hours for plant maintenance and 92 hours for setting up of plant.

(ii) Estimated cost of maintenance of the machine is ₹ 25,000 p.a.

(iii) The machine requires a special chemical solution, which is replaced at the end of each week (6 days in a week) at a cost of ₹ 400 each time.

(iv) Four operators control operation of 8 machines and the average wages per person amounts to ₹ 420 per week plus 15% fringe benefits.

(v) Electricity used by the machine during the production is 16 units per hour at a cost of ₹ 3 per unit. No electricity is consumed during unproductive maintenance and setting up time.

(vi) Departmental and general works overhead allocated to the operation during last year was ₹ 50,000. During the current year it is estimated to increase by 10% of this amount.

Calculate machine hour rate, if (a) setting up time is unproductive; (b) setting up time is productive.

Q.17. A machine costing ₹ 1,00,00,000 is expected to run for 10 years. At the end of this period its scrap value is likely to be ₹ 9,00,000. Repairs during the whole life of the machine are expected to be ₹ 18,00,000 and the machine is expected to run 4,380 hours per year on the average. Its electricity consumption is 15 units per hour, the rate per unit being ₹ 5.

The machine occupies one-fourth of the area of the department and has two points out of a total of ten for lighting. The foreman has to devote about one sixth of his time to the machine. The monthly rent of the department is ₹ 30,000 and the lighting charges amount to ₹ 8,000 per month. The foreman is paid a monthly salary of ₹ 19,200. Find out the machine hour rate, assuming insurance is @ 1% p.a. and the expenses on oil, etc.,are ₹ 900 per month.

Q.18. Gemini Enterprises undertakes three different jobs A, B and C. All of them require the use of a special machine and also the use of a computer. The computer is hired and the hire charges work out to ₹ 4,20,000 per annum. The expenses regarding the machine are estimated as follows:

	₹
Rent for the quarter	17,500
Depreciation per annum	2,00,000
Indirect charges per annum	1,50,000

During the first month of operation the following details were taken from the job register:

Number of hours the machine was used :	Job		
	A	B	C
(a) Without the use of the computer	600	900	----
(b) With the use of the computer	400	600	1,000

You are required to compute the machine hour rate :

(a) For the firm as a whole for the month when the computer was used and when the computer was not used.

(b) For the individual jobs A, B and C.

Q.19. You are given the following information of the three machines of a manufacturing department of X Ltd.:

	Preliminary estimates of expenses (per annum)			
	Total (₹)	Machines		
		A (₹)	B (₹)	C (₹)
Depreciation	20,000	7,500	7,500	5,000
Spare parts	10,000	4,000	4,000	2,000
Power	40,000			
Consumable stores	8,000	3,000	2,500	2,500
Insurance of machinery	8,000			
Indirect labour	20,000			
Building maintenance expenses	20,000			
Annual interest on capital outlay	50,000	20,000	20,000	10,000
Monthly charge for rent and rates	10,000			
Salary of foreman (per month)	20,000			
Salary of Attendant (per month)	5,000			

(The foreman and the attendant control all the three machines and spend equal time on them.)

The following additional information is also available:

	Machines		
	A	B	C
Estimated Direct Labour Hours	1,00,000	1,50,000	1,50,000
Ratio of K.W. Rating	3	2	3
Floor space (sq. ft.)	40,000	40,000	20,000

There are 12 holidays besides Sundays in the year, of which two were on Saturdays. The manufacturing department works 8 hours in a day but Saturdays are half days. All machines work at 90% capacity throughout the year and 2% is reasonable for breakdown.

You are required to :

Calculate predetermined machine hour rates for the above machines after taking into consideration the following factors:

- An increase of 15% in the price of spare parts.
- An increase of 25% in the consumption of spare parts for machine 'B' & 'C' only.
- 20% general increase in wages rates.

Q.20. A machine was purchased from a manufacturer who claimed that his machine could produce 36.5 tonnes in a year consisting of 365 days. Holidays, break-down, etc., were normally allowed in the factory for 65 days. Sales were expected to be 25 tonnes during the year and the plant actually produced 25.2 tonnes during the year. You are required to state the following figures:

(a) Rated Capacity. (b) Practical Capacity.

(c) Normal Capacity. (d) Actual Capacity.

Q.21. From the details furnished below you are required to COMPUTE a comprehensive machine -hour rate:

Original purchase price of the machine (subject to depreciation at 10% per annum on original cost)	₹ 6,48,000
Normal working hours for the month (T he machine works for only 75% of normal capacity)	200 hours
Wages to Machine-man	₹ 400 per day (of 8 hours)
Wages to Helper (machine attendant)	₹ 275 per day (of 8 hours)
Power cost for the month for the time worked	₹ 65,000
Supervision charges apportioned for the machine centre for the month	₹ 18,000
Electricity & Lighting for the month	₹ 9,500
Repairs & maintenance (machine) including Consumable stores per month	₹ 17,500
Insurance of Plant & Building (apportioned) for the year	₹ 18,250
Other general expense per annum	₹ 17,500

The workers are paid a fixed Dearness allowance of ₹ 4,575 per month. Production bonus payable to workers in terms of an award is equal to 33.33% of basic wages and dearness allowance. Add 10% of the basic wage and dearness allowance against leave wages and holidays with pay to arrive at a comprehensive labo ur-wage for debit to production . **[MTP March '19, 10 Marks]**

Q.22. Madhu Ltd. has calculated a predetermined overhead rate of ₹22 per machine hour for its Quality Check (QC) department. T his rate has been calculated for the budgeted level of activity and is considered as appropriate for absorbing overheads. The following overhead expenditures at various activity levels had been estimated.

Total overheads	Number of machine hours
₹3,38,875	14,500
₹3,47,625	15,500
₹3,56,375	16,500

You are required to:

(i) Calculate the variable overhead absorption rate per machine hour.

(ii) Calculate the estimated total fixed overheads.

(iii) CALCULATE the budgeted level of activity in machine hour.

(iv) CALCULATE the amount of under/over absorption of overheads if the actual machine hours were 14,970 and actual overheads were ₹3,22,0 00.

(v) ANALYSE the arguments for and against using departmental absorption rates as opposed to a single or blanket factory wide rate. [MTP April '19, 10 Marks]

Q.23. SE Limited manufactures two products- A and B. The company had budgeted factory overheads amounting to ₹ 36,72,000 and budgeted direct labour hour of 1,80,000 hours. The company uses pre-determined overhead recovery rate for product costing purposes.

The department-wise break-up of the overheads and direct labour hours were as follows:

Particulars	Budgeted overheads	Budgeted direct labour hours	Rate per direct labour hour
Department Pie	₹ 25,92,000	90,000 hours	₹ 28.80
Department Qui	₹ 10,80,000	90,000 hours	₹ 12.00
Total	₹ 36,72,000	1,80,000 hours	

Additional Information:

Each unit of product A requires 4 hours in department Pie and 1 hour in department Qui. Also, each unit of product B requires 1 hour in department Pie and 4 hours in department Qui.

This was the first year of the company's operation. There was no WIP at the end of the year. However, 1,800 and 5,400 units of Products A and B were on hand at the end of the year.

The budgeted activity has been attained by the company. You are required to:

(i) DETERMINE the production and sales quantities of both products 'A' and 'B' for the above year.

(ii) ASCERTAIN the effect of using a pre-determined overhead rate instead of department-wise overhead rates on the company's income due to its effect on stock value.

(iii) CALCULATE the difference in the selling price due to the use of pre-determined overhead rate instead of using department-wise overhead rates. Assume that the direct costs (material and labour costs) per unit of products A and B were ₹ 25 and ₹ 40 respectively and the selling price is fixed by adding 40% over and above these costs to cover profit and selling and administration overhead.

[RTP Nov. 22]

HOME WORK SECTION

Q.1. In a factory, overheads of a particular department are recovered on the basis of ₹ 5 per machine hour. The total expenses incurred and the actual machine hours for the department for the month of August were ₹ 80,000 and 10,000 hours respectively. Of the amount of ₹ 80,000, ₹ 15,000 became payable due to an award of the Labour Court and ₹ 5,000 was in respect of expenses of the previous year booked in the current month (August).

Actual production was 40,000 units, of which 30,000 units were sold. On analysing the reasons, it was found that 60% of the under-absorbed overhead was due to defective planning and the rest was attributed to normal cost increase. How would you treat the under-absorbed overhead in the cost accounts?

Q.2. ABC Ltd. manufactures a single product and absorbs the production overheads at a pre-determined rate of ₹ 10 per machine hour.

At the end of financial year 20X1-X2, it has been found that actual production overheads incurred were ₹ 6,00,000. It included ₹ 45,000 on account of 'written off' obsolete stores and ₹ 30,000 being the wages paid for the strike period under an award.

The production and sales data for the year 20X1-X2 is as under :

Production :

Finished goods	20,000 units
Work-in-progress (50% complete in all respects)	8,000 units

Sales :

Finished goods	18,000 units

The actual machine hours worked during the period were 48,000. It has been found that one-third of the under-absorption of production overheads was due to lack of production planning and the rest was attributable to normal increase in costs.

(i) Calculate the amount of under-absorption of production overheads during the year 20X1-X2; and

(ii) Show the accounting treatment of under-absorption of production overheads.

Q.3. PQR manufacturers – a small scale enterprise, produces a single product and has adopted a policy to recover the production overheads of the factory by adopting a single blanket rate based on machine hou₹ The annual budgeted production overheads for the year 2017-18 are ₹ 44,00,000 and budgeted annual machine hours are 2,20,000.

For a period of first six months of the financial year 2017-18, following information were extracted from the books:

Actual production overheads	₹ 24,88,200
Amount included in the production overheads: Paid as per court's order	₹ 1,28,000
Expenses of previous year booked in current year	₹ 1,200
Paid to workers for strike period under an award	₹ 44,000

Obsolete stores written off	₹ 6,700
Production and sales data of the concern for the first six months are as under:	
Production:	
Finished goods	24,000 units
Works-in-progress	
(50% complete in every respect)	18,000 units
Sale:	
Finished goods	21,600 units

The actual machine hours worked during the period were 1,16,000 hou₹ It is revealed from the analysis of information that ¼ of the under/ over absorption was due to defective production policies and the balance was attributable to increase/decrease in costs.

Required :

i) DETERMINE the amount of under/over absorption of production overheads for the six-month period of 2017-18.

(ii) EXAMINE the accounting treatment of under/ over absorption of production overheads, and

(iii) CALCULATE the apportionment of the under/ over absorbed overheads over the items.

[RTP May'18]

Q.4. The following particulars refer to process used in the treatment of material subsequently, incorporated in a component forming part of an electrical appliance:

(i) The original cost of the machine used (Purchased in June 2008) was ₹ 10,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 1,000, and the estimated working time per year (50 weeks of 44 hours) is 2,200 hours of which machine maintenance etc., is estimated to take up 200 hours.

No other loss of working time expected, setting up time, estimated at 100 hours, is regarded as productive time. (Holiday to be ignored).

(ii) Electricity used by the machine during production is 16 units per hour at cost of a 9 paisa per unit. No current is taken during maintenance or setting up.

(iii) The machine required a chemical solution which is replaced at the end of week at a cost of ₹ 20 each time.

(iv) The estimated cost of maintenance per year is ₹ 1,200.

(v) Two attendants control the operation of machine together with five other identical machines. Their combined weekly wages, insurance and the employer's contribution to holiday pay amount ₹ 120.

(vi) Departmental and general works overhead allocated to this machine for the current year amount to ₹ 2,000.

You are required to CALCULATE the machine hour rate of operating the machine.

[MTP April '18, 5 Marks]

Q.5. XL Ltd., has three production departments and four service departments. The expenses for these departments as per Primary Distribution Summary are as follows:

Production Departments:	(₹)	(₹)
Dept.-A	30,00,000	
Dept.-B	26,00,000	

Dept.-C	24,00,000	80,00,000
Service Departments:	**(₹)**	**(₹)**
Stores	4,00,000	
Time-keeping and Accounts	3,00,000	
Power	1,60,000	
Canteen	1,00,000	9,60,000

The following information is also available in respect of the production departments:

	Dept. A	Dept. B	Dept. C
Horse power of Machine	300	300	200
Number of workers	20	15	15
Value of stores requisition in (₹)	2,50,000	1,50,000	1,00,000

PREPARE a statement apportioning the costs of service departments over the production departments using direct re-distribution method.

Q.6. Suppose the expenses of two production departments A and B and two service departments X and Y are as under:

Department	Amount (₹)	Apportionment Basis		
		Y	A	B
Dept.-X	2,00,000	25%	40%	35%
Dept.-Y	1,50,000	–	40%	60%
Dept.-A	3,00,000			
Dept.-B	3,20,000			

PREPARE a statement apportioning the costs of service departments over the production departments using step method.

Q.7. Service departments' expenses

	(₹)
Boiler house	3,00,000
Pump room	60,000
Total	3,60,000

The allocation basis is:

	Production Department		Service Department	
	A	B	Boiler House	Pump Room
Boiler House	60%	35%	-	5%
Pump Room	10%	40%	50%	-

Q.8. In an engineering company, the factory overheads are recovered on a fixed percentage basis on direct wages and the administrative overheads are absorbed on a fixed percentage basis on factory cost. The company has furnished the following data relating to two jobs undertaken by it in a period:

	Job 101 (₹)	Job 102 (₹)
Direct materials	54,000	37,500
Direct wages	42,000	30,000
Selling price	1,66,650	1,28,250
Profit percentage on Total Cost	10%	20%

Required:

(i) COMPUTATION of percentage recovery rates of factory overheads and administrative overheads.

(ii) CALCULATION of the amount of factory overheads, administrative overheads and profit for

each of the two jobs.

(iii) Using the above recovery rates DETERMINE the selling price of job 103. The additional data being:

Direct materials	₹ 24,000
Direct wages	₹ 20,000
Profit percentage on selling price	12-½%

Q.9. A company which sells four products, some of these are unprofitable. Company proposes to discontinue to sale one of these products. The following information is available regarding income, costs and activity for the year ended 31st March, 2020.

	Products			
	A	B	C	D
Sales (₹)	30,00,000	50,00,000	25,00,000	45,00,000
Cost of goods sold (₹)	20,00,000	45,00,000	21,00,000	22,50,000
Area of storage (Sq.ft.)	50,000	40,000	80,000	30,000
Number of parcels sent	1,00,000	1,50,000	75,000	1,75,000
Number of invoices sent	80,000	1,40,000	60,000	1,20,000

Selling and Distribution overheads and the basis of allocation are:

	Amount (₹)	Basis of allocation to products
Fixed Costs		
Rent & Insurance	3,00,000	Area of storage (Sq.ft.)
Depreciation	1,00,000	No. of Parcels sent
Salesmen's salaries & expenses	6,00,000	Sales Volume
Administrative wages and salaries	5,00,000	No. of invoices sent
Variable Costs:		
Packing wages & materials	₹ 2 per parcel	
Commission	4% of sales	
Stationery	₹ 1 per invoice	

You are required to PREPARE Costing Profit & Loss Statement, showing the percentage of profit or loss to sales for each product.

Q.10. A factory has three production departments. The policy of the factory is to recover the production overheads of the entire factory by adopting a single blanket rate based on the percentage of total factory overheads to total factory wages. The relevant data for a month are given below:

Department	Direct Materials ₹	Direct Wages ₹	Factory Overheads ₹	Direct Labour hours	Machine hours
Budget:					
Machining	6,50,000	80,000	80,000	80,000	80,000
Assembly	1,70,000	3,50,000	1,40,000	1,40,000	10,000
Packing	1,00,000	70,000	1,25,000	1,25,000	-
Actual:					
Machining	7,80,000	96,000	3,90,000	3,90,000	96,000
Assembly	1,36,000	2,70,000	84,000	84,000	11,000
Packing	1,20,000	90,000	1,35,000	1,35,000	-

The details of one of the representative jobs produced during the month are as under:

Job No. CW 7083 :

Department	Direct Materials	Direct Wages ₹	Direct Labour hours ₹	Machine hours
Machining	1,200	240	60	180
Assembly	600	360	120	30
Packing	300	60	40	-

The factory adds 30% on the factory cost to cover administration and selling overheads and profit.

Required:

(i) COMPUTE the overhead absorption rate as per the current policy of the company and determine the selling price of the Job No. CW 7083.

(ii) Suggest any suitable alternative method(s) of absorption of the factory overheads and CALCULATE the overhead recovery rates based on the method(s) so recommended by you.

(iii) DETERMINE the selling price of Job CW 7083 based on the overhead application rates calculated in (ii) above.

(iv) CALCULATE the department-wise and total under or over recovery of overheads based on the company's current policy and the method(s) recommended by you.

Q.11. SNS Trading Company has three Main Departments and two Service Departments. The data for each department is given below:

Departments Main Department:	Expenses (in ₹)	Area in (Sq. Mtr)	Number of Employees
Purchase Department	5,00,000	12	800
Packing Department	8,00,000	15	1700
Distribution Department	3,50,000	7	700
Service Departments:			
Maintenance Department	6,40,000	4	200
Personnel Department	3,20,000	6	250

The cost of Maintenance Department and Personnel Department is distributed on the basis of 'Area in Square Metres' and 'Number of Employees' respectively.

You are required to:

(i) Prepare a Statement showing the distribution of expenses of Service Departments to the Main Departments using the "Step Ladder method" of Overhead Distribution.

(ii) Compute the Rate per hour of each Main Department, given that, the Purchase Department, Packing Department and Distribution Department works for 12 hours a day, 24 hours a day and 8 hours a day respectively. Assume that there are 365 days in a year and there are no holidays. **[Sugg.Jul'21, 5 Marks]**

Q.12. XYZ Ltd. is engaged in the manufacturing of toys. It can produce 4,20,000 toys at its 70% capacity on per annum basis. Company is in the process of determining sales price for the financial year 2020-21. It has provided the following information:

Direct Material ₹ 60 per unit Direct Labour ₹ 30 per unit Indirect Overheads:

Fixed ₹ 65,50,000 per annum

Variable ₹ 15 per unit

Semi-variable :

₹ 5,00,000 per annum up to 60% capacity and ₹ 50,000 for every 5% increase in capacity or part thereof up to 80% capacity and thereafter ₹ 75,000 for every 10% increase in capacity or part thereof.

Company desires to earn a profit of ₹ 25,00,000 for the year. Company has planned that the factory will operate at 50% of capacity for first six months of the year and at 75% of capacity for further three months and for the balance three months, factory will operate at full capacity.

You are required to :

(1) Determine the average selling price at which each of the toy should be sold to earn the desired profit.

(2) Given the above scenario, advise whether company should accept an offer to sell each Toy at:

(a) ₹ 130 per Toy

(b) ₹ 129 per Toy **[Sugg.Jan'21, 10 Marks]**

CLASS TEST

Q.1. ABS Enterprises produces a product and adopts the policy to recover factory overheads applying blanket rate based on machine hour. The cost records of the concern reveal following information

Budgeted production overheads	₹ 10,35,000
Budgeted machine hours	90,000
Actual machine hours worked	45,000
Actual production overheads	₹ 8,80,000
Production overheads (actual) include -Paid to worker as per court's award	₹ 50,000
Wages paid for strike period	₹ 38,000
Stores written off	₹ 22,000
Expenses of previous year booked in current year	₹ 18,500
Production	
Finished goods	30000 units
Sale of finished goods	27000 units

The analysis of cost information reveals that 1/3 of the under absorption of overheads was due to defective production planning and the balance was attributable to increase in costs. You are required:

(i) To find out the amount of under absorbed production overheads.

(ii) To give the ways of treating it in Cost Accounts.

(iii) To apportion the under absorbed overheads over the items.

[Sugg.-Nov'19,10 Marks]

Q.2. M/s. NOP Limited has its own power plant and generates its own power. Information regarding power requirements and power used are as follows:

	Production Dept.		Service Dept	
	A	B	X	Y
(Horse power hours)				
Needed capacity production	20,000	25,000	15,000	10,000
Used during the quarter ended				
September 2018	16,000	20,000	12,000	8,000

During the quarter ended September 2018, costs for generating power amounted to ₹ 12.60 lakhs out of which ₹ 4.20 lakhs was considered as fixed cost.

Service department X renders services to departments A, B, and Y in the ratio of 6:4:2 whereas department Y renders services to department A and B in the ratio of 4: 1.

The direct labour hours of department A and B are 67500 hours and 48750 hours respectively.

Required:

1 Prepare overheads distribution sheet.

2 Calculate factory overhead per labour hour for the dept. A and dept. B.

[Sugg. Nov '18, 5 Marks]

Q.3. V Ltd. manufactures luggage trolleys for airports. The factory, in which the company undertakes all of its production, has two production departments- 'Fabrication' and 'Assembly', and two service departments- 'Stores' and 'Maintenance'.

The following information have been extracted from the company's budget for the financial year ended 31st March, 2019:

Particulars		₹
Allocated Overhead Costs		
Fabrication Department		15,52,000
Assembly Department		7,44,000
Stores Department		2,36,000
Maintenance Department		1,96,000
Other Overheads		
Factory rent		15,28,000
Factory building insurance		1,72,000
Plant & machinery insurance		1,96,000
Plant & Machinery Depreciation		2,65,000
Subsidy for staffs' canteen		4,48,000
Direct Costs	₹	₹
Fabrication Department:		
Material	63,26,000	
Labour	8,62,000	71,88,000
Assembly Department:		
Material	1,42,000	
Labour	13,06,000	14,48,000

The following additional information is also provided:

	Fabrication Department	Assembly Department	Stores Department	Maintenance Department
Floor area (square meters)	24,000	10,000	2,500	3,500
Value of plant & machinery (₹)	16,50,000	7,50,000	75,000	1,75,000
No. of stores requisitions	3,600	1,400	–	–
Maintenance hours required	2,800	2,300	400	–
No. of employees	120	80	38	12
Machine hours	30,00,000	60,000		
Labour hours	70,000	26,00,000		

Required:

(i) PREPARE a table showing the distribution of overhead costs of the two service departments to the two production departments using step method; and

(ii) Calculate the most appropriate overhead recovery rate for each department.

(iii) Using the rates calculated in part (ii) above, CALCULATE the full production costs of the following job order:

Job number IGI2019

Direct Materials	₹ 2,30,400
Direct Labour:	
Fabrication Department	240 hours @ ₹ 50 per hour

Assembly Department	180 hours @ ₹ 50 per hour
Machine hours required:	
Fabrication Department	210 hours
Assembly Department	180 hours

[MTP Oct. '19, 10 Marks]

Q.4. Modern Manufactures Ltd. has three Production Departments P1, P2, P3 and two Service Departments S1and S2 details pertaining to which are as under:

	P1	P2	P3	S1	S2
Direct wages (₹)	3,000	2,000	3,000	1,500	195
Working hours	3,070	4,475	2,419	-	-
Value of machines (₹)	60,000	80,000	1,00,000	5,000	5,000
H.P. of machines	60	30	50	10	-
Light points	10	15	20	10	5
Floor space (sq. ft.)	2,000	2,500	3,000	2,000	500

The following figures extracted from the Accounting records are relevant:

	(₹)
Rent and Rates	5,000
General Lighting	600
Indirect Wages	1,939
Power	1,500
Depreciation on Machines	10,000
Sundries	9,695

The expenses of the service departments are allocated as under:

	P1	P2	P3	S1	S2
S1	20%	30%	40%	-	10%
S2	40%	20%	30%	10%	-

DETERMINE the total cost of product X which is processed for manufacture in Departments P1, P2 and P3 for 4, 5 and 3 hours respectively, given that its Direct Material Cost is ₹ 50 and Direct Labour Cost is ₹ 30.

Q.5. The total overhead expenses of a factory is ₹ 4,46,380. Taking into account the normal working of the factory, overhead was recovered in production at ₹ 1.25 per hour. The actual hours worked were 2,93,104. STATE how would you proceed to close the books of accounts, assuming that besides 7,800 units produced of which 7,000 were sold, there were 200 equivalent units in work-in-progress?

On investigation, it was found that 50% of the unabsorbed overhead was on account of increase in the cost of indirect materials and indirect labour and the remaining 50% was due to factory inefficiency.

CLASSWORK SECTION

Q. 1. Linex Limited manufactures three products P, Q and R which are similar in nature and are usually produced in production runs of 100 units. Product P and R require both machine hours and assembly hours, whereas product Q requires only machine hours. The overheads incurred by the company during the first quarter are as under:

Machine Department expenses	18,48,000
Assembly Department expenses	6,72,000
Setup costs	90,000
Stores receiving cost	1,20,000
Order processing and dispatch	1,80,000
inspection and Quality control cost	36,000

The date related to the three products during the period are as under:

	P	Q	R
Units produced and sold	15,000	12,000	18,000
Machine hours worked	30,000 hrs.	48,000 hrs.	54,000 hrs.
Assembly hours worked			
direct labour hours)	15,000 hrs.	-	27,000 hrs.
Customers orders executed			
(in numbers)	1,250	1,000	1,500
Number of requisitions raised			
on the stores	40	30	50

Required

Prepare a statement showing details of overhead costs allocated to each product type using activity based costing.

Q. 2. G-2020 Ltd. is a manufacturer of a range of goods. The cost structure of its different products is as follows:

Particulars	Product A	Product B	Product C	
Direct Materials	50	40	40	₹/u
Direct Labour @ ₹10/ hour	30	40	50	₹/u
Production Overheads	30	40	50	₹/u
Total Cost	110	120	140	₹/u
Quantity Produced	10,000	20,000	30,000	Units

G-2020 Ltd. was absorbing overheads on the basis of direct labour hours. A newly appointed management accountant has suggested that the company should introduce ABC system and has identified cost drivers and cost pools as follows:

Activity Cost Pool	Cost Driver	Associated Cost
Stores Receiving	Purchase Requisitions	2,96,000
Inspection	Number of Production Runs	8,94,000
Dispatch	Orders Executed	2,10,000
Machine Setup	Number of Setups	12,00,000

The following information is also supplied:

	Product A	Product B	Product C
No. of Setups	360	390	450
No. of Orders Executed	180	270	300
No. of Production Runs	750	1,050	1,200
No. of Purchase Requisitions	300	450	500

Required

Calculate activity based production cost of all the three products.

Q. 3. 'Humara - Apna' bank offers three products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity based costing methods.

The bank wants to know the product wise total cost per unit for the selected activities, so that prices may be fixed accordingly.

The following information is made available to formulate the budget:

Activity	Present Cost (₹)	Estimation for the budget period
ATM Services:		All fixed, no change.
(a) Machine Maintenance	4,00,000	Fully fixed, no change.
(b) Rents	2,00,000	Expected to double during budget period.
(c) Currency Replenishment Cost	1,00,000	(This activity is driven by no. of ATM transactions)
	7,00,000	
Computer Processing	5,00,000	Half this amount is fixed and no change is expected. The variable portion is expected to increase to three times the current level. (This activity is driven by the number of computer transactions)
Issuing Statements	18,00,000	Presently, 3 lac statements are made. In the budget period, 5 lac statements are expected. For every increase of one lac statement, one lac rupees is the budgeted increase. (This activity is driven by the number of statements)
Computer Inquiries	2,00,000	Estimated to increase by 80% during the budget period. (This activity is driven by telephone minutes)

The activity drivers and their budgeted quantifies are given below:

Activity Drivers	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,50,000	-	50,000
No. of Computer Processing			
Transactions	15,00,000	2,00,000	3,00,000
No. of Statements to be issued	3,50,000	50,000	1,00,000
Telephone Minutes	3,60,000	1,80,000	1,80,000

The bank budgets a volume of 58,600 deposit accounts, 13,000 loan accounts, and 14,000 Credit Card Accounts.

Required

(i) Calculate the budgeted rate for each activity.

(ii) Prepare the budgeted cost statement activity wise.

(iii) Find the budgeted product cost per account for each product using (i) and (ii) above.

Q. 4. Asian Mfg. Co. had decided to increase the size of the store. It wants the information about the probability of the individual product lines : Lemon, Grapes and Papaya. It provides the following data for the 2013 for each product line:

Particulars	Lemon	Grapes	Papaya
Revenues (₹)	79,350	2,10,060	1,20,990
Cost of goods sold (₹)	60,000	1,50,000	90,000
Cost of bottles returned (₹)	1,200	0	0
Number of purchase orders placed	36	84	36
Number of deliveries received	30	219	66
Hours of shelf stocking time	54	540	270
Items sold	12,600	1,10,400	30,600

Asian Mfg. Co. also provides the following information for the year 2013:

Activity	Description of Activity	Total Costs (₹)	Cost Allocation Basis
Bottle returns	Returning of empty bottles to the store	1,200	Direct tracing to product line
Ordering Delivery	Placing of orders of purchases Physical delivery and the receipts of merchandise	15,600 25,200	156 purchase orders 315 deliveries
Self stocking	Stocking of merchandise on store shelves and ongoing restocking	17,280	864 hours of time
Customer support	Assistance provided to customers including bagging and checkout	30,720	1,53,600 items sold

Required

(i) Asian Mfg. Co. currently allocates store support costs (all costs other than the cost of goods sold) to the product line on the basis of the cost of goods sold of each product line. Calculate the operating income and operating income as the percentage of revenue of each product line.

(ii) If Asian Mfg. Co. allocates store support costs (all costs other than the cost of goods sold) to the product lines on the basis of ABC system, calculate the operating income and operating income as the percentage of revenue of each product line.

(iii) Compare both the systems.

Q. 5. The following are Product Alpha's data for next year budget:

Activity	Cost Driver	Cost Driver Volume/ Year	Cost Pool (₹)
Purchasing	Purchase orders	1,500	75,000
Setting	Batches produced	2,800	1,12,000
Materials handling	Materials movements	8,000	96,000
Inspection	Batches produced	2,800	70,000
Machining costs	Machine hours	50,000	1,50,000

Purchase orders	25
Output	15,000 units
Production batch size	100 units
Materials movements per batch	6
Machine hours per unit	0.1

Required

(i) Calculate the budgeted overhead costs using activity based costing principles.

(ii) Calculate the budgeted overhead costs using absorption costing (absorb overhead using machine hours).

Q.6. M/s. HMB Limited is producing a product in 10 batches each of 15000 units in a year and incurring following overheads their on:

	Amount (₹)
Material procurement	22,50,000
Maintenance	17,30,000
Set-up	6,84,500
Quality control	5,14,800

The prime costs for the year amounted to ₹ 3,01,39,000. The company is using currently the method of absorbing overheads on the basis of prime cost. Now it wants to shift to activity-based costing. Information relevant to Activity drivers for a year are as under:

Activity Driver	Activity Volume
No. of purchase orders	1500
Maintenance hours	9080
No. of set-ups	2250
No. of inspections	2710

The company has produced a batch of 15000 units and has incurred ₹ 26,38,700 and ₹ 3,75,200 on materials and wages respectively.

The usage of activities of the said batch are as follows:

Materials orders	48 orders
Maintenance hours	810 hours
No. of set-ups	40
No. of inspections	5

You are required to:

(i) find out cost of product per unit on absorption costing basis for the said batch.

(ii) determine cost driver rate, total cost and cost per unit of output of the said batch on the basis of activity based costing. [Sugg. Nov '18, 10 Marks]

Q.7. Woolmark Ltd. manufactures three types of products namely P, Q and R. The data relating to a period are as under:

Particulars	P	Q	R
Machine hours per unit	10	18	14
Direct Labour hours per unit @ Rs. 20	4	12	8
Direct Material per unit (Rs.)	90	80	120
Production (units)	3,000	5,000	20,000

Currently the company uses traditional costing method and absorbs all production overheads on the basis of machine hours.

The machine hour rate of overheads is Rs. 6 per hour. The company proposes to use activity based costing system and the activity analysis is as under:

Particulars	P	Q	R
Batch size (units)	150	500	1,000
Number of purchase orders per batch	3	10	8
Number of inspections per batch	5	4	3

The total production overheads are analysed as under:

Machine set up costs	20%
Machine operation costs	30%
Inspection costs	40%
Material procurement related costs	10%

Required:

(i) Calculate the cost per unit of each product using traditional method of absorbing all production overheads on the basis of machine hours.

(ii) Calculate the cost per unit of each product using activity based costing principles.

[MTP Oct. '18, 10 Marks]

Q.8. Alpha Limited has decided to analyse the profitability of its five new customers. It buys bottled water at ₹ 90 per case and sells to retail customers at a list price of ₹ 108 per case. The data pertaining to five customers are:

	Customers				
	A	B	C	D	E
Cases sold	4,680	19,688	1,36,800	71,550	8,775
Listed Selling Price	₹ 108	₹ 108	₹ 108	₹ 108	₹ 108
Actual Selling Price	₹ 108	₹ 106.20	₹ 99	₹ 104.40	₹ 97.20
Number of Purchase orders	15	25	30	25	30
Number of Customer visits	2	3	6	2	3
Number of deliveries	10	30	60	40	20
Kilometers travelled per delivery	20	6	5	10	30
Number of expedited deliveries	0	0	0	0	1

Its five activities and their cost drivers are:

Activity	Cost Driver Rate
Order taking	₹ 750 per purchase order
Customer visits	₹ 600 per customer visit
Deliveries	₹ 5.75 per delivery Km travelled
Product handling	₹ 3.75 per case sold
Expedited deliveries	₹ 2,250 per expedited delivery

Required:

(i) COMPUTE the customer-level operating income of each of five retail customers now being examined (A, B, C, D and E). Comment on the results.

(ii) STATE what insights are gained by reporting both the list selling price and the actual selling price for each customer?

Q. 9. The profit margin of BABY Hairclips Company were over 20% of sales producing BROWN and BLACK hairclips.

During the last year, GREEN hairclips had been introduced at 10% premium in selling price after the introduction of YELLOW hairclips earlier five years back at 10/3% premium. However, the manager of the company is disheartened with the sales figure for the current financial year as follows:

Traditional Income Statement (in ₹)

	Brown	Black	Yellow	Green	Total
Sales	1,50,00,000	1,20,00,000	27,90,000	3,30,000	3,01,20,000
Material Costs	50,00,000	40,00,000	9,36,000	1,10,000	1,00,46,000
Direct Labour	20,00,000	16,00,000	3,60,000	40,000	40,00,000
Overhead (3 times of direct labour)	60,00,000	48,00,000	10,80,000	1,20,000	1,20,00,000
Total Operating Income	20,00,000	16,00,000	4,14,000	60,000	40,74,000
Return on Sales (in %)	13.3%	13.3%	14.8%	18.2%	13.5%

It is a known fact that customers are ready to pay premium amount for YELLOW and GREEN hairclips for their attractiveness; and the percentage returns are also high on new products.

At present, all of the Plant's indirect expenses are allocated to the products at 3 times of the direct labour expenses. However, the manager is interested in allocating indirect expenses on the basis of activity cost to reveal real earner.

He provides support expenses category-wise as follows:

Support Expenses	(₹)
Indirect Labour	40,00,000
Labour Incentives	32,00,000
Computer Systems	20,00,000
Machinery depreciation	16,00,000
Machine maintenance	8,00,000
Energy for machinery	4,00,000
Total	1,20,00,000

He provides following additional information for accomplishment of his interest: Incentives to be allocated @ 40% of labour expenses (both direct and indirect).

Indirect labours are involved mainly in three activities. About half of indirect labour is involved in handling production runs. Another 40% is required just for the physical changeover from one color hairclip to another because YELLOW hairclips require substantial labour for preparing the machine as compared to other colour hairclips. Remaining 10% of the time is spend for maintaining records of the products in four parts.

Another amount spent on computer system of ₹ 20,00,000 is for maintenance of documents relating to production runs and record keeping of the four products. In aggregate, approx.. 80% of the amount expend is involved in the production run activity and approx.. 20% is used to keep records of the products in four parts.

Other overhead expenses i.e. machinery depreciation, machine maintenance and energy for machinery are incurred to supply machine capacity to produce all the hairclips (practical capability of 20,000 hours).

Activity Cost Drivers:

Particulars	Brown	Black	Yellow	Green	Total
Sales Volume (units)	1,00,000	80,000	18,000	2,000	2,00,000
Selling Price (₹)	150	150	155	165	
Material cost (₹)	50	50	52	55	
Machine hours per unit (Hrs)	0.10	0.10	0.10	0.10	20,000
Production runs	100	100	76	24	300
Setup time per run (Hrs)	4	1	6	4	

You are required to –

(i) CALCULATE operating income and operating income as per percentage of sales using activity-based costing system.

(ii) STATE the reasons for different operating income under traditional income system and activity-based costing system. [RTP Nov. 22]

HOME WORK SECTION

Q.1. MST Limited has collected the following data for its two activities. It calculates activity cost rates based on cost driver capacity.

Activity	Cost Driver	Capacity	Cost
Power	Kilowatt hours	50,000 kilowatt hours	₹ 2,00,000
Quality Inspections	Number of Inspections	10,000 Inspections	₹ 3,00,000

The company makes three products M, S and T. For the year ended March 31, 2020, the following consumption of cost drivers was reported:

Product	Kilowatt hours	Quality Inspections
M	10,000	3,500
S	20,000	2,500
T	15,000	3,000

Required:

(i) COMPUTE the costs allocated to each product from each activity.

(ii) CALCULATE the cost of unused capacity for each activity.

(iii) DISCUSS the factors the management considers in choosing a capacity level to compute the budgeted fixed overhead cost rate.

Q.2. RST Limited specializes in the distribution of pharmaceutical products. It buys from the pharmaceutical companies and resells to each of the three different markets.

(i) General Supermarket Chains

(ii) Drugstore Chains

(iii) Chemist Shops

The following data for the month of April, 2020 in respect of RST Limited has been reported:

	General Supermarket Chains (₹)	Drugstore Chains (₹)	Chemist Shops (₹)
Average revenue per delivery	84,975	28,875	5,445
Average cost of goods sold per delivery	82,500	27,500	4,950
Number of deliveries	330	825	2,750

In the past, RST Limited has used gross margin percentage to evaluate the relative profitability of its distribution channels.

The company plans to use activity –based costing for analysing the profitability of its distribution channels.

The Activity analysis of RST Limited is as under:

Activity Area	Cost Driver
Customer purchase order processing	Purchase orders by customers
Line-item ordering	Line-items per purchase order
Store delivery	Store deliveries
Cartons dispatched to stores	Cartons dispatched to a store per delivery
Shelf-stocking at customer store	Hours of shelf-stocking

The April, 2020 operating costs (other than cost of goods sold) of RST Limited are ₹ 8,27,970. These operating costs are assigned to five activity areas. The cost in each area and the quantity of the cost allocation basis used in that area for April, 2020 are as follows:

Activity Area	Total costs in April, 2020 (₹)	Total Units of Cost Allocation Base used in April, 2020
Customer purchase order processing	2,20,000	5,500 orders
Line-item ordering	1,75,560	58,520 line items
Store delivery	1,95,250	3,905 store deliveries
Cartons dispatched to store	2,09,000	2,09,000 cartons
Shelf-stocking at customer store	28,160	1,760 hours

Other data for April, 2020 include the following:

	General Supermarket Chains	Drugstore Chains	Chemist Shops
Total number of orders	385	990	4,125
Average number of line items per order	14	12	10
Total number of store deliveries	330	825	2,750
Average number of cartons shipped per store delivery	300	80	16
Average number of hours of shelf-stocking per store delivery	3	0.6	0.1

Required:

(i) COMPUTE for April, 2020 gross-margin percentage for each of its three distribution channels and compute RST Limited's operating income.

(ii) COMPUTE the April, 2020 rate per unit of the cost-allocation base for each of the five activity areas.

(iii) COMPUTE the operating income of each distribution channel in April, 2020 using the activity-based costing information. Comment on the results. What new insights are available with the activity-based cost information?

(iv) DESCRIBE four challenges one would face in assigning the total April, 2020 operating costs of ₹ 8,27,970 to five activity areas.

Q.3. BABYSOFT is a global brand created by Bio-organic Ltd. The company manufactures three ranges of beauty soaps i.e. BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond. The budgeted costs and production for the month of December, 2020 are as follows:

	BABYSOFT- Gold		BABYSOFT- Pearl		BABYSOFT- Diamond	
Production of soaps (Units)	4,000		3,000		2,000	
Resources per Unit:	Qty	Rate	Qty	Rate	Qty	Rate
Essential Oils	60 ml	₹200 / 100 ml	55 ml	₹300 / 100 ml	65 ml	₹ 300 / 100 ml
- Cocoa Butter	20 g	₹ 200 / 100 g	20 g	₹ 200 / 100 g	20 g	₹ 200 / 100 g
Filtered Water	30 ml	₹ 15 / 100 ml	30 ml	₹ 15 / 100 ml	30 ml	₹ 15 / 100 ml

Chemicals	10 g	₹ 30 / 100 g	12 g	₹ 50 / 100 g	15 g	₹ 60 / 100 g
Direct Labour	30 minutes	₹ 10 / hour	40 minutes	₹ 10 / hour	60 minutes	₹ 10 / hour

Bio-organic Ltd. followed an Absorption Costing System and absorbed its production overheads, to its products using direct labour hour rate, which were budgeted at ₹ 1,98,000.

Now, Bio-organic Ltd. is considering adopting an Activity Based Costing system. For this, additional information regarding budgeted overheads and their cost drivers is provided below:

Particulars	(₹)	Cost drivers
Forklifting cost	58,000	Weight of material lifted
Supervising cost	60,000	Direct labour hours
Utilities	80,000	Number of Machine operations

The number of machine operators per unit of production are 5, 5, and 6 for BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond respectively.

(Consider (i) Mass of 1 litre of Essential Oils and Filtered Water equivalent to 0.8 kg and 1 kg respectively (ii) Mass of output produced is equivalent to the mass of input materials taken together.)

You are requested to:

(i) PREPARE a statement showing the unit costs and total costs of each product using the absorption costing method.

(ii) PREPARE a statement showing the product costs of each product using the ABC approach.

(iii) STATE what are the reasons for the different product costs under the two approaches?

Q.4. Family Store wants information about the profitability of individual product lines: Soft drinks, Fresh produce and Packaged food. Family store provides the following data for the year 2019-20 for each product line:

	Soft drinks	Fresh produce	Packaged food
Revenues	₹ 39,67,500	₹ 1,05,03,000	₹ 60,49,500
Cost of goods sold	₹ 30,00,000	₹ 75,00,000	₹ 45,00,000
Cost of bottles returned	₹ 60,000	₹ 0	₹ 0
Number of purchase orders placed	360	840	360
Number of deliveries received	300	2,190	660
Hours of shelf-stocking time	540	5,400	2,700
Items sold	1,26,000	11,04,000	3,06,000

Family store also provides the following information for the year 2019-20:

Activity	Description of activity	Total Cost	Cost-allocation base
Bottles returns	Returning of empty bottles	₹ 60,000	Direct tracing to soft drink line
Ordering	Placing of orders for purchases	₹ 7,80,000	1,560 purchase orders
Delivery	Physical delivery and receipt of goods	₹ 12,60,000	3,150 deliveries
Shelf stocking	Stocking of goods on store shelves and on-going restocking	₹ 8,64,000	8,640 hours of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	₹ 15,36,000	15,36,000 items sold

Required:

(i) Family store currently allocates support cost (all cost other than cost of goods sold) to product lines on the basis of cost of goods sold of each product line. CALCULATE the operating income and operating income as a % of revenues for each product line.

(ii) If Family Store allocates support costs (all costs other than cost of goods sold) to product lines using and activity-based costing system, CALCULATE the operating income and operating income as a % of revenues for each product line.

Q.5. PQR Ltd. is engaged in the production of three products P, Q and R. The company calculates Activity Cost Rates on the basis of Cost Driver capacity which is provided as below:

Activity	Cost Driver	Cost Driver Capacity	Cost (₹)
Direct Labour hours	Labour hours	30,000 Labour hours	3,00,000
Production runs	No. of Production runs	600 Production runs	1,80,000
Quality Inspections	No. of Inspection	8000 Inspections	2,40,000

The consumption of activities during the period is as under:

Activity / Products	P	Q	R
Direct Labour hours	10,000	8,000	6,000
Production runs	200	180	160
Quality Inspection	3,000	2,500	1,500

You are required to:

(i) Compute the costs allocated to each Product from each Activity.

(ii) Calculate the cost of unused capacity for each Activity.

(iii) A potential customer has approached the company for supply of 12,000 units of a new product. 'S' to be delivered in lots of 1500 units per quarter. This will involve an initial design cost of ₹ 30,000 and per quarter production will involve the following:

Direct Material	₹ 18,000
Direct Labour hours	1,500 hours
No. of Production runs	15
No. of Quality Inspection	250

Prepare cost sheet segregating Direct and Indirect costs and compute the Sales value per quarter of product 'S' using ABC system considering a markup of 20% on cost. [Sugg.Jul'21, 5 Marks]

CLASS TEST

Q.1. SMP Pvt. Ltd. manufactures three products using three different machines. At present the overheads are charged to products using labour hours. The following statement for the month of September 2019, using the absorption costing method has been prepared:

Particulars	Product X (using machine A)	Product Y (using machine B)	Product Z (using machine C)
Production units	45,000	52,500	30,000
Material cost per unit (₹)	350	460	410
Wages per unit @ '80 perhour	240	400	560
Overhead cost per unit (₹)	240	400	560
Total cost per unit (₹)	830	1,260	1,530
Selling price (₹)	1,037.50	1,575	1,912.50

The following additional information is available relating to overhead cost drivers.

Cost driver	Product X	Product Y	Product Z	Total
No. of machine set-ups	40	160	400	600
No. of purchase orders	400	400	1,200	2,400
No. of customers	1,000	2,200	4,800	8,000

Actual production and budgeted production for the month is same. Workers are paid at standard rate. Out of total overhead costs, 30% related to machine set-ups, 30% related to customer order processing and customer complaint management, while the balance proportion related to material ordering.

Required:

(i) COMPUTE overhead cost per unit using activity based costing method.

(ii) DETERMINE the selling price of each product based on activity-based costing withthe same profit mark-up on cost. [RTP Nov'19]

FORMAT

Particulars	Total Cost (₹)	
Raw Materials Consumed		
Opening Stock of Raw Materials	xx	
+ Purchase of Raw Materials	xx	
- Scrap of Raw Materials	(xx)	
+ Carriage Inwards (Any expenses on purchase)	xx	
Less : Closing Stock of Raw Materials	(xx)	
Less : Purchase Return	(xx)	xx
Direct employee (labour) cost		xx
Direct expenses		xx
Prime Cost		xx
Works/ Factory Overheads		xx
Gross Works Cost		x
Add: Opening Work in Process		xx
Less: Closing Work in Process		(xx)
Works/ Factory Cost		xx
Quality Control Cost		xx
Research and Development Cost		xx
Administrative Overheads (relating to production activity)		xx
Less: Credit for Recoveries/Scrap/By-Products/ miscellaneous income		(xx)
Add: Packing cost (primary)		xx
Cost of Production		xx
Add: Opening stock of finished goods		xx
Less: Closing stock of finished goods		(xx)
Cost of Goods Sold		xx
Add: Administrative Overheads (General)		xx
Add: Marketing Overheads		
- Selling Overheads		xx
- Distribution Overheads		xx
Cost of Sales		xx
Profit		xx
Sales		xx

CLASSWORK SECTION

Q.1. From the following data of Arnav Metallic Ltd., Calculate Cost of production:

		Amount (₹)
(i)	Repair & maintenance paid for plant & machinery	9,80,500
(ii)	Insurance premium paid for plant & machinery	96,000
(iii)	Raw materials purchased	64,00,000
(iv)	Opening stock of raw materials	2,88,000
(v)	Closing stock of raw materials	4,46,000
(vi)	Wages paid	23,20,000
(vii)	Value of opening Work-in-process	4,06,000
(viii)	Value of closing Work-in-process	6,02,100
(ix)	Quality control cost for the products in manufacturing process	86,000
(x)	Research & development cost for improvement in production process	92,600
(xi)	Administrative cost for: - Factory & production - Others	 9,00,000 11,60,000
(xii)	Amount realised by selling scrap generated during the manufacturing process	9,200
(xiii)	Packing cost necessary to preserve the goods for further processing	10,200
(xiv)	Salary paid to Director (Technical)	8,90,000

[RTP-May'2020]

Q.2. Following information relate to a manufacturing concern for the year ended 31st March, 2019:

	(₹)
Raw Material (opening)	2,28,000
Raw Material (closing)	3,05,000
Purchases of Raw Material	42,25,000
Freight Inwards	1,00,000
Direct wages paid	12,56,000
Direct wages-outstanding at the end of the year	1,50,000
Factory Overheads	20% of prime cost
Work-in-progress (opening)	1,92,500
Work-in-progress (closing)	1,40,700
Administrative Overheads (related to production)	1,73,000
Distribution Expenses	₹16 per unit
Finished Stock (opening)- 1,217 Units	6,08,500
Sale of scrap of material	8,000

The firm produced 14,000 units of output during the year. The stock of finished goods at the end of the year is valued at cost of production. The firm sold 14,153 units at a price of ₹618 per unit during the year. PREPARE cost sheet of the firm. [RTP May '19]

Q.3. The following information has been obtained from the records of ABC Corporation for the period from June 1 to June 30, 2020.

	On June 1, 2020 (₹)	On June 30, 2020 (₹)
Cost of raw materials	60,000	50,000
Cost of work-in-process	12,000	15,000
Cost of stock of finished goods	90,000	1,10,000
Purchase of raw materials during June 2020		4,80,000
Wages paid		2,40,000
Factory overheads		1,00,000
Administration overheads (related to production)		50,000
Selling & distribution overheads		25,000
Sales		10,00,000

PREPARE a statement giving the following information:

(a) Raw materials consumed;

(b) Prime cost;

(c) Factory cost;

(d) Cost of goods sold; and

(e) Net profit.

Q.4. Arnav Inspat Udyog Ltd. has the following expenditures for the year ended 31st March, 2020:

	Amount (₹)	Amount (₹)
Raw materials purchased		10,00,00,000
GST paid on the above purchases @18% (eligible for input tax credit)		1,80,00,000
Freight inward		11,20,600
Wages paid to factory workers		29,20,000
Contribution made towards employees' PF & ESIS		3,60,000
Production bonus paid to factory workers		2,90,000
Royalty paid for production		1,72,600
Amount paid for power & fuel		4,62,000
Amount paid for purchase of moulds and patterns (life is equivalent to two years production)		8,96,000
Job charges paid to job workers		8,12,000
Stores and spares consumed		1,12,000
Depreciation on:		
- Factory building	84,000	
- Office building	56,000	
- Plant & Machinery	1,26,000	
- Delivery vehicles	86,000	3,52,000
Salary paid to supervisors		1,26,000
Repairs & Maintenance paid for:		
- Plant & Machinery	48,000	
- Sales office building	18,000	
- Vehicles used by directors	19,600	85,600

Insurance premium paid for:		
- Plant & Machinery	31,200	
- Factory building	18,100	
- Stock of raw materials & WIP	36,000	85,300
Expenses paid for quality control check activities		19,600
Salary paid to quality control staffs		96,200
Research & development cost paid improvement in production process		18,200
Expenses paid for pollution control and engineering & maintenance		26,600
Expenses paid for administration of factory work		1,18,600
Salary paid to functional mangers:		
- Production control	9,60,000	
- Finance & Accounts	9,18,000	
- Sales & Marketing	10,12,000	28,90,000
Salary paid to General Manager		12,56,000
Packing cost paid for:		
- Primary packing necessary to maintain quality	96,000	
- For re-distribution of finished goods	1,12,000	2,08,000
Interest and finance charges paid		7,20,000
Fee paid to auditors		1,80,000
Fee paid to legal advisors		1,20,000
Fee paid to independent directors		2,20,000
Performance bonus paid to sales staffs		1,80,000
Value of stock as on 1st April, 20X7:		
- Raw materials	18,00,000	
- Work-in-process	9,20,000	
- Finished goods	11,00,000	38,20,000
Value of stock as on 31st March, 20X8:		
- Raw materials	9,60,000	
- Work-in-process	8,70,000	
- Finished goods	18,00,000	36,30,000

Amount realized by selling of scrap and waste generated during manufacturing process – ₹ 86,000/-
From the above data you are required to PREPARE Statement of cost for Arnav Ispat Udyog Ltd. for the year ended 31st March, 2020, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of goods sold and (v) Cost of sales.

Q.5. The books of Adarsh Manufacturing Company present the following data for the month of April, 2020:
Direct labour cost ₹ 17,500 being 175% of works overheads. Cost of goods sold excluding administrative expenses ₹ 56,000.
Inventory accounts showed the following opening and closing balances:

	April 1 (₹)	April 30 (₹)
Raw materials	8,000	10,600
Work-in-progress	10,500	14,500
Finished goods	17,600	19,000

Other data are:

	(₹)
Selling expenses	3,500
General and administration expenses	2,500
Sales for the month	75,000

You are required to:

(i) FIND out the value of materials purchased.

(ii) PREPARE a cost statement showing the various elements of cost and also the profit earned.

Q.6. From the following particulars, you are required to PREPARE monthly cost sheet of Aditya Industries:

	Amount (₹)
Opening Inventories:	
- Raw materials	12,00,000
- Work-in-process	18,00,000
- Finished goods (10,000 units)	9,60,000
Closing Inventories:	
- Raw materials	14,00,000
- Work-in-process	16,04,000
- Finished goods	?
Raw materials purchased	1,44,00,000
GST paid on raw materials purchased (ITC available)	7,20,000
Wages paid to production workers	36,64,000
Expenses paid for utilities	1,45,600
Office and administration expenses paid	26,52,000
Travelling allowance paid to office staffs	1,21,000
Selling expenses	6,46,000

Machine hours worked- 21,600 hours

Machine hour rate- ₹ 8.00 per hour

Units sold- 1,60,000

Units produced- 1,94,000

Desired profit- 15% on sales

Q.7. A Ltd. Co. has capacity to produce 1,00,000 units of a product every month. Its works cost at varying levels of production is as under:

Level	Works cost per unit (₹)
10%	400
20%	390
30%	380
40%	370
50%	360
60%	350
70%	340
80%	330
90%	320
100%	310

Its fixed administration expenses amount to ₹1,50,000 and fixed marketing expenses amount to ₹2,50,000 per month respectively. The variable distribution cost amounts to ₹ 30 per unit.

It can sell 100% of its output at ₹500 per unit provided it incurs the following further expenditure:

(a) it gives gift items costing ₹ 30 per unit of sale;

(b) it has lucky draws every month giving the first prize of ₹ 50,000; 2nd prize of ₹ 25,000, 3rd prize of ₹ 10,000 and three consolation prizes of ₹ 5,000 each to customers buying the product.

(c) it spends ₹1,00,000 on refreshments served every month to its customers;

(d) it sponsors a television programme every week at a cost of ₹ 20,00,000 per month.

It can market 30% of its output at ₹550 per unit without incurring any of the expenses referred to in (a) to (d) above.

PREPARE a cost sheet for the month showing total cost and profit at 30% and 100% capacity level.

Q. 8. X Ltd. manufactures two types of pens 'Super Pen' and 'Normal Pen'.

The cost data for the year ended 30th September, 2019 is as follows:

	(₹)
Direct Materials	8,00,000
Direct Wages	4,48,000
Production Overhead	1,92,000
Total	14,40,000

It is further ascertained that :

(1) Direct materials cost in Super Pen was twice as much of direct material in Normal Pen.

(2) Direct wages for Normal Pen were 60% of those for Super Pen.

(3) Production overhead per unit was at same rate for both the types.

(4) Administration overhead was 200% of direct labour for each.

(5) Selling cost was ₹ 1 per Super pen.

(6) Production and sales during the year were as follow :

Production		Sales	
	No. of units		No. of units
Super Pen	40,000	Super Pen	36,000
Normal Pen	1,20,000		

(7) Selling price was ₹ 30 per unit for Super Pen.

Prepare a Cost Sheet for 'Super Pen' showing:

(i) Cost per unit and Total Cost

(ii) Profit per unit and Total Profit [Sugg.Nov'20, 10 Marks]

HOME WORK SECTION

Q.1. DFG Ltd. manufactures leather bags for office and school purpose. The following information is related with the production of leather bags for the month of September 2019.

(i) Leather sheets and cotton cloths are the main inputs, and the estimated requirementper bag is two meters of leather sheets and one meter of cotton cloth. 2,000 meter of leather sheets and 1,000 meter of cotton cloths are purchased at ₹3,20,000 and ₹15,000 respectively. Freight paid on purchases is ₹8,500.

(ii) Stitching and finishing need 2,000 man hours at ₹80 per hour.

(iii) Other direct cost of ₹10 per labour hour is incurred.

(iv) DFG has 4 machines at a total cost of ₹22,00,000. Machine has a life of 10 years with a scrape value of 10% of the original cost. Depreciation is charged on straight line method.

(v) The monthly cost of administrative and sales office staffs are ₹45,000 and ₹72,000 respectively. DFG pays ₹1,20,000 per month as rent for a 2400 sq.feet factory premises. The administrative and sales office occupies 240 sq. feet and 200 sq. feet respectively of factory space.

(vi) Freight paid on delivery of finished bags is ₹18,000.

(vii) During the month 35 kg. of leather and cotton cuttings are sold at ₹150 per kg.

(viii) There is no opening and closing stocks for input materials. There is 100 bags in stock at the end of the month.

Required:

PREPARE a cost sheet following functional classification for the month of September 2019. [RTP Nov'19]

Q.2. M/s Areeba Private Limited has a normal production capacity of 36,000 units of toys per annum. The estimated costs of production are as under:

(i) Direct Material ₹ 40 per unit

(ii) Direct Labour ₹ 30 per unit (subject to a minimum of ₹ 48,000 p.m.)

(iii) Factory Overheads:

(a) Fixed ₹ 3,60,000 per annum

(b) Variable ₹ 10 per unit

(c) Semi-variable ₹ 1,08,000 per annum up to 50% capacity and additional ₹ 46,800 for every 20% increase in capacity or any part there of.

(iv) Administrative Overheads ₹ 5,18,400 per annum (fixed)

(v) Selling overheads are incurred at ₹ 8 per unit.

(vi) Each unit of raw material yields scrap which is sold at the rate of ₹ 5 per unit.

(vii) In year 2019, the factory worked at 50% capacity for the first three months but it was expected that it would work at 80% capacity for the remaining nine months.

(viii) During the first three months, the selling price per unit was ₹ 145.

You are required to :

(i) Prepare a cost sheet showing Prime Cost, Works Cost, Cost of Production and Cost of Sales.

(ii) Calculate the selling price per unit for remaining nine months to achieve the total annual profit of ₹ 8,76,600. [Sugg.May '19, 10 Marks]

Q.3. Following details are provided by M/s ZIA Private Limited for the quarter ending 30 September, 2018:

(i)	Direct expenses	₹ 1,80,000
(ii)	Direct wages being 175% of factory overheads	₹ 2,57,250
(iii)	Cost of goods sold	₹ 18,75,000
(iv)	Selling & distribution overheads	₹ 60,000
(v)	Sales	₹ 22,10,000
(vi)	Administration overheads are 10% of factory overheads	

Stock details as per Stock Register:

Particulars	30.06.2018	30.09.2018
	₹	₹
Raw material	2,45,600	2,08,000
Work-in-progress	1,70,800	1,90,000
Finished goods	3,10,000	2,75,000

You are required to prepare a cost sheet showing:

(i) Raw material consumed

(ii) Prime cost

(iii) Factory cost

(iv) Cost of goods sold

(v) Cost of sales and profit [Sugg. Nov '18, 10 Marks]

Q.4. CT Limited is engaged in producing medical equipment. It has furnished following details related to its products produced during a month:

	Units	Amount (₹)
Raw materials		
Opening stock	1,000	90,00,000
Purchases	49,000	44,10,00,000
Closing stock	1,750	1,57,50,000
Works-in-progress		
Opening	2,000	1,75,50,000
Closing	1,000	94,50,000
Direct employees' wages, allowances etc.		6,88,50,000
Primary packaging cost (per unit)		1,440
R&D expenses & Quality control expenses		2,10,60,000
Consumable stores, depreciation on plant		3,42,00,000
Administrative overheads related to production		3,15,00,000
Selling expenses		4,84,30,800
Royalty paid for production		3,64,50,000
Cost of web-site (for online sale) maintenance		60,75,000
Secondary packaging cost (per unit)		225

There was a normal scrap of 250 units of direct material which realized ₹ 5,400 per unit. The entire finished product was sold at a profit margin of 20% on sales.

You are required to PREPARE a cost sheet showing:

(i) Prime cost (ii) Gross works cost

(iii) Factory costs (iv) Cost of production

(v) Profit (vi) Sales [RTP Nov. 22]

Q. 5. The following data are available from the books and records of Q Ltd. for the month of April 2020:

Direct Labour Cost = ₹ 1,20,000 (120% of Factory Overheads)

Cost of Sales = ₹ 4,00,000

Sales = ₹ 5,00,000

Accounts show the following figures:

	1st April, 2020 (₹)	30th April, 2020 (₹)
Inventory:		
Raw material	20,000	25,000
Work-in-progress	20,000	30,000
Finished goods	50,000	60,000
Other details:		
Selling expenses		22,000
General & Admin. expenses		18,000

You are required to prepare a cost sheet for the month of April 2020 showing:

(i) Prime Cost (ii) Works Cost

(iii) Cost of Production (iv) Cost of Goods sold

(v) Cost of Sales and Profit earned. [Sugg.Jan'21, 10 Marks]

CLASS TEST

Q.1. XYZ a manufacturing firm, has revealed following information for September, 2019:

	1st September	30th September
Raw Materials	2,42,000	2,92,000
Works-inrprogress	2,00,000	5,00,000

The firm incurred following expenses for a targeted production of 1,00,000 units during the month :

Consumable Stores and spares of factory	3,50,000
Research and development cost for process improvements	2,50,000
Quality control cost	2,00,000
Packing cost (secondary) per unit of goods sold	2
Lease rent of production asset	2,00,000
Administrative Expenses (General)	2,24,000
Selling and distribution Expenses	4,13,000
Finished goods (opening)	Nil
Finished goods (closing)	5000 units

Defective output which is 4% of targeted production, realizes ₹ 61per unit.

Closing stock is valued at cost of production (excluding administrative expenses)

Cost of goods sold, excluding administrative expenses amounts to ₹ 78,26,000.

Direct employees cost is half of the cost of material consumed. Selling price of the output is ₹110 per unit. You are required to :

(i) Calculate the Value of material purchased

(ii) Prepare cost sheet showing the profit earned by the firm. [Sugg.-Nov'19, 10 Marks]

Q.2. Following information relate to a manufacturing concern for the year ended 31st March, 2018:

	₹
Raw Material (opening)	2,28,000
Raw Material (closing)	3,05,000
Purchases of Raw Material	42,25,000
Freight Inwards	1,00,000
Direct wages paid	12,56,000
Direct wages-outstanding at the end of the year	1,50,000
Factory Overheads	20% of prime cost
Work-in-progress (opening)	1,92,500
Wo9rk-in-progres (closing)	1,40,700
Administrative Overheads (related to production)	1,73,000
Distribution Expenses	₹ 16 per unit
Finished Stock (opening)-1217 Units	6,08,500
Sale of scrap of material	8,000

The firm produced 14000 units of output during the year. The stock of finished goods at the end of the year is valued at cost of production. The firm sold 14153 units at a price of ₹ 618 per unit during the year. Prepare cost sheet of the firm.

[Sugg.May '18, 10 Marks]

CLASSWORK SECTION

Q.1. On 31st March the following balances were extracted from the books of the Supreme Manufacturing Company:

	Dr. (₹)	Cr. (₹)
Stores Ledger Control A/c	35,000	
Work-in-Process Control A/c	38,000	
Finished Goods Control A/c	25,000	
Cost Ledger Control A/c		98,000
	98,000	98,000

The following transactions took place in April :

	(₹)
Raw Materials:	
- Purchased	95,000
- Returned to suppliers	3,000
- Issued to production	98,000
- Returned to stores	3,000
Productive wages	40,000
Indirect wages	25,000
Factory overhead expenses incurred	50,000
Selling and Administrative expenses	40,000
Cost of finished goods transferred to warehouse	2,13,000
Cost of Goods sold	2,10,000
Sales	3,00,000

Factory overheads are applied to production at 150% of direct wages, any under/over absorbed overhead being carried forward for adjustment in the subsequent months. All administrative and selling expenses are treated as period costs and charged off to the Profit and Loss Account of the month in which they are incurred.

Show the following Accounts:

(a) Cost Ledger Control A/c
(b) Stores Ledger Control A/c
(c) Work-in-Process Control A/c
(d) Finished Goods Stock Control A/c
(e) Factory Overhead Control A/c
(f) Costing Profit and Loss A/c
(g) Trial Balance as at 30th April, 20X3.

Q. 2. Acme Manufacturing Co. Ltd. opens the costing records, with the balances as on 1st July, 20X2 as follows:

	(₹)	(₹)
Material Control A/c	1,24,000	
Work-in-Process Control A/c	62,500	
Finished Goods Control A/c	1,24,000	
Production Overhead Control A/c	8,400	
Administrative Overhead Control A/c		12,000
Selling & Distribution Overhead Control A/c	6,250	

Cost Ledger Control A/c		3,13,150
	3,25,150	3,25,150

The following are the transactions for the quarter ended 30th September 2012:

	(₹)
Materials purchased	4,80,100
Materials issued to jobs	4,77,400
Materials to works maintenance	41,200
Materials to administration office	3,400
Materials to selling department	7,200
Wages direct	1,49,300
Wages indirect	65,000
Transportation for indirect materials	8,400
Production overheads	2,42,250
Absorbed production overheads	3,59,100
Administration overheads	74,000
Administration allocation to production	52,900
Administration allocation to sales	14,800
Sales overheads	64,200
Sales overheads absorbed	82,000
Finished goods produced	9,58,400
Finished goods sold	9,77,300
Sales realisation	14,43,000

Make up the various accounts as you envisage in the Cost Ledger and prepare a Trial Balance as at 30th September, 20X2.

Q. 3. A company operates on historic job cost accounting system, which is not integrated with the financial accounts. At the beginning of a month, the opening balances in cost ledger were:

			(₹)	(₹)
Stores Ledger Control Account				80
Work-in-Process Control Account				20
Finished Goods Control Account				430
Building Construction Account				10
Cost Ledger Control Account				540
During the month, the following transaction took place:				
Materials	–	Purchased		40
		Issued to production		50
		Issued to factory maintenance		6
		Issued to building construction		4
Wages	–	Gross wages paid		150
		Indirect wages	40	
		For building construction	10	
Works Overheads	–	Actual amount incurred		160
		(excluding items shown above)		
		Absorbed in building construction	20	
		Under absorbed	8	

Royalty paid (related to production)		5
Selling, distribution and administration overheads		25
Sales		450

At the end of the month, the stock of raw material and work-in-Process was ₹ 55 lakhs and ₹ 25 lakhs respectively. The loss arising in the raw material accounts is treated as factory overheads. The building under construction was completed during the month. Company's gross profit margin is 20% on sales.

Q.4. The following information have been extracted from the cost records of a manufacturing company:

	(₹)
Stores :	
- Opening balance	9,000
- Purchases	48,000
- Transfer from WIP	24,000
- Issue to work-in-progress	48,000
- Issue for repairs	6,000
- Deficiency found in stock	1,800
Work-in-Progress :	
- Opening balance	18,000
- Direct Wages applied	18,000
- Overhead charged	72,000
- Closing balance	12,000
Finished Production :	
- Entire production is sold at a profit of 10% on cost from work-in-progress	
- Wages paid	21,000
- Overhead incurred	75,000

Draw the Stores Leger Control A/c, Work-in-Progress Control A/c, Overheads Control A/c and Costing Profit and Loss A/c.

Q.5. Bangalore Petrochemicals Co. keeps books on integrated accounting system. The following balances appear in the books as on 1st January, 20X2.

	Dr. (₹)	Cr. (₹)
Stores Ledger control A/c	18,000	
Work-in-Process Control A/c	17,000	
Finished Goods Control A/c	13,000	
Bank A/c	10,000	
Creditors A/c		8,000
Fixed assets A/c	55,000	
Debtors A/c	12,000	
Share capital A/c		80,000
Provision for depreciation A/c		5,000
Profit and loss A/c		32,000
	1,25,000	1,25,000

Transaction for the year ended 31st Dec., 20X2 were as given below:

	(₹)	(₹)
Wages-direct	87,000	
Wages-indirect	5,000	92,000
Purchase of materials (on credit)		1,00,000
Materials issued to production		1,10,000
Materials for repairs		2,000
Goods finished during the year (at cost)		2,15,000
Sales (credit)		3,00,000
Cost of goods sold		2,20,000
Production overhead absorbed		48,000
Production overhead incurred		40,000
Administration overhead incurred (production)		12,000
Selling overhead incurred		14,000
Payments of creditors		1,01,000
Payments of debtors		2,90,000
Depreciation on machinery		1,300
Prepaid rent (included in factory overheads)		300
Administration overhead absorbed		15,000
Selling overhead absorbed		12,000
Donation paid		1,111

Write up accounts in the integrated ledger.

Q.6. The following incomplete accounts are furnished to you for the month ended 31st October, 2019.

		Stores Ledger Control Account
1.10.2019	To Balance	₹ 54,000
		Work in Process Control Account
1.10.2019	To Balance	₹ 6,000
		Finished Goods Control Account
1.10.2019	To Balance	₹ 75,000
		Factory Overheads Control Account
Total debits for October, 2019		₹ 45,000
		Creditors for Purchases Account
1.10.2019	By Balance	₹ 30,000

Additional information:

(i) The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 2019 is ₹ 6,75,000 and the budget of direct labour hours is 4,50,000.

(ii) The balance in the account of creditors for purchases on 31.10.2019 is ₹ 15,000 and the payments made to creditors in October, 2019 amount to ₹ 1,05,000.

(iii) The finished goods inventory as on 31st October, 2019 is ₹ 66,000.

(iv) The cost of goods sold during the month was ₹ 1,95,000.

(v) On 31st October, 2019 there was only one unfinished job in the factory. The cost records show that ₹ 3,000 (1,200 direct labour hours) of direct labour cost and ₹ 6,000 of direct material cost had been charged.

(vi) A total of 28,200 direct labour hours were worked in October, 2019. All factory workers earn same rate of pay.

(vii) All actual factory overheads incurred in October, 2019 have been posted.

You are required to find:

(a) Materials purchased.
(b) Cost of goods completed.
(c) Overheads applied to production.
(d) Balance of Work-in-process Control A/c.
(e) Direct materials consumed.
(f) Balance of Stores Ledger Control Account.
(g) Over absorbed or under absorbed overheads.

Q. 7. The following information is available from the financial books of a company having a normal production capacity of 60,000 units for the year ended 31st March, 20X3:

(i) Sales ₹ 10,00,000 (50,000 units).

(ii) There was no opening and closing stock of finished units.

(iii) Direct material and direct wages cost were ₹ 5,00,000 and ₹ 2,50,000 respectively.

(iv) Actual factory expenses were ₹ 1,50,000 of which 60% are fixed.

(v) Actual administrative expenses related with production activities were ₹ 45,000 which are completely fixed.

(vi) Actual selling and distribution expenses were ₹ 30,000 of which 40% are fixed.

(vii) Interest and dividends received ₹ 15,000.

You are required to:

(a) Find out profit as per financial books for the year ended 31st March,20X3;

(b) Prepare the cost sheet and ascertain the profit as per cost accounts for the year ended 31st March, 20X3 assuming that the indirect expenses are absorbed on the basis of normal production capacity; and

Q.8. The financial books of a company reveal the following data for the year ended 31st March, 2019:

	(₹)
Opening Stock:	
Finished goods 875 units	74,375
Work-in-process	32,000
01.04.2018 to 31.3.2019	
Raw materials consumed	7,80,000
Direct Labour	4,50,000
Factory overheads	3,00,000
Goodwill written off	1,00,000
Administration overheads	2,95,000
Dividend paid	85,000
Bad Debts	12,000
Selling and Distribution Overheads	61,000
Interest received	45,000
Rent received	18,000
Sales 14,500 units	20,80,000
Closing Stock: Finished goods 375 units	41,250
Work-in-process	38,667

The cost records provide as under:

- Factory overheads are absorbed at 60% of direct wages.
- Administration overheads are recovered at 20% of factory cost.
- Selling and distribution overheads are charged at ₹ 4 per unit sold.
- Opening Stock of finished goods is valued at ₹ 104 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(i) Prepare statements for the year ended 31st March, 2019 show
  - the profit as per financial records
  - the profit as per costing records.

(ii) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

Q.9. M/s. H.K. Piano Company showed a net loss of ₹ 4,16,000 as per their financial accounts for the year ended 31st March, 20X3. The cost accounts, however, disclosed a net loss of ₹ 3,28,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of books:

		(₹)
(i)	Factory overheads under-recovered	6,000
(ii)	Administration overheads over-recovered	4,000
(iii)	Depreciation charged in financial accounts	1,20,000
(iv)	Depreciation recovered in costs	1,30,000
(v)	Interest on investment not included in costs	20,000
(vi)	Income-tax provided	1,20,000
(vii)	Transfer fees (credit in financial books)	2,000
(viii)	Stores adjustment (credit in financial books)	2,000

Prepare a Memorandum reconciliation account.

Q.10. The following figures have been extracted from the cost records of a manufacturing unit:

	(₹)
Stores: Opening balance	32,000
Purchases of material	1,58,000
Transfer from work-in-progress	80,000
Issues to work-in-progress	1,60,000
Issues to repair and maintenance	20,000
Deficiencies found in stock taking	6,000
Work-in-progress: Opening balance	60,000
Direct wages applied	65,000
Overheads applied	2,40,000
Closing balance of W.I.P.	45,000

Finished products: Entire output is sold at a profit of 10% on actual cost from work-in progress.

Wages incurred ₹ 70,000, overhead incurred ₹ 2,50,000.

Items not included in cost records: Income from investment ₹ 10,000, Loss on sale of capital assets ₹ 20,000.

Draw up Store Control account, Work-in-progress Control account, Costing Profit and Loss account, Profit and Loss account and Reconciliation statement.

Q.11. Dutta Enterprises operates an Integral system of accounting. You are required to PASS the Journal Entries for the following transactions that took place for the year ended 30th June, 2020.
(Narrations are not required.)

	(₹)
Raw materials purchased (50% on Credit)	6,00,000
Materials issued to production	4,00,000
Wages paid (50% Direct)	2,00,000
Wages charged to production	1,00,000
Factory overheads incurred	80,000
Factory overheads charged to production	1,00,000
Selling and distribution overheads incurred	40,000
Finished goods at cost	5,00,000
Sales (50% Credit)	7,50,000
Closing stock	Nil
Receipts from debtors	2,00,000
Payments to creditors	2,00,000

Q.12. The following figures are extracted from the Trial Balance of Go-getter Co. on 30th September, 2020:

	Dr. (₹)	Cr. (₹)
Inventories:		
Finished Stock	80,000	
Raw Materials	1,40,000	
Work-in-Process	2,00,000	
Office Appliances	17,400	
Plant & Machinery	4,60,500	

Building	2,00,000	
Sales		7,68,000
Sales Return and Rebates	14,000	
Materials Purchased	3,20,000	
Freight incurred on Materials	16,000	
Purchase Returns		4,800
Direct employee cost	1,60,000	
Indirect employee cost	18,000	
Factory Supervision	10,000	
Repairs and factory up-keeping expenses	14,000	
Heat, Light and Power	65,000	
Rates and Taxes	6,300	
Miscellaneous Factory Expenses	18,700	
Sales Commission	33,600	
Sales Travelling	11,000	
Sales Promotion	22,500	
Distribution Deptt.—Salaries and Expenses	18,000	
Office Salaries and Expenses	8,600	
Interest on Borrowed Funds	2,000	

Further details are available as follows:

(i) Closing Inventories:

Finished Goods	1,15,000
Raw Materials	1,80,000
Work-in-Process	1,92,000

(ii) Outstanding expenses on:

Direct employee cost	8,000
Indirect employee cost	1,200
Interest on Borrowed Funds	2,000

(iii) Depreciation to be provided on:

Office Appliances	5%
Plant and Machinery	10%
Buildings	4%

(iv) Distribution of the following costs:

Heat, Light and Power to Factory, Office and Distribution in the ratio 8 : 1 : 1.

Rates and Taxes two-thirds to Factory and one-third to Office.

Depreciation on Buildings to Factory, Office and Selling in the ratio 8 : 1 : 1.

With the help of the above information, you are required to PREPARE a condensed Profit and Loss Statement of Go-getter Co. for the year ended 30th September, 2020 along with supporting schedules of:

(i) Cost of Sales.

(ii) Selling and Distribution Expenses.

(iii) Administration Expenses.

HOME WORK SECTION

Q.1. JOURNALISE the following transactions assuming that cost and financial transactions are integrated:

	(₹)
Raw materials purchased	2,00,000
Direct materials issued to production	1,50,000
Wages paid (30% indirect)	1,20,000
Wages charged to production	84,000
Manufacturing expenses incurred	84,000
Manufacturing overhead charged to production	92,000
Selling and distribution costs	20,000
Finished products (at cost)	2,00,000
Sales	2,90,000
Closing stock	Nil
Receipts from debtors	69,000
Payments to creditors	1,10,000

Q.2. Following are the figures extracted from the Cost Ledger of a manufacturing unit.

	(₹)
Stores:	
Opening balance	15,000
Purchases	80,000
Transfer from WIP	40,000
Issue to WIP	80,000
Issue to repairs and maintenance	10,000
Sold as a special case at cost	5,000
Shortage in the year	3,000
Work-in-Process:	
Opening inventory	30,000
Direct labour cost charged	30,000
Overhead cost charged	1,20,000
Closing Balance	20,000
Finished Products:	
Entire output is sold at 10% profit on actual cost from work-in- process.	
Others:	
Wages for the period	35,000
Overhead Expenses	1,25,000

ASCERTAIN the profit or loss as per financial account and cost accounts and reconcile them.

Q.3. The financial books of a company reveal the following data for the year ended 31st March, 20X8:

Opening Stock:	(₹)
Finished goods 625 units	53,125
Work-in-process	46,000
01.04.20X7 to 31.03.20X8	
Raw materials consumed	8,40,000
Direct Labour	6,10,000
Factory overheads	4,22,000

Administration overheads (Production related)	1,98,000
Dividend paid	1,22,000
Bad Debts	18,000
Selling and Distribution Overheads	72,000
Interest received	38,000
Rent received	46,000
Sales 12,615 units	22,80,000
Closing Stock: Finished goods 415 units	45,650
Work-in-process	41,200

The cost records provide as under:

- Factory overheads are absorbed at 70% of direct wages.
- Administration overheads are recovered at 15% of factory cost.
- Selling and distribution overheads are charged at ₹ 3 per unit sold.
- Opening Stock of finished goods is valued at ₹ 120 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(i) PREPARE a statements for the year ended 31st March, 20X8. Show
- the profit as per financial records
- the profit as per costing records.

(ii) PREPARE a statement reconciling the profit as per costing records with the profit as per Financial Records. [RTP Nov'18]

Q.4. The following balances were extracted from a Company's ledger as on 30th June, 2018:

Particulars	Debit (₹)	Credit (₹)
Raw material control a/c	2,82,450	
Work-in-progress control a/c	2,38,300	
Finished stock control a/c	3,92,500	
General ledger adjustment a/		9,13,250
Total	9,13,250	9,13,250

The following transactions took place during the quarter ended 30th September, 2018:

	₹
(i) Factory overheads - allocated to work-in-progress	1,36,350
(ii) Goods furnished - at cost	13,76,200
(iii) Raw materials purchased	12,43,810
(iv) Direct wages - allocated to work-in-progress	2,56,800
(v) Cost of goods sold	14,56,500
(vi) Raw materials - issued to production	13,60,430
(vii) Raw materials - credited by suppliers	27,200
(viii)Raw materials losses - inventory audit	6,000
(ix) Work-in-progress rejected (with no scrap value)	12,300
(x) Customer's returns (at cost) of finished goods	45,900

You are required to prepare:

(i) Raw material control a/c

(ii) Work-in-progress control a/c

(iii) Finished stock control a/c

(iv) General ledger adjustment a/c [Sugg. Nov '18, 10 Marks]

Q.5. A manufacturing company disclosed a net loss of ₹ 3,47,000 as per their cost accounts for the year ended March 31,20X8. T he financial accounts h owever disclosed a net loss of ₹ 5,10,000 for the same period. T he following information was revealed as a result of scrutiny of the figures of both the sets of accounts.

		(₹)
(i)	Factory Overheads under-absorbed	40,000
(ii)	Administration Overheads over-absorbed	60,000
(iii)	Depreciation charged in Financial Accounts	3,25,000
(iv)	Depreciation charged in Cost Accounts	2,75,000
(v)	Interest on investments not included in Cost Accounts	96,000
(vi)	Income-tax provided	54,000
(vii)	Interest on loan funds in Financial Accounts	2,45,000
(viii)	Transfer fees (credit in financial books)	24,000
(ix)	Stores adjustment (credit in financial books)	14,000
(x)	Dividend received	32,000

PREPARE a memorandum Reconciliation Account. [MTP March '19, 5 Marks]

Q.6. A manufacturing company has disclosed a net loss of ₹ 2,25,000 as per their cost accounting records for the year ended March 31, 2019. However, their financial accounting records disclosed a net loss of ₹ 2,70,000 for the same period. A scrutiny of data of both the sets of books of accounts revealed the following information:

		(₹)
(i)	Factory overheads under-absorbed	5,000
(ii)	Administration overheads over-absorbed	3,000
(iii)	Depreciation charged in financial accounts	70,000
(iv)	Depreciation charged in cost accounts	80,000
(v)	Interest on investments not included in cost accounts	20,000
(vi)	Income-tax provided in financial accounts	65,000
(vii)	Transfer fees (credit in financial accounts)	2,000
(viii)	Preliminary expenses written off	3,000
(ix)	Over-valuation of closing stock of finished goods in cost accounts	7,000

Required:

PREPARE a Memorandum Reconciliation Account. [MTP Oct. '19, 20 Marks]

Q.7. Following information have been extracted from the cost records of ABC Ltd.

Stores:	(₹)
Opening balance	1,08,000
Purchases	5,76,000
Transfer from WIP	2,88,000
Issue to WIP	5,76,000
Issue for repairs	72,000
Deficiency found in stock	21,600
Work-in-progress: (₹)	
Opening balance	2,16,000
Direct wages applied	2,16,000

Overheads charged	8,64,000
Closing balance	1,44,000
Finished Production:	(₹)
Entire production is sold at a profit of 15% on cost of WIP	
Wages paid	2,52,000
Overheads incurred	9,00,000

ETERMINE Stores Ledger Control Account, Work-in-Progress Control Account, Overheads Control Account and Costing Profit and Loss Account. [MTP April '18, 10 Marks]

Q.8. A fire destroyed some accounting records of a company. You have been able to collect the following from the spoilt papers/records and as a result of consultation with accounting staff for the period of January, 2020:

(i) Incomplete Ledger Entries:

Materials Control A/c

	(₹)		(₹)
To Balance b/d	32,000		

Work-in-Process Control A/c

	(₹)		(₹)
To Balance b/d	9,200	By Finished Goods Control A/c	1,51,000

Payables (Creditors) A/c

	(₹)		(₹)
To Balance c/d	19,200	By Balance b/d	16,400

Manufacturing Overheads Control A/c

	(₹)		(₹)
To Bank A/c (Amount spent)	29,600		

Finished Goods Control A/c

	(₹)		(₹)
To Balance b/d	24,000	By Balance c/d	30,000

(ii) Additional Information:

(1) The bank-book showed that ₹ 89,200 have been paid to creditors for raw- material.

(2) Ending inventory of work-in-process included materials of ₹ 5,000 on which 300 direct labour hours have been booked against wages and overheads.

(3) The job card showed that workers have worked for 7,000 hours. The wage rate is ₹ 10 per labour hour.

(4) Overhead recovery rate was ₹ 4 per direct labour hour.

You are required to COMPLETE the above accounts in the cost ledger of the company.

CLASS TEST

Q.1. In the absence of the Chief Accountant, you have been asked to prepare a month's cost accounts for a company which operates a batch costing system fully integrated with the financial accounts The following relevant information is provided to you:

	(₹)	(₹)
Balances at the beginning of the month:		
Stores Ledger Control Account		25,000
Work-in-Process Control Account		20,000
Finished Goods Control Account		35,000
Prepaid Production Overheads brought forward from previous month		3,000
Transactions during the month:		
Materials Purchased		
Materials Issued:		75,000
To production		
To factory maintenance	30,000	
Materials transferred between batches	4,000	34,000
Total wages paid:		5,000
To direct workers		
To indirect workers	25,000	
Direct wages charged to batches	5,000	30,000
Recorded non-productive time of direct workers		20,000
Selling and Distribution Overheads Incurred		5,000
Other Production Overheads Incurred		6,000
Sales		12,000
Cost of Finished Goods Sold		1,00,000
Cost of Goods completed and transferred into finished goods during		80,000
the month		65,000
Physical value of work-in-Process at the end of the month		
		40,000

The production overhead absorption rate is 150% of direct wages charged to work- in-Process.

Required:

PREPARE the following accounts for the month:

(a) Stores Ledger Control Account.

(b) Work-in-Process Control Account.

(c) Finished Goods Control Account.

(d) Production Overhead Control Account.

(e) Costing Profit and Loss Account.

Q.2. The following figures have been extracted from the Financial Accounts of a manufacturing firm for the first year of its operation:

	(₹)
Direct Material Consumption	50,00,000
Direct Wages	30,00,000
Factory Overheads	16,00,000
General administrative overheads	7,00,000

Selling and Distribution Overheads	9,60,000
Bad debts	80,000
Preliminary expenses written off	40,000
Legal charges	10,000
Dividends received	1,00,000
Interest received on deposits	20,000
Sales (1,20,000 units)	1,20,00,000
Closing stock:	
Finished goods (4,000 units)	3,20,000
Work-in-Process	2,40,000

The cost accounts for the same period reveal that the direct material consumption was ₹ 56,00,000. Factory overhead is recovered at 20% on prime cost. Administration overhead is recovered at ₹ 6 per unit of production. Selling and distribution overheads are recovered at ₹ 8 per unit sold.

PREPARE the Profit and Loss Accounts both as per financial records and as per cost records. RECONCILE the profits as per the two records.

Q.3. The following is the summarised Trading and Profit and Loss Account of XYZ Ltd. for the year ended 31st March 2019:

Particulars	Amount (₹)	Particulars		Amount (₹)
Direct Material	14,16,000	Sales (30,000 units)		30,00,000
Direct wages	7,42,000	Finished stock (2,000 units)		1,67,500
Works overheads	4,26,000	Work-in-progress:		
Administration overheads	1,50,000	- Materials	34,000	
elling and distribution overheads	1,65,000	- Wages	16,000	
Net profit for the year	3,22,500	- Works overhead	4,000	54,000
	32,21,500			32,21,500

The company's cost records show that in course of manufacturing a standard unit (i) works overheads have been charged @ 20% on prime cost, (ii) administration overheads are related with production activities and are recovered at ₹5 per finished unit, and (iii) selling and distribution overheads are recovered at ₹6 per unit sold.

You are required to PREPARE:

(i) Costing Profit and Loss Account indicating the net profits,

(ii) A Statement showing reconciliation between profit as disclosed by the Cost Accounts and Financial Accounts. [RTP May '19]

Q.5. Journalise the following transactions, in cost books under Non- Integrated system of Accounting.

(i) Credit Purchase of Material	₹ 27,000
(ii) Manufacturing overhead charged to Production	₹ 6,000
(iii) Selling and Distribution overheads recovered from Sales	₹ 4,000
(iv) Indirect wages incurred	₹ 8,000
(v) Material returned from production to stores	₹ 9,000

[Sugg.-Nov'19,5 Marks]

CLASSWORK SECTION

Q.1. A jobbing factory has undertaken to supply 200 pieces of a component per month for the ensuing six months. Every month a batch order is opened against which materials and labour hours are booked at actual. Overheads are levied at a rate equal to per labour hour. The selling price contracted for is ₹ 8 per piece. From the following data CALCULATE the cost and profit per piece of each batch order and overall position of the order for 1,200 pieces.

Month	Batch Output	Material cost	Direct wages	Direct labour
		(₹)	(₹)	hours
January	210	650	120	240
February	200	640	140	280
March	220	680	150	280
April	180	630	140	270
May	200	700	150	300
June	220	720	160	320

The other details are:

Month	Chargeable expenses	Direct labour
	(₹)	hours
January	12,000	4,800
February	10,560	4,400
March	12,000	5,000
April	10,580	4,600
May	13,000	5,000
June	12,000	4,800

Q.2.

Monthly demand for a product	500 units
Setting-up cost per batch	₹ 60
Cost of manufacturing per unit	₹ 20
Rate of interest	10% p.a.

DETERMINE economic batch quantity.

Q.3. M/s. KBC Bearings Ltd. is committed to supply 48,000 bearings per annum to M/s. KMR Fans on a steady daily basis. It is estimated that it costs ₹ 1 as inventory holding cost per bearing per month and that the set up cost per run of bearing manufacture is ₹ 3,200

(i) DETERMINE the optimum run size of bearing manufacture?
(ii) STATE what would be the interval between two consecutive optimum runs?
(iii) FIND OUT the minimum inventory cost?

Q.4. A Company has an annual demand from a single customer for 50,000 litres of a paint product. The total demand can be made up of a range of colour to be produced in a continuous production run after which a set-up of the machinery will be required to accommodate the colour change. The total output of each colour will be stored and then delivered to the customer as single load immediately before production of the next colour commences.
The Set up costs are ₹ 100 per set up. The Service is supplied by an outside company as required.
The Holding costs are incurred on rented storage space which costs ₹ 50 per sq. meter per annum.

Each square meter can hold 250 Litres suitably stacked.

You are required to:

(i) CALCULATE the total cost per year where batches may range from 4,000 to 10,000 litres in multiples of 1,000 litres and hence choose the production batch size which will minimize the cost.

(ii) Use the economic batch size formula to CALCULATE the batch size which will minimise total cost.

Q.5. Rio Limited undertakes to supply 1000 units of a component per month for the months of January, February and March 2020. Every month a batch order is opened against which materials and labour cost are booked at actual. Overheads are levied at a rate per labour hour. The selling price is contracted at ₹ 15 per unit.

From the following data, CALCULATE the profit per unit of each batch order and the overall position of the order for the 3,000 units.

Month	Batch Output (Numbers)	Material Cost (₹)	Labour Cost (₹)
January 2020	1,250	6,250	2,500
February 2020	1,500	9,000	3,000
March 2020	1,000	5,000	2,000

Labour is paid at the rate of ₹ 2 per hour. The other details are:

Month	Overheads (₹)	Total Labour Hours
January 2020	12,000	4,000
February 2020	9,000	4,500
March 2020	15,000	5,000

Q.6. X Ltd. is committed to supply 24,000 bearings per annum to Y Ltd. on steady basis. It is estimated that it costs 10 paise as inventory holding cost per bearing per month and that the set-up cost per run of bearing manufacture is ₹ 324.

(a) COMPUTE what would be the optimum run size for bearing manufacture?

(b) Assuming that the company has a policy of manufacturing 6,000 bearings per run, CALCULATE how much extra costs the company would be incurring as compared to the optimum run suggested in (a) above?

(c) CALCULATE the holding cost at optimum inventory level?

Q.7. A customer has been ordering 90,000 special design metal columns at the rate of 18,000 columns per order during the past years. The production cost comprises ₹2,120 for material, ₹60 for labour and ₹20 for fixed overheads. It costs ₹1,500 to set up for one run of 18,000 column and inventory carrying cost is 5%.

(i) FIND the most economic production run.

(ii) CALCULATE the extra cost that company incur due to processing of 18,000 columns in a batch.

Q.8. Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC use to bake at least 50 units of any item at a time. A customer has given an order for 600 cakes. To process a batch, the following cost would be incurred:

Direct materials - ₹ 5,000
Direct wages - ₹ 500 (irrespective of units)
Oven set- up cost - ₹750 (irrespective of units)
AC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads. AC requires a profit margin of 25% of sales value.
Required:
(i) Determine the price to be charged for 600 cakes.
(ii) Calculate cost and selling price per cake.

[RTP May'18]

Q.9. PS Ltd. manufactures articles in predetermined lots simultaneously. The following costs have been incurred for Batch No. 'PS143' in the month of March, 2022:

Units produced	1,000 units
Direct materials cost	₹ 2,00,000
Direct Labour -	
Department A	800 labour hours @ ₹ 100 per hour.
Department B	1,400 labour hours @ ₹ 120 per hour.

Factory overheads are absorbed on labour hour basis and the rates are:

Department A	@ ₹ 140 per hour.
Department B	@ ₹ 80 per hour.

Administrative overheads are absorbed at 10% of selling price.
The firm expects 25% gross profit (sales value minus factory cost) for determining the selling price.
You are required to CALCULATE the selling price per unit of Batch No. 'PS143'.

[RTP Nov. 22]

Q.10. GHI Ltd. manufactures 'Stent' that is used by hospitals in heart surgery. As per the estimates provided by Pharmaceutical Industry Bureau, there will be a demand of 40 Million 'Stents' in the coming year. GHI Ltd. is expected to have a market share of 2.5% of the total market demand of the Stents in the coming year. It is estimated that it costs ₹ 1.50 as inventory holding cost per stent per month and that the set-up cost per run of stent manufacture is ₹ 225.
Required:
(i) What would be the optimum run size for Stent manufacture?
(ii) What is the minimum inventory holding cost?
(iii) Assuming that the company has a policy of manufacturing 4,000 stents per run, how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?

[Sugg.Jan'21, 5 Marks]

HOME WORK SECTION

Q.1. BTL LLP. manufactures glass bottles for HDL Ltd., a pharmaceutical company, which is inayurvedic medicines business.. BTL can produce 2,00,000 bottles in a month. Set-up cost of each production run is ₹ 5,200 and the cost of holding one bottle for a year is ₹ 1.50. As per an estimate HDL Ltd. can order as much as 19,00,000 bottles in a year spreading evenly throughout the year. At present the BTL manufactures 1,60,000 bottles in a batch.

Required:

(i) Compute the Economic Batch Quantity for bottle production.

(ii) Compute the annual cost saving to BTL by adopting the EBQ of a production.

[RTP Nov'19]

Q.2. Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC use to bake at most 50 units of any item at a time. A customer has given an order for 600 muffins. To process a batch of 50 muffins, the following cost would be incurred:

Direct materials- ₹ 500

Direct wages- ₹ 50

Oven set- up cost ₹ 150

AC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads.

AC requires a profit margin of 25% of sales value. DETERMINE the selling price for 600 muffins.

Q.3. The following data relate to the manufacture of a standard product during the 4- week ended 28th February 2020:

Raw Materials Consumed	₹ 4,00,000
Direct Wages	₹ 2,40,000
Machine Hours Worked	3,200 hours
Machine Hour Rate	₹ 40
Office Overheads	10% of works cost
Selling Overheads	₹ 20 per unit
Units produced and sold	10,000 at ₹ 120 each

You are required to FIND OUT the cost per unit and profit for the 4-week ended 28th February 2020.

CLASS TEST

Q.1. Atharva Pharmacare Limited produced a uniform type of product and has a manufacturing capacity of 3,000 units per week of 48 hours. From the records of the company, the following data are available relating to output and cost of 3 consecutive weeks.

Week Number	Units Manufactured	Direct Material (₹)	Direct Wages (₹)	Factory Overheads (₹)
1	1,200	9,000	3,600	31,000
2	1,600	12,000	4,800	33,000
3	1,800	13,500	5,400	34,000

Assuming that the company charges a profit of 20% on selling price, FIND OUT the selling price per unit when the weekly output is 2,000 units.

Q.2. Wonder Ltd. has a capacity of 120,000 units per annum as its optimum capacity. The production costs are as under:

Direct Material – ₹ 90 per unit Direct Labour- ₹ 60 per unit Overheads:

Fixed: ₹ 30,00,000 per annum Variable: ₹ 100 per unit

Semi Variable: ₹ 20,00,000 per annum up to 50% capacity and an extra amount of ₹ 4,00,000 for every 25% increase in capacity or part thereof

The production is made to order and not for stocks.

If the production programme of the factory is as indicated below and the management desires a profit of ₹20,00,000 for the year DETERMINE the average selling price at which each unit should be quoted.

First 3 months: 50% capacity

Remaining 9 months: 80% capacity

Ignore Administration, Selling and Distribution overheads.

CLASSWORK SECTION

Q.1. The manufacturing cost of a work order is ₹ 1,00,000; 8% of the production against that order spoiled and the rejection is estimated to have a realisable value of ₹ 2,000 only. The normal rate of spoilage is 2%. RECORD this in the costing journal.

Q.2. A shop floor supervisor of a small factory presented the following cost for Job No. 303, to determine the selling price.

	Per unit (₹)
Materials	70
Direct wages 18 hours @ ₹ 2.50	45
(Deptt. X 8 hours; Deptt. Y 6 hours; Deptt. Z 4 hours)	
Chargeable expenses	5
	120
Add : 33-1/3 % for expenses cost	40
	160

Analysis of the Profit/Loss Account
(for the year 2020)

	(₹)	(₹)		(₹)
Materials used		1,50,000	Sales less returns	2,50,000
Direct wages:				
Deptt. X	10,000			
Deptt. Y	12,000			
Deptt. Z	8,000	30,000		
Special stores items		4,000		
Overheads:				
Deptt. X	5,000			
Deptt. Y	9,000			
Deptt. Z	2,000	16,000		
Works cost		2,00,000		
Gross profit c/d		50,000		
		2,50,000		2,50,000
Selling expenses		20,000	Gross profit b/d	50,000
Net profit		30,000		
		50,000		50,000

It is also noted that average hourly rates for the three Departments X, Y and Z are similar.

You are required to:

(i) PREPARE a job cost sheet.

(ii) CALCULATE the entire revised cost using 2020 actual figures as basis.

(iii) Add 20% to total cost to DETERMINE selling price.

Q.3. In a factory following the Job Costing Method, an abstract from the work- in-progress as on 30th September was prepared as under.

Job No.	Materials (₹)	Direct hrs.	Labour (₹)	Factory Overheads applied (₹)
115	1325	400 hrs.	800	640
118	810	250 hrs.	500	400
120	765	300 hrs.	475	380
	2,900		1,775	1,420

Materials used in October were as follows:

Materials Requisition No.	Job No.	Cost (₹)
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720
		3,535

A summary for labour hours deployed during October is as under:

Job No.	Number of Hours	
	Shop A	Shop B
115	25	25
118	90	30
120	75	10
121	65	--
124	25	10
	275	75
Indirect Labour: Waiting of material	20	10
Machine breakdown	10	5
Idle time	5	6
Overtime premium	6	5
	316	101

A shop credit slip was issued in October, that material issued under Requisition No. 54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under Requisition No. 55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is ₹ 3 per hour while at shop B, it is ₹ 2 per hour. The factory overhead is applied at the same rate as in September. Job 115, 118 and 120 were completed in October.

You are asked to COMPUTE the factory cost of the completed jobs. It is the practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis. DETERMINE the invoice price of these three jobs?

Q.4. A factory uses job costing system. The following data are obtained from its books for the year ended 31st March, 2020:

	Amount (₹)
Direct materials	18,00,000
Direct wages	15,00,000
Selling and distribution overheads	10,50,000
Administration overheads	8,40,000
Factory overheads	9,00,000
Profit	12,18,000

(i) PREPARE a Job Cost sheet indicating the Prime cost, Cost of Production, Cost of sales and the Sales value.

(ii) In 2019-20, the factory received an order for a job. It is estimated that direct materials required will be ₹4,80,000 and direct labour will cost ₹3,00,000. DETERMINE what should be the price for the job if factory intends to earn the same rate of profit on sales assuming that the selling and distribution overheads have gone up by 15%. The factory overheads is recovered as percentage of wages paid, whereas, other overheads as a percentage of cost of production, based on cost rates prevailing in the previous year.

[RTP-May' 20]

Q.5. APFL Ltd. deals in plumbing materials and also provides plumbing services to its customers. On 12th August, 2019, APFL received a job order for a students' hostel to supply and fitting of plumbing materials. The work is to be done on the basis of specification provided by the hostel owner. Hostel will be inaugurated on 5th September, 2019 and the work is to be completed by 3rd September, 2019. Following are the details related with the job work:

Direct Materials

APFL uses a weighted average method for the pricing of materials issues.

Opening stock of materials as on 12th August 2019:

- 15mm GI Pipe, 12 units of 15 feet size @ Rs.600 each
- 20mm GI Pipe, 10 units of 15 feet size @ Rs.660 each
- Other fitting materials, 60 units @ Rs. 26 each
- Stainless Steel Faucet, 6 units @ Rs. 204 each
- Valve, 8 units @ Rs. 404 each

Purchases:

On 16th August 2019:

- 20mm GI Pipe, 30 units of 15 feet size @ Rs. 610 each
- 10 units of Valve @ Rs. 402 each

On 18th August 2019:

- Other fitting materials, 150 units @ Rs. 28 each
- Stainless Steel Faucet, 15 units @ Rs. 209 each

On 27th August 2019:

- 15mm GI Pipe, 35 units of 15 feet size @ Rs.628 each
- 20mm GI Pipe, 20 units of 15 feet size @ Rs.660 each
- Valve, 14 units @ Rs. 424 each

Issues for the hostel job:

On 12th August 2019:

- 20mm GI Pipe, 2 units of 15 feet size
- Other fitting materials, 18 units

On 17th August 2019:

- 15mm GI Pipe, 8 units of 15 feet size
- Other fitting materials, 30 units

On 28th August 2019:

- 20mm GI Pipe, 2 units of 15 feet size
- 15mm GI Pipe, 10 units of 15 feet size
- Other fitting materials, 34 units
- Valve, 6 units

On 30th August:

- Other fitting materials, 60 units
- Stainless Steel Faucet, 15 units

Direct Labour:

Plumber: 180 hours @ Rs. 50 per hour (includes 12 hours overtime)

Helper: 192 hours @ Rs.35 per hour (includes 24 hours overtime)

Overtimes are paid at 1.5 times of the normal wage rate.

Overheads:

Overheads are applied @ Rs. 13 per labour hour.

Pricing policy:

It is company's policy to price all orders based on achieving a profit margin of 25% on sales price.

You are required to

(a) Calculate the total cost of the job.

(b) Calculate the price to be charged from the customer. [MTP Oct. '19, 10 Marks]

HOME WORK SECTION

Q.1. A company has been asked to quote for a job. The company aims to make a net profit of 30% on sales. The estimated cost for the job is as follows:

Direct materials 10 kg @₹10 per kg

Direct labour 20 hours @ ₹5 per hour

Variable production overheads are recovered at the rate of ₹ 2 per labour hour.

Fixed production overheads for the company are budgeted to be ₹1,00,000 each year and are recovered on the basis of labour hours.

There are 10,000 budgeted labour hours each year. Other costs in relation to selling, distribution and administration are recovered at the rate of ₹50 per job.

DETERMINE quote for the job by the Company. [RTP Nov.'18]

CLASS TEST

Q.1. A factory uses job costing. The following data are obtained from its books for the year ended 31st March, 2018:

	Amount (₹)
Direct materials	9,00,000
Direct wages	7,50,000
Selling and distribution overheads	5,25,000
Administration overheads	4,20,000
Factory overheads	4,50,000
Profit	6,09,000

Required:

(i) PREPARE a Job Cost sheet indicating the Prime cost, Cost of Production, Cost of sales and the Sales value.

(ii) In 2018-19, the factory received an order for a job. It is estimated that direct materials required will be ₹ 2,40,000 and direct labour will cost ₹ 1,50,000. DETERMINE what should be the price for the job if factory intends to earn the same rate of profit on sales assuming that the selling and distribution overheads have gone up by 15%. The factory overheads is recovered as percentage of wages paid, whereas, other overheads as a percentage of cost of production, based on cost rates prevailing in the previous year.

[RTP May'18]

CLASSWORK SECTION

Q.1. A product passes through three processes. The output of each process is treated as the raw material of the next process to which it is transferred and output of the third process is transferred to finished stock.

	Process-I (₹)	Process-II (₹)	Process-III (₹)
Materials issued	40,000	20,000	10,000
Labour	6,000	4,000	1,000
Manufacturing overhead	10,000	10,000	15,000

10,000 units have been issued to the Process-I and after processing, the output of each process is as under:

Process	Output	Normal Loss
Process-I	9,750 units	2%
Process-II	9,400 units	5%
Process-III	8,000 units	10%

No stock of materials or of work-in-process was left at the end. CALCULATE the cost of the finished articles.

Q.2. M J Pvt. Ltd. produces a product "SKY" which passes through two processes, viz. Process-A and Process-B. The details for the year ending 31st March are as follows:

	Process A	Process B
40,000 units introduced at a cost of	₹ 3,60,000	-
Material Consumed	₹ 2,42,000	2,25,000
Direct wages	₹ 2,58,000	1,90,000
Manufacturing Expenses	₹ 1,96,000	1,23,720
Output in Units	37,000	27,000
Normal Wastage of Input	5%	10%
Scrap Value (per unit)	₹ 15	20
Selling Price (per unit)	₹ 37	61

Additional Information:

(a) 80% of the output of Process-A was passed on to the next process and the balance was sold. The entire output of Process- B was sold.

(b) Indirect expenses for the year was ₹ 4,48,080.

(c) It is assumed that Process-A and Process-B are not responsibility centre.

Required:

(i) Prepare Process-A and Process-B Account.

(ii) Prepare Profit & Loss Account showing the net profit I net loss for the year.

Q.3. RST Limited processes Product Z through two distinct processes – Process- I and Process- II. On completion, it is transferred to finished stock. From the following information for the year 2019-20, PREPARE Process- I, Process- II and Finished Stock A/c:

Particulars	Process- I	Process- II
Raw materials used	7,500 units	--
Raw materials cost per unit	₹ 60	--
Transfer to next process/finished stock	7,050 units	6,525 units
Normal loss (on inputs)	5%	10%
Direct wages	₹ 1,35,750	₹ 1,29,250
Direct Expenses	60% of Direct wages	65% of Direct wages
Manufacturing overheads	20% of Direct wages	15% of Direct wages
Realisable value of scrap per unit	₹ 12.50	₹ 37.50

6,000 units of finished goods were sold at a profit of 15% on cost. Assume that there was no opening or closing stock of work-in-process.

Q.4. Following information is available regarding Process A for the month of October : Production Record:

Opening work-in progress	40,000 Units
(Material: 100% complete, 25% complete for labour & overheads)	
Units Introduced	1,80,000 Units
Units Completedr	1,50,000 Units
Units in-process on 31st October	70,000 Units
(Material: 100% complete, 50% complete for labour & overheads)	
Cost Record:	(₹)
Opening Work-in-progress:	
Material	1, 00,000
Labour	25,000
Overheads	45,000
Cost incurred during the month:	(₹)
Material	6, 60,000
Labour	5, 55,000
Overheads	9, 25,000

Assure that FIFO method is used for W.I.P. inventory valuation.

Required:

(i) Statement of Equivalent Production

(ii) Statement showing Cost for each element

(iii) Statement of apportionment of Cost

(iv) Process- A Account.

Q.5. The following information relate to Process A:

Opening Work – in – Progress	8,000 units at ₹ 75,000
Degree of Completion: Material	100%
Labour and Overheads	60%
Input 1,82,000 units at	7,37,500
Wages paid	3,40,600
Overheads paid	1,70,300
Units scrapped	14,000
Degree of Completion: Material	100%
Wages and Overheads	80%
Closing Work – in – Progress	18,000 units
Degree of Completion: Material	100%
Wages and Overheads	70%

- Units completed and transferred to next process - 1,58,000 units
- Normal loss 5% of total input including opening WIP
- Scrap value is ₹ 5 per unit to be adjusted out of direct material cost

You are required to compute on the basis of FIFO

(i) Equivalent Production

(ii) Cost Per Unit

(iii) Value of Units transferred to next process.

Q.6. The following data pertains to process I for March of Beta Ltd.

Opening work-in-Process :1,500 Units at		₹ 15,000
Degree of completion :		
Materials	100%	
Labour and overheads	$33^{1}/_{3}$%	
Input of materials : 18,500 units at		₹ 52,000
Direct labour		₹ 14,000
Overheads		₹ 28,000
Closing work-in-progress 5,000 units		
Degree of completion :		
Materials		90%
Labour and overheads		30%

- Normal process loss is 10% of total input (Opening work in progress units + units put in)
- Scrap value ₹ 2 per unit.
- Units transferred to the next process 15,000 units.

You are required to prepare the process and other accounts.

Q.7. Nirmal Limited manufactures a range of products in a variety of processes and the data given below relate to process 3 for the month of April.

You are required to prepare :

(a) An account for process 3.

(b) An abnormal gain or loss account.

Transfer from process 2		10,800 Units		₹ 7,980
Transfer to process 4		9,650 Units		
Direct materials added during process				₹ 2,019
Direct wages incurred in process				₹ 2,829
Production overheads apportioned to process				₹ 6,622
There is a normal loss in process of 10% of through-put.				
All units scrapped can be sold at Re. 0.20 each.				
Opening work-in-process	:	1,200 units	?	
Degree of completion	:	Materials added in process	40%	
		Direct wages	60%	
		Production overheads	70%	
Closing work-in-process	:	1,000 Units		
Degree of completion	:	Materials added in process	80%	
		Direct wages	40%	
		Production overheads	60%	
Units scrapped	:	1,350 units		
Degree of completion	:	Materials added in process	50%	
		Direct wages	40%	
		Production overheads	20%	

Q.8. ABC Limited manufactures a product 'ZX' by using the process namely RT. For the month of May the following data are available:

	Process RT
Material introduced (units)	16,000
Transfer to next process (units)	14,400
Work in process:	
At the beginning of the month (units)	4,000
(4/5 completed)	
At the end of the month (units)	3,000
(2/3 completed)	
Cost records:	
Working in process at the beginning of the month	
Material	₹ 30,000
Conversion cost	₹ 29,000
Cost during the month : materials	₹ 1,20,000
Conversion cost	₹ 1,60,800

Normal spoiled units are 10% of good finished output transferred to next process. Defects in these units are identified in their finished state. Material for the product is put in the process at the beginning of the cycle of operation, whereas labour and other indirect cost flow evenly over the year. It has no realizable value for spoiled units.

Required:

(i) Statement of equivalent production (Average cost method);

(ii) Statement of cost and distribution of cost;

(iii) Process accounts.

Q.9. Following details are related to the work done in Process-I by XYZ Company during the month of March :

	Process RT
Opening work-in process (2,000 units)	
Materials	80,000
Labour	15,000
Overheads	45,000
Materials introduced in Process-I (38,000 units)	14, 80,000
Direct Labour	3, 59,000
Overheads	10, 77,000
Units scrapped: 3,000 units	
Degree of completion:	
Materials	100%
Labour and overheads	80%
Closing work-in process: 2,000 units	
Degree of completion:	
Materials	100%
Labour and overheads	80%
Units finished and transferred to Process-II: 35,000 units	
Normal Loss:	
5% of total input including opening work-in-process.	
Scrapped units fetch ₹ 20 per piece.	

You are required to prepare:

(i) Statement of equivalent production

(ii) Statement of cost

(iii) Statement of distribution cost, and

(iv) Process-I Account, Normal Loss Account and Abnormal Loss Account.

Q.10. XP Ltd. furnishes you the following information relating to process II.

- Opening work-in-progress – NIL
- Units introduced 42,000 units @ ₹ 12

Direct material (₹)	61,530
Labour (₹)	88,820
Overhead (₹)	1,76,400
Normal loss in the process	2 % of input.
Closing work-in-progress	1,200 units
Degree of completion	

Materials	100%
Labour	50%
Overhead	40%
Finished output	39,500 units
Degree of completion of abnormal loss:	
Material	100%
Labour	80%
Overhead	60%

- Units scraped as normal loss were sold at ₹ 4.50 per unit.
- All the units of abnormal loss were sold at ₹9 per unit.

Prepare:

(a) Statement of equivalent production;

(b) Statement showing the cost of finished goods, abnormal loss and closing work-in progress;

(c) Process II account and abnormal loss account.

Q.11. A company produces a component, which passes through two processes. During the month of April materials for 40,000 components were put into Process I of which 30,000 were completed and transferred to Process II. Those not transferred to Process II were 100% complete as to materials cost and 50% complete as to labour and overheads cost.

The Process I costs incurred were as follows:

Direct material	₹ 15,000
Direct wages	₹18,000
Factory overheads	₹ 12,000

Of those transferred to Process II, 28,000 units were completed and transferred to finished goods stores. There was a normal loss with no salvage value of 200 units in Process II. There were 1,800 units, remained unfinished in the process with 100% complete as to materials and 25% complete as regard to wages and overheads.

No further process material costs occur after introduction at the first process until the end of the second process, when protective packing is applied to the completed components.

The process and packing costs incurred at the end of the Process II were:

Packing materials	₹4,000
Direct wages	₹ 3,500
Factory overheads	₹ 4,500

Required:

(i) Prepare Statement of Equivalent Production, Cost per unit and Process I A/c.

(ii) Prepare Statement of Equivalent Production, Cost per unit and Process II A/c.

Q.12. Star Ltd. manufactures chemical solutions for the food processing industry. The manufacturing takes place in a number of processes and the company uses a FIFO process costing system to value work-in-process and finished goods. At the end of the last month, a fire occurred in the factory and destroyed some of the paper files containing records of the process operations for the month.

Star Ltd. needs your help to prepare the process accounts for the month during which the fire occurred. You have been able to gather some information about the month's operating activities but some of the information could not be retrieved due to the damage. The following information was salvaged:

- Opening work-in-process at the beginning of the month was 800 litres, 70% complete for labour and 60% complete for overheads. Opening work-in-process was valued at ₹ 26,640.
- Closing work-in-process at the end of the month was 160 litres, 30% complete for labour and 20% complete for overheads.
- Normal loss is 10% of input and total losses during the month were 1,800 litres partly due to the fire damage.
- Output sent to finished goods warehouse was 4,200 litres.
- Losses have a scrap value of ₹ 15 per litre.
- All raw materials are added at the commencement of the process.
- The cost per equivalent unit (litre) is ₹ 39 for the month made up as follows:

	(₹)
Raw Material	23
Labour	7
Overheads	9
	39

Required:

(a) Calculate the quantity (in litres) of raw material inputs during the month.

(b) Calculate the quantity (in litres) of normal loss expected from the process and the quantity (in litres) of abnormal loss / gain experienced in the month.

(c) Calculate the values of raw material, labour and overheads added to the process during the month.

(d) Prepare the process account for the month.

Q.13.A Ltd. produces product 'AXE' which passes through two processes before it is completed and transferred to finished stock. The following data relate to October 20X4:

	Process – I (₹)	Process – II (₹)	Finished Stock (₹)
Opening stock	7,500	9,000	22,500
Direct materials	15,000	15,750	--
Direct wages	11,200	11,250	--
Factory overheads	10,500	4,500	--
Closing stock	3,700	4,500	11,250
Inter-process profit included in opening stock	--	1,500	8,250

Output of Process- I is transferred to Process- II at 25% profit on the transfer price.

Output of Process- II is transferred to finished stock at 20% profit on the transfer price. Stock in process is valued at prime cost. Finished stock is valued at the price at which it is received from process II. Sales during the period are ₹ 1, 40,000.

Prepare Process cost accounts and finished goods account showing the profit element at each stage.

Q.14. An English willow company who manufactures cricket bat buys wood as its direct material. The Forming department processes the cricket bats and the cricket bats are then transferred to the Finishing department where stickers are applied. The Forming department began manufacturing 10,000 initial bats during the month of December for the first time and their cost is as follows:

Direct material: ₹ 33,000
Conversion costs: ₹ 17,000
Total ₹ 50,000

A total of 8,000 cricket bats were completed and transferred to the Finishing department, the rest 2,000 were still in the Forming process at the end of the month. All of the forming departments direct material were placed, but, on average, only 25% of the conversion costs was applied to the ending work in progress inventory.

CALCULATE:

(i) Equivalent units of production for each cost.
(ii) The Conversion cost per Equivalent units.
(iii) Cost of closing work in process (WIP) and finished products.

Q.15. A Manufacturing unit manufactures a product 'XYZ' which passes through three distinct Processes - X, Y and Z. The following data is given:

	Process X	Process Y	Process Z
Material consumed (in ₹)	2,600	2,250	2,000
Direct wages (in ₹)	4,000	3,500	3,000

- The total Production Overhead of ₹ 15,750 was recovered @ 150% of Direct wages.
- 15,000 units at ₹ 2 each were introduced to Process 'X'.
- The output of each process passes to the next process and finally, 12,000 units were transferred to Finished Stock Account from Process 'Z'.
- No stock of materials or work in progress was left at the end.

The following additional information is given:

Process	% of wastage to normal input	Value of Scrap per unit (₹)
X	6%	1.10
Y	?	2.00
Z	5%	1.00

You are required to:

(i) Find out the percentage of wastage in process 'Y', given that the output of Process 'Y' is transferred to Process 'Z' at ₹ 4 per unit.
(ii) Prepare Process accounts for all the three processes X, Y and Z.

[Sugg.Jul'21, 10 Marks]

HOME WORK SECTION

Q.1. Following information is available regarding process A for the month of February, 20X9:

Units in process as on 01.02.20X9	4,000
(All materials used, 25% complete for labour and overhead)	
New units introduced	16,000
Units completed	14,000
Units in process as on 28.02.20X9	6,000
(All materials used, 33-1/3% complete for labour and overhead)	
Cost Records:	
Work-in-process as on 01.02.20X9	(₹)
Materials	6,00,000
Labour	1,00,000
	8,00,000
Cost during the month	
Materials	25,60,000
Labour	15,00,000
Overhead	15,00,000
	55,60,000

Presuming that average method of inventory is used, PREPARE:

(i) Statement of Equivalent Production.

(ii) Statement showing Cost for each element.

(iii) Statement of Apportionment of cost.

(iv) Process Cost Account for Process A. [RTP May'19]

Q.2. A product is manufactured in two sequential processes, namely Process-1 and Process-2. The following information relates to Process-1. At the beginning of June 2019, there were 1,000 WIP goods (60% completed in terms of conversion cost) in the inventory, which are valued at ₹2,86,020 (Material cost: ₹2,55,000 and Conversion cost: ₹31,020). Other information relating to Process-1 for the month of June 2019 is as follows;

Cost of materials introduced- 40,000 units (₹)	96,80,000
Conversion cost added (₹)	18,42,000
Transferred to Process-2 (Units)	35,000
losing WIP (Units) (60% completed in terms of conversion cost)	1,500

100% of materials are introduced to Process-1 at the beginning. Normal loss is estimated at 10% of input materials (excluding opening WIP).

Required:

(i) PREPARE a statement of equivalent units using the weighted average cost methodand thereby calculate the following:

(ii) CALCULATE the value of output transferred to Process-2 and closing WIP.

[RTP Nov'19]

Q.3. From the following information for the month of January, 20X9, PREPARE Process-III cost accounts.

Opening WIP in Process-III	1,600 units at ₹ 24,000
Transfer from Process-II	55,400 units at ₹ 6,23,250
Transferred to warehouse	52,200 units
Closing WIP of Process-III	4,200 units
Units Scrapped	600 units
Direct material added in Process-III	₹ 2,12,400
Direct wages	₹ 96,420
Production overheads	₹ 56,400

Degree of completion:

	Opening Stock	Closing Stock	Scrap
Material	80%	70%	100%
Labour	60%	50%	70%
Overheads	60%	50%	70%

The normal loss in the process was 5% of the production and scrap was sold @ ₹ 5 per unit. (Students may treat material transferred from Process – II as Material – A and fresh material used in Process – III as Material B) [RTP Nov.'18]

Q.4. Alpha Ltd. is engaged in the production of a product A which passes through 3 different process Process P, Process Q and Process R. The following data relating to cost and output is obtained from the books of accounts for the month of April 2017:

Particulars	Process P	Process Q	Process R
Direct Material	38,000	42,500	42,880
Direct Labour	30,000	40,000	50,000

Production overheads of ₹ 90,000 were recovered as percentage of direct labour.

10,000 kg of raw material @ ₹ 5 per kg. was issued to Process P. There was no stock of materials or work in process. The entire output of each process passes directly to the next process and finally to warehouse. There is normal wastage, in processing, of 10 %.

The scrap value of wastage is ₹ 1 per kg. The output of each process transferred to next process and finally to warehouse are as under:

Process P = 9,000 kg

Process Q = 8,200 kg

Process R = 7,300 kg

The company fixes selling price of the end product in such a way so as to yield a profit of 25% selling price.

Prepare Process P, Q and R accounts. Also calculate selling price per unit of end product. [Sugg.May '18, 10 Marks]

Q.5. The M-Tech Manufacturing Company is presently evaluating two possible processes for the manufacture of a toy. The following information is available:

Particulars	Process A (Rs.)	Process B (Rs.)
Variable cost per unit	12	14
Sales price per unit	20	20
Total fixed costs per year	30,00,000	21,00,000
Capacity (in units)	4,30,000	5,00,000
Anticipated sales (Next year, in units)	4,00,000	4,00,000

SUGGEST:

1. Which process should be chosen?
2. Would you change your answer as given above, if you were informed that the capacities of the two processes are as follows: A - 6,00,000 units; B - 5,00,000 units? STATE the reason? [MTP Aug. '18, 5 Marks]

Q.6. SM Pvt. Ltd. manufactures their products in three consecutive processes. The details are as below:

	Process A	Process B	Process C
Transferred to next Process	60%	50%	
Transferred to warehouse for sale	40%	50%	100%

In each process, there is a weight loss of 2% and scrap of 8% of input of each process.

The realizable value of scrap of each process is as below:

Process A @ ₹ 2 per ton

Process B @ ₹ 4 per ton

Process C @ ₹ 6 per ton.

The following particulars relate to April, 2022:

	Process A	Process B	Process C
Materials used (in Tons)	1,000	260	140
Rate per ton	₹ 20	₹ 15	₹ 10
Direct Wages	₹ 4,000	₹ 3,000	₹ 2,000
Direct Expenses	₹ 3,160	₹ 2,356	₹ 1,340

PREPARE Process Accounts- A, B and C & calculate cost per ton at each process.

[RTP Nov. 22]

Q.7. STG Limited is a manufacturer of Chemical 'GK', which is required for industrial use. The complete production operation requires two processes. The raw material first passes through Process I, where Chemical 'G' is produced. Following data is furnished for the month April 2022:

Particulars	(in kgs.)
Opening work-in-progress quantity (Material 100% and conversion 50% complete)	9,500
Material input quantity	1,05,000
Work Completed quantity	83,000
Closing work-in-progress quantity (Material 100% and conversion 60% complete)	16,500

You are further provided that:

Particulars	(in `)
Opening work-in-progress cost	
Material cost	29,500
Processing cost	14,750
Material input cost	3,34,500
Processing cost	2,53,100

Normal process loss may be estimated to be 10% of material input. It has no realizable value. Any loss over and above normal loss is considered to be 100% complete in material and processing.

The Company transfers 60,000 kgs. of output (Chemical G) from Process I to Process II for producing Chemical 'GK'. Further materials are added in Process II which yield 1.20 kg. of Chemical 'GK' for every kg. of Chemical 'G' introduced. The chemicals transferred to Process II for further processing are then sold as Chemical 'GK' for ₹ 10 per kg. Any quantity of output completed in Process I, are sold as Chemical 'G' @ ₹ 9 per kg.

The monthly costs incurred in Process II (other than the cost of Chemical 'G') are: Input 60,000 kg. of Chemical 'G'

Materials Cost ₹ 85,000

Processing Costs ₹ 50,000

You are required:

(i) Prepare Statement of Equivalent production and determine the cost per kg. of Chemical 'G' in Process I using the weighted average cost method.

(ii) Prepare a statement showing cost of Chemical 'G' transferred to Process II, cost of abnormal loss and cost of closing work-in progress.

(iii) STG is considering the option to sell 60,000 kg. of Chemical 'G' of Process I without processing it further in Process-II. Will it be beneficial for the company over the current pattern of processing 60,000 kg in process-II? [Sugg.May'22, 10 Marks]

Q.8. MNO Ltd has provided following details:

- Opening work in progress is 10,000 units at ₹ 50,000 (Material 100%, Labour and overheads 70% complete).
- Input of materials is 55,000 units at ₹ 2,20,000. Amount spent on Labour and Overheads is ₹ 26,500 and ₹ 61,500 respectively.
- 9,500 units were scrapped; degree of completion for material 100% and for labour & overheads 60%.
- Closing work in progress is 12,000 units; degree of completion for material 100% and for labour & overheads 90%.
- Finished units transferred to next process are 43,500 units.

  Normal loss is 5% of total input including opening work in progress. Scrapped units would fetch ₹ 8.50 per unit.

You are required to prepare using FIFO method:

(i) Statement of Equivalent production

(ii) Abnormal Loss Account [Sugg.Jan'21, 5 Marks]

CLASS TEST

Q.1. A product passes through two distinct processes before completion. Following information are available in this respect:

	Process-1	Process 2
Raw materials used	10000 units	-
Raw material cost (per unit)	₹ 75	-
Transfer to next process/Finished good	9000 units	8200 units
Normal loss (on inputs)	5%	10%
Direct wages	₹ 3,00,000	₹ 5,60,000
Direct expenses	50% of direct wages	65% of direct wages
Manufacturing overheads	25% of direct wages	15% of direct wages
Realisable value of scrap (per unit)	₹ 13.50	₹ 145

8000 units of finished goods were sold at a profit of 15% on cost. There was no opening and closing stock of work-in-progress.

Prepare:

(i) Process-1 and Process-2 Account

(ii) Finished goods Account

(iii) Normal Loss Account

(iv) Abnormal Loss Account

(v) Abnormal Gain Account [Sugg.-Nov'19,10 Marks]

Q.2. Following details have been provided by M/s AR Enterprises:

(i) Opening works-in-progress - 3000 units (70% complete)

(ii) Units introduced during the year - 17000 units

(iii) Cost of the process (for the period) - ₹ 33,12,720

(iv) Transferred to next process - 15000 units

(v) Closing works-in-progress - 2200 units (80% complete)

(vi) Normal loss is estimated at 12% of total input (including units in process in the beginning). Scraps realise ₹ 50 per unit. Scraps are 100% complete.

Using FIFO method, compute:

(i) Equivalent production

(ii) Cost per equivalent unit [Sugg.Nov '18, 5 Marks]

Q.3. The following data are available in respect of Process-I for January 20X9:

(1) Opening stock of work in process: 600 units at a total cost of Rs. 4,20 ,000.

(2) Degree of completion of opening work in process:

Material 100%

Labour 60%

Overheads 60%

(3) Input of materials at a total cost of Rs.55,20 ,000 for 9,200 units.

(4) Direct wages incurred Rs.18,60,000

(5) Production overhead Rs.8,63,000.

(6) Units scrapped 200 units. T he stage of completion of these units was:

Materials	100%
Labour	80%
Overheads	80%

(7) Closing work in process; 700 units. T he stage of completion of these units was:

Material	100%
Labour	70%
Overheads	70%

(8) 8,900 units were completed and transferred to the next process.

(9) Normal loss is 4% of the total input (opening stock plus units put in)

(10) Scrap value is Rs.60 per unit.

You are required to:

(i) Compute equivalent production,

(ii) Calculate the cost per equivalent unit for each element.

(iii) Calculate the cost of abnormal loss (orgain), closing work in process a nd the units transferred to the next p rocess using the FIFO method.

[MTP April '19, 10 Marks]

CLASSWORK SECTION

Q.1. A coke manufacturing company produces the following products by using 5,000 tons of coal @ ₹ 1,100 per ton into a common process.

Coke	3,500 tons
Tar	1,200 tons
Sulphate of ammonia	52 tons
Benzol	48 tons

PREPARE a statement apportioning the joint cost amongst the products on the basis of the physical unit method.

Q.2. Find out the cost of joint products A, B and C using average unit cost method from the following data:

(a) Pre-separation Joint Cost ₹ 60,000

(b) Production data:

Products	Units produced
A	500
B	200
C	300
	1,000

Q.3. Find out the cost of joint products A and B using contribution margin method from the following data:

Sales

A : 100 kg @ ₹ 60 per kg.

B : 120 kg @ ₹ 30 per kg.

Joint costs

Marginal cost ₹ 4,400

Fixed cost ₹ 3,900

Q.4. Inorganic Chemicals purchases salt and processes it into more refined products such as Caustic Soda, Chlorine and PVC. In the month of July, Inorganic Chemicals purchased Salt for ₹ 40,000. Conversion of ₹ 60,000 were incurred upto the split off point, at which time two saleable products were produced. Chlorine can be further processed into PVC.

The July production and sales information is as follows:

	Production (in ton)	Sales Quantity (in ton)	Selling price per ton (₹)
Caustic Soda	1,200	1,200	50
Chlorine	800	–	–
PVC	500	500	200

All 800 tons of Chlorine were further processed, at an incremental cost of ₹ 20,000 to yield 500 tons of PVC. There was no beginning or ending inventories of Caustic Soda, Chlorine or PVC in July.

There is active market for Chlorine. Inorganic Chemicals could have sold all its July production of Chlorine at ₹ 75 per ton.

Required :

(1) To calculate how joint cost of₹ 1,00,000 would be apportioned between Caustic Soda and Chlorine under each of following methods:

(a) sales value at split- off point ;
(b) physical unit method, and
(c) estimated net realisable value.

(2) Lifetime Swimming Pool Products offers to purchase 800 tons of Chlorine in August at ₹ 75 per ton. This sale of Chlorine would mean that no PVC would be produced in August. How the acceptance of this offer for the month of August would affect operating income ?

Q.5. A company's plant processes 1,50,000 kg. of raw material in a month to produce two products, viz, 'P' and 'Q'. The cost of raw material is ₹ 12 per kg. The processing costs per month are:

	(₹)
Direct Materials	90,000
Direct Wages	1,20,000
Variable Overheads	1,00,000
Fixed Overheads	1,00,000

The loss in process is 5% of input and the output ratio of P and Q which emerge simultaneously is 1:2. The selling prices of the two products at the point of split off are:
P ₹ 12 per kg. and Q ₹ 20 per kg. A proposal is available to process P further by mixing it with other purchased materials. The entire current output of the plant can be so processed further to obtain a new product 'S'. The price per kg. of S is ₹ 15 and each kg of output of S will require one kilogram of input P. The cost of processing of P into S (including other materials) is ₹ 1,85,000 per month.
You are required to prepare a statement showing the monthly profitability based both on the existing manufacturing operations and on further processing.
Will you recommend further processing?

Q.6. Sun-moon Ltd. produces and sells the following products:

Products	Units	Selling price at split-off point (₹)	Selling price after further processing (₹)
A	2,00,000	17	25
B	30,000	13	17
C	25,000	8	12
D	20,000	10	-
E	75,000	14	20

Raw material costs ₹ 35,90,000 and other manufacturing expenses cost (₹ 5,47,000 in the manufacturing process which are absorbed on the products on the basis of their 'Net realisable value'. The further processing costs of A, B, C and E are ₹12,50,000; ₹ 1,50,000; ₹ 50,000 and ₹ 1,50,000 respectively. Fixed costs are ₹ 4,73,000.
You are required to prepare the following in respect of the coming year:
(a) Statement showing income forecast of the company assuming that none of its products are to be further processed.
(b) Statement showing income forecast of the company assuming that products A, B, C and E are to be processed further.
Can you suggest any other production plan whereby the company can maximise its profits?
If yes, then submit a statement showing income forecast arising out of adoption of that plan.

Q.7. In a chemical manufacturing company, three products A, B and C emerge at a single split off stage in department P. Product A is further processed in department Q, product B in department R and product C in department S. There is no loss in further Processing of any of the three products. The cost data for a month are as under:

Cost of raw materials introduced in department P ₹ 12,68,800

Direct Wages Department	(₹)
P	3,84,000
Q	96,000
R	64,000
S	36,000

Factory overheads of ₹ 4,64,000 are to be apportioned to the departments on direct wage basis.

During the month under reference, the company sold all three products after processing them further as under:

Products	A	B	C
Output sold (kg.)	44,000	40,000	20,000
Selling Price per kg. (₹)	32	24	16

There is no opening or closing stocks. If these products were sold at the split off stage, that is, without further processing, the selling prices would have been ₹ 20, ₹ 22 and ₹ 10 each per kg respectively for A, B and C.

Required:

(i) Prepare a statement showing the apportionment of joint costs to joint products.

(ii) Present a statement showing product-wise and total profit for the month under reference as per the company's current processing policy.

(iii) What processing decision should have been taken to improve the profitability of the company?

(iv) Calculate the product-wise and total profit arising from your recommendation in (iii) above.

Q.8. Pokemon Chocolates manufactures and distributes chocolate products. It purchases Cocoa beans and processes them into two intermediate products:

Chocolate powder liquor base Milk-chocolate liquor base

These two intermediate products become separately identifiable at a single split off point.

Every 500 pounds of cocoa beans yields 20 gallons of chocolate – powder liquor base and 30 gallons of milk-chocolate liquor base.

The chocolate powder liquor base is further processed into chocolate powder. Every 20 gallons of chocolate-powder liquor base yields 200 pounds of chocolate powder. The milk chocolate liquor base is further processed into milk-chocolate. Every 30 gallons of milkchocolate liquor base yields 340 pounds of milk chocolate.

Production and sales data for October are:

Cocoa beans processed 7,500 pounds

Costs of processing Cocoa beans to split off point ₹ 7,12,500

(including purchase of beans)

Product	Production	Sales	Selling price
Chocolate powder	3,000 pounds	3,000 pounds	₹ 190 per pound
Milk chocolate	5,100 Pounds	5,100 Pounds	₹ 237.50 per pound

The October separable costs of processing chocolate-powder liquor into chocolate powder are ₹ 3,02,812.50 and separable costs of processing milk-chocolate liquor base into milk-chocolate are ₹ 6,23,437.50.
Pokemon full processes both of its intermediate products into chocolate powder or milkchocolate.

There is an active market for these intermediate products. In October.

Pokemon could have sold the chocolate powder liquor base for ₹ 997.50 a gallon and the milk-chocolate liquor base for ₹ 1,235 a gallon.

Required:

(i) Calculate how the joint cost of ₹ 7,12,500 would be allocated between the chocolate powder and milk-chocolate liquor bases under the following methods:
   (a) Sales value at split off point
   (b) Physical measure (gallons)
   (c) Estimated net realisable value, (NRV) and
   (d) Constant gross-margin percentage NRV.

(ii) What is the gross-margin percentage of the chocolate powder and milk-chocolate liquor bases under each of the methods in requirements (i) above?

(iii) Could Pokemon have increased its operating income by a change in its decision to fully process both of its intermediate products? Show your computations.

Q.9. A Chemical Company carries on production operation in two processes. The material first pass through Process I, where Product 'A' is produced. Following data are given for the month just ended:

Material input quantity	2,00,000 kg.
Opening work-in-progress quantity	
(Material 100% and conversion 50% complete)	40,000 kg.
Work completed quantity	1,60,000 kg
Closing work-in-progress quantity	
(Material 100% and conversion two-third complete)	30,000 kg.
Material input cost	₹ 75,000
Processing cost	₹ 1,02,000
Opening work-in-progress cost	
Material cost	₹ 20,000
Processing cost	₹ 12,000

Normal process loss in quantity may be assumed to be 20% of material input. It has no realisable value.
Any quantity of Product 'A' can be sold for ₹ 1.60 per kg.

Alternatively, it can be transferred to Process II for further processing and then sold as Product 'AX' for ₹ 2 per kg. Further materials are added in Process II, which yield two kg. of product 'AX' for every kg. of Product 'A' of Process I.
Of the 1,60,000 kg. per month of work completed in Process I, 40,000 kg. are sold as Product 'A' and

1,20,000 kg. are passed through Process II for sale as Product 'AX'.
Process II has facilities to handle upto 1,60,000 kg. of Product 'A' per month, if required.

The monthly costs incurred in Process II (other than the cost of Product 'A') are:

	1,20,000 kg. of Product 'A' input (₹)	1,60,000 kg. of Product 'A' input (₹)
Materials Cost	1,32,000	1,76,000
Processing Costs	1,20,000	1,40,000

Required:

(i) Determine, using the weighted average cost method, the cost per kg. of Product 'A' in Process I and value of both work completed and closing work-in-progress for the month just ended.

(ii) Is it worthwhile processing 1,20,000 kg. of Product 'A' further?

(iii) Calculate the minimum acceptable selling price per kg., if a potential buyer could be found for additional output of Product 'AX' that could be produced with the remaining Product 'A' quantity.

Q 10. ABC Ltd. operates a simple chemical process to convert a single material into three separate items, referred to here as X, Y and Z. All three end products are separated simultaneously at a single split-off point.

Product X and Y are ready for sale immediately upon split off without further processing or any other additional costs. Product Z, however, is processed further before being sold.

There is no available market price for Z at the split-off point.
The selling prices quoted here are expected to remain the same in the coming year.
During the year the selling prices of the items and the total amounts sold were:
X – 186 tons sold for ₹ 1,500 per ton
Y – 527 tons sold for ₹ 1,125 per ton
Z – 736 tons sold for ₹ 750 per ton
The total joint manufacturing costs for the year were ₹ 6,25,000. An additional ₹ 3,10,000 was spent to finish product Z.

There were no opening inventories of X, Y or Z at the end of the year. The following inventories of complete units were on hand:
X 180 tons
Y 60 Tons
Z 25 tons
There was no opening or closing work-in-progress.
Required:

(i) Compute the cost of inventories of X, Y and Z for Balance Sheet purposes and cost of goods sold for income statement purpose at the end of the year using:
  (a) Net realizable value (NRV) method of joint cost allocation
  (b) Constant gross-margin percentage NRV method of joint-cost allocation.

(ii) Compare the gross-margin percentages for X, Y and Z using two methods given in requirement (i)

Q.11. A company produces two joint product X and Y from the same basic materials. The processing is completed in three departments.

Materials are mixed in Department I. At the end of this process X and Y get separated.

After separation X is completed in the Department II and Y is finished in Department III.

During a period 2,00,000 kg. of raw material were processed in Department I, at a total cost of ₹8,75,000, and the resultant 60% becomes X and 30% becomes Y and 10% normally lost in processing.

In Department II 1/6th of the quantity received from Department I is lost in processing. X is further processed in Department II at a cost of ₹ 1,80,000.

In Department III further new material added to the material received from Department I and weight mixture is doubled, there is no quantity loss in the department. Further processing cost (with material cost) in Department III is ₹ 1,50,000.

The details of sales during the year are:

	Product X	Product Y
Quantity sold (kg.)	90,000	1,15,000
Sales price per kg (₹)	10	4

There were no opening stocks. If these products sold at split-off-point, the selling price of X and Y would be ₹ 8 and ₹ 4 per kg respectively.

Required:

(i) Prepare a statement showing the apportionment of joint cost to X and Y in proportion of sales value at split off point.

(ii) Prepare a statement showing the cost per kg of each product indicating joint cost, processing cost and total cost separately.

(iii) Prepare a statement showing the product wise profit for the year.

(iv) On the basis of profits before and after further processing of product X and Y, give your comment that products should be further processed or not.

Q.12. In an Oil Mill four products emerge from a refining process. The total cost of input during the quarter ending March 20X8 is ₹1,48,000. The output, sales and additional processing costs are as under:

Products	Output in Litres	Additional processing cost after split off (₹)	Sales value (₹)
ACH	8,000	43,000	1,72,500
BCH	4,000	9,000	15,000
CSH	2,000	-	6,000
DSH	4,000	1,500	45,000

In case these products were disposed-off at the split off point that is before further processing, the selling price per litre would have been:

ACH (₹)	BCH (₹)	CSH (₹)	DSH (₹)
15.00	6.00	3.00	7.50

PRODUCE a statement of profitability based on:

(i) If the products are sold after further processing is carried out in the mill.

(ii) If they are sold at the split off point. [RTP Nov'18]

Q.13.A Factory is engaged in the production of chemical Bomex and in the course of its manufacture a byproduct Cromex is produced which after further processing has a commercial value. For the month of April 2019 the following are the summarised cost data:

	Joint Expenses	Separate Expenses (₹)	
		Bomex	Cromex
Materials	1,00,000	6,000	4,000
Labour	50,000	20,000	18,000
Overheads	30,000	10,000	6,000
Selling Price per unit		100	40
Estimated profit per unit on sale of Cromex			5
Number of units produced		2,000 Units	2,000 Units

The factory uses net realisable value method for apportionment of joint cost to by-products. You are required to prepare statements showing :

(i) Joint cost allocable to Cromex

(ii) Product wise and overall profitability of the factory for April 2019.

[Sugg.May '19, 4 Marks]

Q.14.JP Ltd. uses joint production process that produces three products at the split -off point. Joint production costs during the month of July, 2022 were ₹ 33,60,000.

Product information for the month of July is as follows:

Particulars	Product A	Product B	Product C
Units produced	3,000	6,000	9,000
Sales prices:			
At the split-off	₹ 200		
After further processing	₹ 300	₹ 350	₹ 100
Costs to process after split-off	₹ 6,00,000	₹ 6,00,000	₹ 6,00,000

Other information is as follows:

Product C is a by-product and the company accounts for the by-product at net realizable value as a reduction of joint cost. Further, Product B & C must be processed further before they can be sold. FIND OUT the joint cost allocated to Product A in the month of July if joint cost allocation is based on Net Realizable Value. [RTP Nov. 22]

HOME WORK SECTION

Q.1. Three products X,Y and Z alongwith a byproduct B are obtained again in a crude state which require further processing at a cost of Rs. 5 for X; Rs. 4 for Y; and Rs. 2.50 for Z per unit before sale. The byproduct is however saleable as such to a nearby factory. The selling prices for the three main products and byproduct, assuming they should yield a net margin of 25 percent of cost, are fixed at Rs. 13.75 Rs. 8.75 and Rs. 7.50 and Re. 1.00 respectively – all per unit quantity sold.

During a period, the joint input cost including the material cost was Rs. 90,800 and the respective outputs were:

X 8,000 units

Y 6,000 units

Z 4,000 units

B 1,000 units

By product should be credited to the joint cost and only the net joint costs are to be allocated to the main products.

Calculate the joint cost per unit of each product and the margin available as a percentage on cost. [MTP Aug. '18, 10 Marks]

Q.2. In an Oil Mill, four products emerge from a refining process. The total cost of input during the quarter ending March 2019 is Rs.22,20,000. The output, sales and additional processing costs are as under:

Products	Output in Litres	Additional processing cost after split off (Rs.)	Sales value (Rs.)
A	8,000	6,45,000	25,87,500
B	4,000	1,35,000	2,25,000
C	2,000	-	90,000
D	4,000	22,500	6,75,000

In case these products were disposed-off at the split off point that is before further processing, the selling price per litre would have been:

A (Rs.)	B (Rs.)	C (Rs.)	D (Rs.)
225.00	90.00	45.00	112.50

PREPARE a statement of profitability based on:

(i) If the products are sold after further processing is carried out in the mill.

(ii) If they are sold at the split off point.

[MTP Oct. '19, 10 Marks]

Q.3. SV chemicals Limited processes 9,00,000 kgs. of raw material in a month purchased at ₹ 95 per kg in department X. The input output ratio of department X is 100 : 90. Processing of the material results in two joint products being produced 'P1' and 'P2' in the ratio of 60 : 40.

Product 'P1' can be sold at split off stage or can be further processed in department Y and sold as a new product 'YP1'. The input output ratio of department Y is 100 : 95. Department Y is utilized only for further processing of product 'P1' to product 'YP1'. Individual departmental expenses are as follows:

	Dept. X (₹ lakhs)	Dept. Y (₹ lakhs)
Direct Materials	95.00	14.00
Direct Wages	80.00	27.00
Variable Overheads	100.00	35.00

Fixed Overheads	75.00	52.00
Total	350.00	128.00

Further, selling expenses to be incurred on three products are:

Particulars	Amount (₹ in lakhs)
Product 'P1'	28.38
Product 'P2'	25.00
Product 'YP1'	19.00

Selling price of the products 'P1' and 'P2' at split off point is ₹110 per kg and ₹ 325 per kg respectively. Selling price of new product 'YP1' is ₹₹ 150 per kg.

You are required to:

(i) Prepare a statement showing apportionment of joint costs, in the ratio of value of sales, net of selling expenses.

(ii) Statement showing profitability at split off point.

(iii) Statement of profitability of 'YP1'.

(iv) Would you recommend further processing of P1?

Q.4. Mayura Chemicals Ltd buys a particular raw material at ₹ 8 per litre. At the end of the processing in Department- I, this raw material splits-off into products X, Y and Z. Product X is sold at the split-off point, with no further processing. Products Y and Z require further processing before they can be sold. Product Y is processed in Department-2, and Product Z is processed in Department-3. Following is a summary of the costs and other related data for the year 2019-20:

Particulars	Department		
	1	2	3
Cost of Raw Material	₹ 4,80,000	-	-
Direct Labour	₹ 70,000	₹ 4,50,000	₹ 6,50,000
Manufacturing Overhead	₹ 48,000	₹ 2,10,000	₹ 4,50,000
	Products		
	X	Y	Z
Sales (litres)	10,000	15,000	22,500
Closing inventory (litres)	5,000	-	7,500
Sale price per litre (₹)	30	64	50

There were no opening and closing inventories of basic raw materials at the beginning as well as at the end of the year. All finished goods inventory in litres was complete as to processing. The company uses the Net-realisable value method of allocating joint costs.

You are required to prepare:

(i) Schedule showing the allocation of joint costs.

(ii) Calculate the Cost of goods sold of each product and the cost of each item in Inventory.

(iii) A comparative statement of Gross profit. [Sugg.Jan'21, 10 Marks]

Q.5. OPR Ltd. purchases crude vegetable oil. It does refining of the same. The refining process results in four products at the spilt-off point - S, P, N and A. Product 'A' is fully processed at the split-off point. Product S, P and N can be individually further refined into SK, PM, and NL respectively. The joint cost of purchasing the crude vegetable oi l and processing it were ₹ 40,000. Other details are as follows:

Product	Further processing costs (₹)	Sales at split-off point (₹)	Sales after further processing (₹)
S	80,000	20,000	1,20,000
P	32,000	12,000	40,000
N	36,000	28,000	48,000
A	-	20,000	-

You are required to identify the products which can be further processed for maximizing profits and make suitable suggestions. [Sugg.Jul'21, 5 Marks]

CLASS TEST

Q.1. A Factory produces two products, 'A' and 'B' from a single process. The joint processing costs during a particular month are :

Direct Material	₹30,000
Direct Labour	₹ 9,600
Variable Overheads	₹ 12,000
Fixed Overheads	₹ 32,000

Sales : A -100 units @ * 600 per unit; B - 120units @ ₹ 200 per unit

Apportion joints costs on the basis of:

(i) Physical Quantity of each product.

(ii) Contribution Margin method, and

(iii) Determine Profit or Loss under both the methods. [Sugg.-Nov'19,5 Marks]

CLASSWORK SECTION

Q. 1. SMC is a public school having five buses each plying in different directions for the transport of its school students. In view of a larger number of students availing of the bus service the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The work-load of the students has been so arranged that in the morning the first trip picks up senior students and the second trip plying an hour later picks up the junior students. Similarly, in the afternoon the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus one way is 8 km. The school works 25 days in a month and remains closed for vacation in May, June and December. Bus fee, however, is payable by the students for all 12 months in a year.

The details of expenses for a year are as under:

Driver's salary	₹ 4,500 per month per driver
Cleaner's salary	₹ 3,500 per month
(Salary payable for all 12 months)	
(one cleaner employed for all the five buses)	
Licence fee, taxes, etc.	₹ 8,600 per bus per annum
Insurance	₹ 10,000 per bus per annum
Repairs & maintenance	₹ 35,000 per bus per annum
Purchase price of the bus	₹ 15,00,000 each
Life of each bus 12 years	
Scrap value of buses at the end of life	₹ 3,00,000
Diesel cost ₹ 45.00 per litre	

Each bus gives an average mileage of 4 km. per litre of diesel.
Seating capacity of each bus is 50 students.
The seating capacity is fully occupied during the whole year.
Students picked up and dropped within a range up to 4 km. of distance from the school are charged half fare and fifty per cent of the students travelling in each trip are in this category.
Ignore interest. Since the charges are to be based on average cost you are required to:

(i) Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.

(ii) Work out the average cost per student per month in respect of –
  (A) students coming from a distance of upto 4 km. from the school and
  (B) students coming from a distance beyond 4 km. from the school.

Q. 2. A lodging home is being run in a small hill station with 100 single rooms. The home offers concessional rates during six off- season months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending on 31st March 20X7. [Assume a month to be of 30 days].

(i) Occupancy during the season is 80% while in the off- season it is 40% only.

(ii) Total investment in the home is ₹ 200 lakhs of which 80% relate to buildings and balance for furniture and equipment.

(iii) Expenses:

- Staff salary [Excluding room attendants] : ₹ 5,50, 000
- Repairs to building : ₹ 2,61,000
- Laundry charges : ₹80, 000
- Interior : ₹ 1,75,000
- Miscellaneous expenses : ₹ 1,90,800

(iv) Annual depreciation is to be provided for buildings @ 5% and on furniture and equipment @ 15% on straight-line basis.

(v) Room attendants are paid ₹ 10 per room day on the basis of occupancy of the rooms in a month.

(vi) Monthly lighting charges are ₹ 120 per room, except in four months in winter when it is ₹ 30 per room and this cost is on the basis of full occupancy for a month.

You are required to work out the room rent chargeable per day both during the season and the off-season months on the basis of the foregoing information.

Q. 3. ABC Hospital runs a Critical Care Unit (CCU) in a hired building. CCU consists of 35 beds and 5 more beds can be added, if required.

Rent per month - ₹ 75,000
Supervisors – 2 persons – ₹ 25,000 Per month – each
Nurses – 4 persons – ₹ 20,000 per month – each
Ward Boys – 4 persons – ₹ 5,000 per month – each
Doctors paid ₹ 2, 50,000 per month – paid on the basis of number of patients attended and the time spent by them

Other expenses for the year are as follows:
Repairs – ₹ 81,000
Food to Patients – ₹ 8,80,000
Other services to patients – ₹ 3, 00,000
Laundry charges – ₹ 6,00,000
Medicines – ₹ 7,50,000
Other expenses – ₹ 10, 80,000
Administration expenses allocated – ₹ 10,00,000

It was estimated that for 150 days in a year 35 beds are occupied and for 80 days only 25 beds are occupied.
The hospital hired 750 beds at a charge of ₹ 100 per bed per day, to accommodate the flow of patients. However, this does not exceed more than 5 extra beds over and above the normal capacity of 35 beds on any day.

You are required to calculate profit per Patient day, if the hospital recovers on an average ₹ 2,000 per day from each patient.

Q. 4. Mr. X owns a bus which runs according to the following schedule:

(i) Delhi to Chandigarh and back, the same day.

Distance covered:	250 km. one way.
Number of days run each month :	8
Seating capacity occupied	90%.

(ii) Delhi to Agra and back, the same day.

Distance covered:	210 km. one way
Number of days run each month :	10
Seating capacity occupied	85%

(iii) Delhi to Jaipur and back, the same day.

Distance covered:	270 km. one way
Number of days run each month :	6
Seating capacity occupied	100%

(iv) Following are the other details:

Cost of the bus	₹ 12,00,000
Salary of the Driver	₹ 24,000 p.m.
Salary of the Conductor	₹ 21,000 p.m.
Salary of the part-time Accountant	₹ 5,000 p.m.
Insurance of the bus	₹ 4,800 p.a.
Diesel consumption 4 km. per litre at	₹ 56 per litre
Road tax	₹ 15,915 p.a.
Lubricant oil	₹ 10 per 100 km.
Permit fee	₹ 315 p.m.
Repairs and maintenance	₹ 1,000 p.m.
Depreciation of the bus	@ 20% p.a.
Seating capacity of the bus	50 persons.

Passenger tax is 20% of the total takings. Calculate the bus fare to be charged from each passenger to earn a profit of 30% on total takings. The fares are to be indicated per passenger for the journeys:

(i) Delhi to Chandigarh (ii) Delhi to Agra and (iii) Delhi to Jaipur.

Q. 5. A company is considering three alternative proposals for conveyance facilities for its sales personnel who has to do considerable traveling, approximately 20,000 kilometres every year. The proposals are as follows:

(i) Purchase and maintain its own fleet of cars. The average cost of a car is ₹ 6,00,000.

(ii) Allow the Executive use his own car and reimburse expenses at the rate of ₹ 10 per kilometer and also bear insurance costs.

(iii) Hire cars from an agency at ₹ 1,80,000 per year per car. The company will have to bear costs of petrol, taxes and tyres.

The following further details are available:

Petrol ₹ 6 per km. Repairs and maintenance ₹ 0.20 per km.

Tyre ₹ 0.12 per km. Insurance ₹1,200 per car per annum

Taxes ₹ 800 per car per annum Life of the car: 5 years with annual mileageof 20,000 km.

Resale value : ₹ 80,000 at the end of the fifth year.

Work out the relative costs of three proposals and rank them.

Q. 6. From the following data pertaining to the year 20X7-X8 prepare a cost statement showing the cost of electricity generated per kwh by Chambal Thermal Power Station.

Total units generated 10,00,000 kWh

	(₹)
Operating labour	15,00,000
Repairs & maintenance	5,00,000
Lubricants, spares and stores	4,00,000
Plant supervision	3,00,000
Administration overheads	20,00,000

5 kWh. of electricity generated per kg. of coal consumed @ ₹ 4.25 per kg. Depreciation charges @ 5% on capital cost of ₹ 2,00,00,000.

Q. 7. A Lorry starts with a load of 20 MT of Goods from Station 'A'. It unloads 8 MT in Station 'B' and balance goods in Station 'C'. On return trip, it reaches Station 'A' with a load of 16 MT, loaded at Station 'C'. The distance between A to B, B to C and C to A are 80 Kms, 120 Kms and 160 Kms, respectively. COMPUTE "Absolute MT- Kilometer" and "Commercial MT – Kilometer".
(MT = Metric Ton or Ton).

Q.8. ABC Transport Company has given a route 40 kilometers long to run bus.

(a) The bus costs the company a sum of ₹ 10,00,000
(b) It has been insured at 3% p.a. and
(c) The annual tax will amount to ₹ 20,000
(d) Garage rent is ₹ 20,000 per month.
(e) Annual repairs will be ₹ 2,04,000
(f) The bus is likely to last for 2.5 years
(g) The driver's salary will be ₹ 30,000 per month and the conductor's salary will be ₹25,000 per month in addition to 10% of takings as commission [To be shared by the driver and conductor equally].
(h) Cost of stationery will be ₹1,000 per month.
(i) Manager-cum-accountant's salary is ₹17,000 per month.
(j) Petrol and oil will be ₹ 500 per 100 kilometers.
(k) The bus will make 3 up and down trips carrying on an average 40 passengers on each trip.
(l) The bus will run on an average 25 days in a month.

Assuming 15% profit on takings, CALCULATE the bus fare to be charged from each passenger.

Q. 9. GTC has a lorry of 6-ton carrying capacity. It operates lorry service from city A to city B. It charges ₹ 2,400 per ton from city 'A' to city 'B' and ₹ 2,200 per ton for the return journey from city 'B' to city 'A'. Goods are also delivered to an intermediate city 'C' but no concession or reduction in rates is given. Distance between the city 'A' to 'B' is 300 km and distance from city 'A' to 'C' is 140 km.

In January 2020, the truck made 12 outward journeys for city 'B'. The details of journeys are as follows:

Outward journey	No. of journeys	Load (in ton)
'A' to 'B'	10	6
'A' to 'C'	2	6
'C' to 'B'	2	4
Return journey	No. of journeys	Load (in ton)
'B' to 'A'	5	8
'B' to 'A'	6	6
'B' to 'C'	1	6
'C' to 'A'	1	0

Annual fixed costs and maintenance charges are ₹ 6,00,000 and ₹ 1,20,000 respectively. Running charges spent during January 2020 are ₹ 2,94,400 (includes ₹ 12,400 paid as penalty for overloading). You are required to:

(i) CALCULATE the cost as per
(a) Commercial ton-kilometre. (b) Absolute ton- kilometre

(ii) CALCULATE Net Profit/ loss for the month of January, 2020.

Q. 10. Following are the data pertaining to Infotech Pvt. Ltd, for the year 2019-20:

	Amount (₹)
Salary to Software Engineers (5 persons)	15,00,000
Salary to Project Leaders (2 persons)	9,00,000
Salary to Project Manager	6,00,000
Repairs & maintenance	3,00,000
Administration overheads	12,00,000

The company executes a Project XYZ, the details of the same as are as follows: Project duration – 6 months

One Project Leader and three Software Engineers were involved for the entire duration of the project, whereas Project Manager spends 2 months' efforts, during the execution of the project.

Travel expenses incurred for the project – ₹ 1,87,500

Two Laptops were purchased at a cost of ₹ 50,000 each, for use in the project and the life of the same is estimated to be 2 years

PREPARE Project cost sheet.

Q.11. The loan department of a bank performs several functions in addition to home loan application processing task. It is estimated that 25% of the overhead costs of loan department are applicable to the processing of home-loan application. The following information is given concerning the processing of a loan application:

	(₹)
Direct professional labor:	
Loan processor monthly salary:	2,40,000
(4 employees @ ₹ 60,000 each)	
Loan department overhead costs (monthly)	
Chief loan officer's salary	75,000
Telephone expenses	7,500
Depreciation Building	28,000
Legal advice	24,000
Advertising	40,000
Miscellaneous	6,500
Total overhead costs	1,81,000

You are required to COMPUTE the cost of processing home loan application on the assumption that five hundred home loan applications are processed each month.

Q. 12. Coal is transported from two mines X & Y and unloaded at plots in a railway station. X is at distance of 15 kms and Y is at a distance of 20 kms from the rail head plots. A fleet of lorries having carrying capacity of 4 tonnes is used to transport coal from the mines. Records reveal that average speed of the lorries is 40 kms per hour when running and regularly take 15 minutes to unload at the rail head. At Mine X average loading time is 30 minutes per load, while at mine
Y average loading time is 25 minutes per load.
Additional Information:
Drivers' wages, depreciation, insurance and taxes, etc 12 per hour Operated Fuel, oil tyres, repairs and maintenance, etc 1.60 per km You are required to prepare a statement showing the cost per tonne kilometre of carrying coal from each mine 'X' and 'Y'.

Q. 13. BHG Toll Plaza Ltd built a 60 km. long highway and now operates a toll plaza to collect tolls from passing vehicles using the highway. The company has estimated that a total of 12 crore vehicles (only single type of vehicle) will be using the highway during the 10 years toll collection tenure.
Toll Operating and Maintenance cost for the month of April 2020 are as follows:

(i) Salary to –
- Collection Personnel (3 Shifts and 4 persons per shift) - ₹ 550 per day per person
- Supervisor (2 Shifts and 1 person per shift) - ₹ 750 per day per person
- Security Personnel (3 Shifts and 6 persons per shift) - ₹450 per day per person
- Toll Booth Manager (2 Shifts and 1 person per shift) - ₹900 per day per person

(ii) Electricity – ₹ 8,00,000
(iii) Telephone – ₹ 1,40,000
(iv) Maintenance cost – ₹ 30 Lakh

Monthly depreciation and amortisation expenses will be ₹ 1.50 crore. Further, the company needs 25% profit over total cost to cover interest and other costs.
Required:
(i) CALCULATE cost per kilometer per month.
(ii) CALCULATE the toll rate per vehicle.

HOME WORK SECTION

Q. 1. Sanziet Lifecare Ltd. operates in life insurance business. Last year it launched a new term insurance policy for practicing professionals 'Professionals Protection Plus'. The company has incurred the following expenditures during the last year for the policy:

	₹
Policy development cost	11,25,000
Cost of marketing of the policy	45,20,000
Sales support expenses	11,45,000
Policy issuance cost	10,05,900
Policy servicing cost	35,20,700
Claims management cost	1,25,600
IT cost	74,32,000
Postage and logistics	10,25,000
Facilities cost	15,24,000
Employees cost	5,60,000
Office administration cost	16,20,400

Number of policy sold- 528

Total insured value of policies- ₹1,320 crore

Required:

(i) CALCULATE total cost for Professionals Protection Plus' policy segregating the costs into four main activities namely (a) Marketing and Sales support, (b) Operations, (c) IT and (d) Support functions.

(ii) CALCULATE cost per policy.

(iii) CALCULATE cost per rupee of insured value.

Q.2.A company runs a holiday home. For this purpose, it has hired a building at a rent of ₹10,00,000 per month alongwith 5% of total taking. It has three types of suites for its customers, viz., single room, double rooms and triple rooms.

Following information is given:

Type of suite	Number	Occupancy percentage
Single room	100	100%
Double rooms	50	50
Triple rooms	30	60%

The rent of double rooms suite is to be fixed at 2.5 times of the single room suite and that of triple rooms suite as twice of the double rooms suite. The other expenses for the year 20X9 are as follows:

	(₹)
Staff salaries	14,25,00,000
Room attendants' wages	4,50,00,000
Lighting, heating and power	2,15,00,000
Repairs and renovation	1,23,50,000
Laundry charges	80,50,000
Interior decoration	74,00,000
Sundries	1,53,00,000

Provide profit @ 20% on total taking and assume 360 days in a year.

You are required to Calculate the rent to be charged for each type of suite.

[RTP May'19]

CLASS TEST

Q. 1. SLS Infrastructure built and operates 110 k.m. highway on the basis of Built- Operate-Transfer (BOT) for a period of 25 years. A traffic assessment carried out to estimate the traffic flow per day shows the following figures:

Sl. No.	Type of vehicle	Daily traffic volume
1.	Two wheelers	44,500
2.	Car and SUVs	3,450
3.	Bus and LCV	1,800
4.	Heavy commercial vehicles	816

The following is the estimated cost of the project:

Sl. No.	Activities	Amount (₹ in lakh)
1	Site clearance	170.70
2	Land development and filling work	9,080.35
3	Sub base and base courses	10,260.70
4	Bituminous work	35,070.80
5	Bridge, flyovers, underpasses, Pedestrian subway, footbridge, etc	29,055.60
6	Drainage and protection work	9,040.50
7	Traffic sign, marking and road appurtenance	8,405.00
8	Maintenance, repairing and rehabilitation	12,429.60
9	Environmental management	982.00
	Total Project cost	114,495.25

An average cost of ₹1,120 lakh has to be incurred on administration and toll plaza operation.

On the basis of the vehicle specifications (i.e. weight, size, time saving etc.), the following weights has been assigned to the passing vehicles:

Sl. No.	Type of vehicle	
1.	Two wheelers	5%
2.	Car and SUVs	20%
3.	Bus and LCV	30%
4.	Heavy commercial vehicles	45%

Required:

(i) CACULATE the total project cost per day of concession period.

(ii) COMPUTE toll fee to be charged for per vehicle of each type, if the company wants to earn a profit of 15% on total cost.

[Note: Concession period is a period for which an infrastructure is allowed to operate and recovers its investment]

Q. 2. X Ltd. distributes' its goods to a regional dealer using single lorry. The dealer premises are 40 kms away by road. The capacity of the lorry is 10 tonnes. The lorry makes the journey twice a day fully loaded on the outward journey and empty on return journey. The following information is available:

	8 km per litre
Diesel Cost	₹ 60 per litre
Engine Oil	₹ 200 per week
Driver's Wages (fixed)	₹ 2,500 per week
Repairs	₹ 600 per week

Garage Rent	₹ 800 per week
Cost of Lorry (excluding cost of tyres)	₹ 9,50,000
Life of Lorry	1,60,000 kms
Insurance	₹ 18,200 per annum
Cost of Tyres	₹ 52,500
Estimated sale value of the lorry at end of its life is	₹ 1,50,000
Vehicle License Cost	₹ 7,800 per annum
Other Overhead Cost	₹ 41,600 per annum

The lorry operates on a 5 day week.

Required :

(i) A statement to show the total cost of operating the vehicle for the four week period analysed into Running cost and Fixed cost.

(ii) Calculate the vehicle operating cost per km and per tonne km. (Assume 52 weeks in a year) [Sugg.May '19, 10 Marks]

Q. 3. A company runs a holiday home. For this purpose, it has hired a building at a rent of ₹ 10,000 per month along with 5% of total taking. It has three types of suites for its customers, viz., single room, double rooms and triple rooms.

Following information is given:

Type of suite	Number	Occupancy percentage
Single room	100	100%
Double rooms	50	80%
Triple rooms	30	60%

The rent of double rooms suite is to be fixed at 2.5 times of the single room suite and that of triple rooms suite as twice of the double rooms suite.

The other expenses for the year 2020 are as follows:

	(₹)
Staff salaries	14,25,000
Room attendants' wages	4,50,000
Lighting, heating and power	2,15,000
Repairs and renovation	1,23,500
Laundry charges	80,500
Interior decoration	74,000
Sundries	1,53,000

Provide profit @ 20% on total taking and assume 360 days in a year.

You are required to CALCULATE the rent to be charged for each type of suite

Q. 4. VPS is a public school having 25 buses each plying in different directions for the transport of its school students. In view of large number of students availing of the bus service, the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The workload of the students has been so arranged that in the morning, the first trip picks up senior students and the second trip plying an hour later picks up junior students. Similarly, in the afternoon, the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus, one way is 8 km. The school works 22 days in a month and remains closed for vacation in May and June. The bus fee, however, is payable by the students for all the 12 months in a year.

The details of expenses for a year are as under:

Driver's salary – payable for all the 12 in months	₹ 12,000 per month per driver
Cleaner's salary payable for all the 12 months	₹ 8,000 per month per cleaner
License fees, taxes etc.	₹ 8,400 per bus per annum
Insurance Premium	₹ 15,600 per bus per annum
Repairs and Maintenance	₹ 20,500 per bus per annum
Purchase price of the bus	₹ 20,00,000 each
Life of the bus	16 years
Scrap value	₹ 1,60,000
Diesel Cost	₹ 78.50 per litre

Each bus gives an average of 5 km. per litre of diesel. The seating capacity of each bus is 40 students. The school follows differential transportation fees based on distance travelled as under:

Students picked up and dropped within the range of distance from the school	Transportation fee	Percentage of students availing this facility
2 km.	25% of Full	15%
4 km.	50% of Full	30%
8 km.	Full	55%

Due to a pandemic, lockdown imposed on schools and the school remained closed from April 2020 to December 2020. Drivers and cleaners were paid 75% of their salary during the lockdown period. Repairing cost reduced to 75% for the year 2020.

Ignore the interest cost.

Required:

(i) PREPARE a statement showing the expenses of operating a single bus and the fleet of 25 buses for a year.

(ii) FIND OUT transportation fee per student per month in respect of:

- (a) Students coming from a distance of upto 2 km. from the school.
- (b) Students coming from a distance of upto 4 km. from the school; and
- (c) Students coming from a distance of upto 8 km. from the school.

(iii) CALCULATE the minimum bus fare that has to be recovered from the students for the year 2020.

[RTP May 21]

Q.5. Royal Transport Services runs fleet of buses within the limits of Jaipur city. The following are the details which were incurred by the company during October, 2021:

	(₹)
Cost of each Bus	24,00,000
Garage Rent	1,00,000
Insurance	25,000
Road tax	20,000
Manager's Salary	60,000
Assistant's Salary (Two)	32,000 each
Supervisor's Salary (Three)	24,000 each
Driver's Salary (Twenty-Five)	20,000 each
Cleaner's Salary (Twenty)	5,000 each

Office Staff's Salary	1,00,000
Consumables	1,20,000
Repairs & Maintenance	90,000
Other Fixed Expenses	72,000
Diesel (10 Kms per Litre)	80 per litre
Oils & Lubricants	1,45,000
Tyres and tubes	35,000
Depreciation	10% p.a. on Cost

Other details are as below:

		Capacity
12	Buses	60 Passengers
13	Buses	50 Passengers

Each bus makes 4 round trips a day covering a distance of 10 Kilometers in each trip (One Way) on an average. During the trips 80% of the seats are occupied. The annual records show that 5 buses are generally required to be kept away from roods each day for repairs.

You are required to CALCULATE cost per passenger-km.

Cost sheet to be prepared on the basis of 25 buses. [RTP Nov. 22]

CLASSWORK SECTION

Q. 1. The standard cost of a chemical mixture is as follows:

40% material A at ₹ 20 per kg.

60% material B at ₹ 30 per kg.

A standard loss of 10% of input is expected in production. The cost records for a period showed the following usage :

90 kg material A at a cost of ₹18 per kg.

110 kg material B at a cost of ₹ 34 per kg.

The quantity produced was 182 kg. of good product.

Calculate all material variances.

Q. 2. J.K. Ltd. manufactures NXE by mixing three raw materials. For every batch of 100 kg. of NXE, 125 kg. of raw materials are used. In April, 20X2, 60 batches were prepared to produce an output of 5,600 kg. of NXE. The standard and actual particulars for April, 20X2, are as follows :

Raw Materials	Standard		Actual		Quantity of Raw Materials Purchased (Kg.)
	Mix (%)	Price per kg. (₹)	Mix (%)	Price per Kg. (₹)	
A	50	20	60	21	5,000
B	30	10	20	8	2,000
C	20	5	20	6	1,200

Calculate all variances.

Q.3. NPX Ltd. uses standard costing system for manufacturing of its product X. Following is the budget data given in relation to labour hours for manufacture of 1 unit of Product X :

Labour	Hours	Rate (₹)
Skilled	2	6
Semi-Skilled	3	4
Un- Skilled	5	3
Total	10	

In the month of January, 2020, total 10,000 units were produced following are the details:

Labour	Hours	Rate (₹)	Amount (₹)
Skilled	18,000	7	1,26,000
Semi-Skilled	33,000	3.5	1,15,500
Un- Skilled	58,000	4	2,32,000
Total	1,09,000		4,73,500

Actual Idle hours (abnormal) during the month:

Skilled:	500
Semi- Skilled:	700
Unskilled:	800
Total	2,000

CALCULATE:

(a) Labour Variances.

(b) Also show the effect on Labour Rate Variance if 5,000 hours of Skilled Labour are paid @ ₹ 5.5 per hour and balance were paid @ ₹ 7 per hour.

Q.4. The standard labour employment and the actual labour engaged in a week for a job are as under:

	Skilled workers	Semiskilled workers	Unskilled Workers
Standard no. of workers in the gang	32	12	6
Actual no. of workers employed	28	18	4
Standard wage rate per hour	3	2	1
Actual wage rate per hour	4	3	2

During the 40 hours working week, the gang produced 1,800 standard labour hours of work. Calculate:

(a) Labour Cost Variance (b) Labour Rate Variance

(c) Labour Efficiency Variance (d) Labour Mix Variance

(e) Labour Yield Variance

Q.5. The following information has been provided by a company:

Number of units produced and sold	6,000
Standard labour rate per hour	₹ 8
Standard hours required for 6,000 units	-
Actual hours required	17,094 hours
Labour efficiency	105.3%
Labour rate variance	₹ 68,376 (A)

You are required to calculate:

(i) Actual labour rate per hour

(ii) Standard hours required for 6,000 units

(iii) Labour Efficiency variance

(iv) Standard labour cost per unit

(v) Actual labour cost per unit.

Q.6. ABC Ltd. had prepared the following estimation for the month of April:

	Quantity	Rate (₹)	Amount (₹)
Material-A	800 kg.	45.00	36,000
Material-B	600 kg.	30.00	18,000
Skilled labour	1,000 hours	37.50	37,500
Unskilled labour	800 hours	22.00	17,600

Normal loss was expected to be 10% of total input materials and an idle labour time of 5% of expected labour hours was also estimated.

At the end of the month the following information has been collected from the cost accounting department:

The company has produced 1,480 kg. finished product by using the followings:

	Quantity	Rate (₹)	Amount (₹)
Material-A	900 kg.	43.00	38,700
Material-B	650 kg.	32.50	21,125
Skilled labour	1,200 hours	35.50	42,600
Unskilled labour	860 hours	23.00	19,780

You are required to calculate:

(a) Material Cost Variance;

(b) Material Price Variance;

(c) Material Mix Variance;

(d) Material Yield Variance;

(e) Labour Cost Variance;

(f) Labour Efficiency Variance and

(g) Labour Yield Variance.

Q.7. From the following information of G Ltd., CALCULATE (i) Variable Overhead Cost Variance; (ii) Variable Overhead Expenditure Variance and (iii) Variable Overhead Efficiency Variance:

Budgeted production	6,000 units
Budgeted variable overhead	₹ 1,20,000
Standard time for one unit of output	2 hours
Actual production	5,900 units
Actual overhead incurred	₹ 1,22,000
Actual hours worked	11,600 hours

Q.8. The cost detail of J&G Ltd. for the month of September, 2020 is as follows:

	Budgeted	Actual
Fixed overhead	₹ 15,00,000	₹ 15,60,000
Units of production	7,500	7,800
Standard time for one unit	2 hours	-
Actual hours worked	-	16,000 hours

Required:

CALCULATE (i) Fixed Overhead Cost Variance (ii) Fixed Overhead Expenditure Variance (iii) Fixed Overhead Volume Variance (iv) Fixed Overhead Efficiency Variance and (v) Fixed Overhead Capacity Variance.

Q.9. Following information is available from the books of Ex. Ltd.

	Budget	Actual
Output (units)	30,000	32,500
Hours	30,000	33,000
Fixed overhead	₹ 45,000	50,000
Variable overhead	₹ 60,000	68,000
Working days	25	26

CALCULATE overhead variances.

Q.10. The following data has been collected from the cost records of a unit for computing the various fixed overhead variances for a period:

Number of budgeted working days	25
Budgeted man-hours per day	6,000
Output (budgeted) per man-hour (in units)	1
Fixed overhead cost as budgeted	₹ 1,50,000

Actual number of working days	27
Actual man-hours per day	6,300
Actual output per man-hour (in-units)	0.9
Actual fixed overhead incurred	₹ 1,56,000

Calculate fixed overhead variances:
(a) Expenditure Variance
(b) Volume Variance,
(c) Fixed Cost Variance.

Q.11. SJ Ltd. has furnished the following information:

Standard overhead absorption rate per unit	₹ 20
Standard rate per hour	₹ 4
Budgeted production	12,000 units
Actual production	15,560 units

Actual overheads were ₹ 2,95,000 out of which ₹ 62,500 fixed .

Actual hours 74,000

Overheads are based on the following flexible budget

Production (units)	8,000	10,000	14,000
Total Overheads (₹)	1,80,000	2,10,000	2,70,000

You are required to calculate the following overhead variances (on hour's basis) with appropriate workings:

(i) Variable overhead efficiency and expenditure variance
(ii) Fixed overhead efficiency and capacity variance.

Q.12. The overhead expense budget for a factory producing to a capacity of 200 units per month is as follows:

Description of overhead	Fixed cost per unit in (₹)	Variable cost per unit in (₹)	Total cost per unit in (₹)
Power and fuel	1,000	500	1,500
Repair and maintenance	500	250	750
Printing and stationary	500	250	750
Other overheads	1,000	500	1,500
	₹ 3,000	₹1,500	4,500

The factory has actually produced only 100 units in a particular month. Details of overheads actually incurred have been provided by the accounts department and are as follows:

Description of overhead	Actual cost
Power and fuel	₹ 4,00,000
Repair and maintenance	₹ 2,00,000
Printing and stationary	₹ 1,75,000
Other overheads	₹ 3,75,000

You are required to compute the production volume variance and the overhead expenses variance.

Q.13. Compute the sales variances (total, price and volume) from the following figures:

Product	Budgeted quantity	Budgeted Price per Unit (₹)	Actual quantity	Actual Price per unit (₹)
P	4,000	25	4,800	30
Q	3,000	50	2,800	45
R	2,000	75	2,400	70
S	1,000	100	800	105

Q.14.SP Limited produces a product 'Tempex' which is sold in a 10 Kg. packet. The standard cost card per packet of 'Tempex' are as follows:

	(₹)
Direct materials 10 kg @ ₹ 45 per kg	450
Direct labour 8 hours @ ₹ 50 per hour	400
Variable Overhead 8 hours @ ₹ 10 per hour	80
Fixed Overhead	200
	1,130

Budgeted output for the third quarter of a year was 10,000 Kg. Actual output is 9,000 Kg.
Actual cost for this quarter are as follows :

	(₹)
Direct Materials 8,900 Kg @ ₹ 46 per Kg.	4,09,400
Direct Labour 7,000 hours @ ₹ 52 per hour	3,64,000
Variable Overhead incurred	72,500
Fixed Overhead incurred	1,92,000
	1,130

You are required to calculate :

(i) Material Usage Variance
(ii) Material Price Variance
(iii) Material Cost Variance
(iv) Labour Efficiency Variance
(v) Labour Rate Variance
(vi) Labour Cost Variance
(vii) Variable Overhead Cost Variance

Q. 15. The following information was obtained from the records of a manufacturing unit using standard costing system.

	Standard	Actual
Production	4,000 units	3,800 units
Working days	20	21
Machine hours	8,000 hours	7,800 hours
Fixed Overhead	₹ 4,00,000	₹ 3,90,000
Variable Overhead	₹1,20,000	₹1,20,000

You are required to CALCULATE the following overhead variance:

(a) Variable overhead variances
(b) Fixed overhead variances

Q. 16. Following data is extracted from the books of XYZ Ltd. for the month of January, 2020:

(i) Estimation-

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	800	?	--
Material-B	600	30.00	18,000
			--

Normal loss was expected to be 10% of total input materials.

(ii) Actuals-

1480 kg of output produced.

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	900	?	--
Material-B	?	32.50	--
			59,825

(iii) Other Information-

Material Cost Variance = ₹ 3,625 (F) Material Price Variance = ₹ 175 (F)

You are required to CALCULATE:

(i) Standard Price of Material-A;

(ii) Actual Quantity of Material-B;

(iii) Actual Price of Material-A;

(iv) Revised standard quantity of Material-A and Material-B; and

(v) Material Mix Variance.

Q. 17. Paras Synthetics uses Standard costing system in manufacturing of its product 'Star 95 Mask'. The details are as follows;

Direct Material 0.50 Meter @ ₹ 60 per meter	₹ 30
Direct Labour 1 hour @ ₹ 20 per hour	₹ 20
Variable overhead 1 hour @ ₹ 10 per hour	₹ 10
Total	₹ 60

During the month of August, 2020 10,000 units of 'Star 95 Mask' were manufactured.

Details are as follows:

Direct material consumed 5700 meters @ ₹ 58 per meter

Direct labour Hours ? @ ? ₹ 2,24,400

Variable overhead incurred ₹ 1,12,200

Variable overhead efficiency variance is ₹ 2,000 A. Variable overheads are based on Direct Labour Hours.

You are required to calculate the missing data and all the relevant Variances.

Q.18. Ahaan Limited operates a system of standard costing in respect of one of its products 'AH1' which is manufactured within a single cost centre. Details of standard per unit are as follows:

- The standard material input is 20 kilograms at a standard price of ₹ 24 per kilogram.
- The standard wage rate is ₹ 72 per hour and 5 hours are allowed to produce one unit.
- Fixed production overhead is absorbed at the rate of 100% of wages cost. During the month of April 2022, the following was incurred:

- Actual price paid for material purchased @ ₹ 22 per kilogram.
- Total direct wages cost was ₹ 43,92,000
- Fixed production overhead cost incurred was ₹ 45,00,000 Analysis of variances was as follows:

Variances	Favourable	Adverse
Direct material price	₹ 4,80,000	-
Direct material usage	₹ 48,000	
Direct labour rate	-	₹ 69,120
Direct labour efficiency	₹ 33,120	-
Fixed production overhead expenditure		₹ 1,80,000

You are required to CALCULATE the following for the month of April, 2022

(i) Material cost variance

(ii) Budgeted output (in units)

(iii) Quantity of raw materials purchased (in kilograms)

(iv) Actual output (in units)

(v) Actual hours worked

(vi) Actual wage rate per labour hour

(vii) Labour cost variance

(viii) Production overhead cost variance [RTP Nov. 22]

Q.19. Premier Industries has a small factory where 52 workers are employed on an average for 25 days a month and they work 8 hours per day. The normal down time is 15%. The firm has introduced standard costing for cost control. Its monthly budget for November, 2020 shows that the budgeted variable and fixed overhead are ₹ 1,06,080 and ₹ 2,21,000 respectively.

The firm reports the following details of actual performance for November, 2020, after the end of the month:

Actual hours worked	8,100 hrs.
Actual production expressed in standard hours	8,800 hrs.
Actual Variable Overheads	₹ 1,02,000
Actual Fixed Overheads	₹ 2,00,000

You are required to calculate:

(i) Variable Overhead Variances:

  (a) Variable overhead expenditure variance.

  (b) Variable overhead efficiency variance.

(ii) Fixed Overhead Variances:

  (a) Fixed overhead budget variance.

  (b) Fixed overhead capacity variance.

  (c) Fixed overhead efficiency variance.

(iii) Control Ratios:

  (a) Capacity ratio.

  (b) Efficiency ratio.

  (c) Activity ratio. [Sugg.Jan'21, 10 Marks]

Q.20. Following data is available for DKG and Co:

Standard working hours	8 hours per day of 5 days per week
Maximum capacity	50 employees
Actual working	40 employees

Actual hours expected to be worked per four week	6,400 hours
Std. hours expected to be earned per four weeks	8,000 hours
Actual hours worked in the four- week period	6,000 hours
Standard hours earned in the four- week period	7,000 hours.

The related period is of 4 weeks. In this period there was a one special day holiday due to national event. CALCULATE the following ratios:

(1) Efficiency Ratio, (2) Activity Ratio, (3) Calendar Ratio, (4) Standard Capacity Usage Ratio, (5) Actual Capacity Usage Ratio. (6) Actual Usage of Budgeted Capacity Ratio.

HOME WORK SECTION

Q. 1. The standard mix to produce one unit of a product is as follows:

Material X	60 units @ ₹ 15 per unit	=	900
Material Y	80 units @ ₹ 20 per unit	=	1,600
Material Z	100 units @ ₹ 25 per unit	=	2,500
	240 units		5,000

During the month of April, 10 units were actually produced and consumption was as follows:

Material X	640 units @ ₹ 17.50 per unit	=	11,200
Material Y	950 units @ ₹ 18.00 per unit	=	17,100
Material Z	870 units @ ₹ 27.50 per unit	=	23,925
	2,460 units		52,225

CALCULATE all material variances.

Q. 2. A company has a normal capacity of 120 machines, working 8 hours per day for 25 days in a month. The fixed overheads are budgeted at ₹ 1,44,000 per month. The standard time required to manufacture one unit of product is 4 hours.

In April, 2020, the company worked 24 days of 840 machine hours per day and produced 5,305 units of output. The actual fixed overheads were ₹1,42,000.

CALCULATE:

(i) Expense variance

(ii) Volume variance

(iii) Total fixed overheads variance.

Q. 3. Following information is available from the records of a factory:

	Budget	Actual
Fixed overhead for June, 2020	₹ 10,000	₹ 12,000
Production in June, 2020 (units)	2,000	2,100
Standard time per unit (hours)	10	–
Actual hours worked in June	–	21,000

CALCULATE:

(i) Fixed overhead cost variance,

(ii) Expenditure variance,

(iii) Volume variance.

Q. 4. The standard cost of a chemical mixture is as follows : 60% of Material A @ ₹ 50 per kg 40% Material B @ ₹ 60 per kg .

A standard loss of 25% on output is expected in production. The cost records for a period has shown the following usage.

540 kg of Material A @ ₹ 60 per kg

260 kg of Material B @ ₹ 50 per kg

The quantity processed was 680 kilograms of good product. From the above given information Calculate:

(i) Material Cost Variance (ii) Material Price Variance

(iii) Material Usage Variance (iv) Material Mix Variance

(v) Material Yield Variance [Sugg.-Nov'19,10 Marks]

Q. 5. A manufacturing concern has provided following information related to fixed overheads:

	Standard	Actual
Output in a month	5000 units	4800 units
Working days in a month	25 days	23 days
Fixed overheads	₹ 5,00,000	₹ 4,90,000

Compute:

(i) Fixed overhead variance

(ii) Fixed overhead expenditure variance

(iii) Fixed overhead volume variance

(iv) Fixed overhead efficiency variance [Sugg. Nov '18, 4 Marks]

Q. 6. In a manufacturing company the standard units of production of the year were fixed at 1,20,000 units and overhead expenditures were estimated to be:

Fixed ₹ 12,00,000; Variable ₹ 6,00,000;

Semi-Variable ₹ 1,80,000

Actual production during the April, 2019 of the year was 8,000 units. Each month has 20 working days. During the month there was one public holiday. The actual overheads amounted to:

Fixed ₹ 1,10,000; Variable ₹ 48,000

Semi-variable ₹ 19,200

Semi-variable charges are considered to include 60 per cent expenses of fixed nature and 40 per cent of variable character.

CALCULATE the followings:

(i) Overhead Cost Variance

(ii) Fixed Overhead Cost Variance

(iii) Variable Overhead Cost Variance

(iv) Fixed Overhead Volume Variance

(v) Fixed Overhead Expenditure Variance

(vi) Calendar Variance. [MTP Oct. '19, 10 Marks]

Q.7. The standard and actual figures of product 'Z' are as under:

	Standard	Actual
Material quantity	50 units	45 units
Material price per unit	₹ 1.00	₹ 0.80

CALCULATE material cost variances.

Q.8. NXE Manufacturing Concern furnishes the following information:

Standard:	Material for 70 kg finished products	100 kg
	Price of material	₹ 1 per kg
Actual:	Output	2,10,000 kg
	Material used	2,80,000 kg
	Cost of Materials	₹ 2,52,000

CALCULATE: (a) Material usage variance, (b) Material price variance, (c) Material cost variance.

Q.9. The standard and actual figures of a firm are as under Standard time for the job 1,000 hours

Standard rate per hour	₹ 50
Actual time taken	900 hours
Actual wages paid	₹ 36,000

CALCULATE variances.

Q.10. S.V. Ltd. has furnished the following data:

	Budget	Actual, July (20X2)
No. of working days	25	27
Production in units	20,000	22,000
Fixed overheads	₹ 30,000	₹ 31,000

Budgeted fixed overhead rate is ₹ 1.00 per hour. In July, 2020, the actual hours worked were 31,500.

CALCULATE the following variances:

(i) Volume variance.

(ii) Expenditure variance.

(iii) Total overhead variance.

Q.11. ABC Ltd. has furnished the following information regarding the overheads for the month of June 2020 :

(i)	Fixed Overhead Cost Variance	₹ 2,800 (Adverse)
(ii)	Fixed Overhead Volume Variance	₹ 2,000 (Adverse)
(iii)	Budgeted Hours for June, 2020	2,400 hours
(iv)	Budgeted Overheads for June,2020	₹ 12,000
(v)	Actual rate of recovery of overheads	₹ 8 Per Hour

From the above given information Calculate:

(1) Fixed Overhead Expenditure Variance

(2) Actual Overheads Incurred

(3) Actual Hours for Actual Production

(4) Fixed Overhead Capacity Variance

(5) Standard hours for Actual Production

(6) Fixed Overhead Efficiency Variance [Sugg.Nov'20, 10 Marks]

Q.12.A manufacturing department of a company has employed 120 workers. The standard output of product "NPX" is 20 units per hour and the standard wage rate is ₹ 25 per labour hour.

In a 48 hours week, the department produced 1,000 units of 'NPX' despite 5% of the time paid being lost due to an abnormal reason. The hourly wages actually paid were ₹ 25.70 per hour.

Calculate:

(i) Labour Cost Variance

(ii) Labour Rate Variance

(iii) Labour Efficiency Variance

(iv) Labour Idle time Variance [Sugg.May'22, 10 Marks]

CLASS TEST

Q. 1. Beta Ltd. is manufacturing Product N. This is manufactured by mixing two materials namely Material P and Material Q. The Standard Cost of Mixture is as under:

Material P 150 ltrs. @ ₹ 40 per ltr.

Material Q 100 ltrs. @ ₹ 60 per ltr.

Standard loss @ 20 of total input is expected during production.

The cost records for the period exhibit following consumption:

Material P 140 ltrs. @ ₹ 42 per ltr,

Material Q 110 ltrs. @ ₹ 56 per ltr,

Quantity produced was 195 ltrs.

Calculate:

(i) Material Cost Variance

(ii) Material Usage Variance.

(iii) Material Price Variance. [Sugg.May '18, 5 Marks]

Q. 2. JVG Ltd. produces a product and operates a standard costing system and value material and finished goods inventories at standard cost. The information related with the product is as follows:

Particulars	Cost per unit (₹)
Direct materials (30 kg at ₹350 per kg)	10,500
Direct labour (5 hours at ₹80 per hour)	400

The actual information for the month just ended is as follows:

(a) The budgeted and actual production for the month of September 2019 is 1,000 units.

(b) Direct materials –5,000 kg at the beginning of the month. The closing balance of directmaterials for the month was 10,000 kg. Purchases during the month were made at' 365 per kg. The actual utilization of direct materials was 7,200 kg more than thebudgeted quantity.

(c) Direct labour – 5,300 hours were utilised at a cost of ₹ 4,34,600.

Required:

Calculate (i) Direct material price and usage variances (ii) Direct labour rate and efficiency variances.

[RTP Nov'19]

Q. 3. Aaradhya Ltd.manufactures a commercial product for which the standard cost per unit is as follows:

(₹)

Material:	
5 kg. @ ₹ 4 per kg.	20.00
Labour:	
3 hours @ ₹10 per hour	30.00
Overhead	
Variable: 3 hours @ ₹1	3.00
Fixed: 3 hours @ ₹0.50	1.50
Total	54.50

During Jan. 20X8, 600 units of the product were manufactured at the cost shown below:

(₹)

Materials purchased:	
5,000 kg. @ ₹4.10 per kg.	20,500
Materials used:	
3,500 kg.	
Direct Labour:	
1,700 hours @ ₹ 9	15,300
Variable overhead	1,900
Fixed overhead	900
Total	38,600

The flexible budget required 1,800 direct labour hours for operation at the monthly activity level used to set the fixed overhead rate.

Compute :

(a) Material price variance, (b) Material Usage variance; (c) Labour rate variance; (d) Labour efficiency variance; (e) Variable overhead expenditure variance; (f) Variable overhead efficiency variance; (g) Fixed overhead expenditure variance; (h) Fixed overhead volume variance; (i) Fixed overhead capacity variance; and (j) Fixed overhead efficiency variance. Also RECONCILE the standard and actual cost of production.

[RTP Nov.'18]

Q. 4. The following standards have been set to manufacture a product:

Direct Materials	(Rs.)
2 units of X at Rs.40 per unit	80.00
3 units of Y at Rs. 30 per unit	90.00
15 units of Z at Rs.10 per unit	150.00
	320.00
Direct labour 3 hours @ Rs. 55 per hour	165.00
Total standard prime cost	485.00

The company manufactured and sold 6,000 units of the product during the year 20X8. Direct material costs were as follows:

12,500 units of X at Rs. 44 per unit.

18,000 units of Y at Rs. 28 per unit.

88,500 units of Z at Rs.12 per unit.

The company worked 17,500 direct labour hours during the year 20X8. For 2,500 of these hours the company paid at Rs. 58 per hour while for the remaining hours the wages were paid at the standard rate.

Required:

COMPUT E the following variances: Material Price, Material Usage, Material Mix, Material Yield, Labour Rate and Labour Efficiency. [MTP March '19, 10 Marks]

Q. 5. Arnav Ltd. manufactures a product Q, the standard cost of which is as follows:

	Standard Cost per unit (Rs.)
Direct Material	600
Direct labour:	
- Skilled @ Rs.80 per hour	120
- Unskilled @ Rs.60 per hour	
- Unskilled @ Rs.60 per hour	90
Variable overheads	75
Fixed overheads	30
	915

During the month just ended 4,000 units of Q were produced. The actual labour cost was as follows.

	Rate per hour (Rs.)	Cost (Rs.)
Skilled	87.50	5,77,500
Unskilled	55.00	2,97,000

10% of the labour time was lost due to idle time. The standard idle time was 7.5% of labour time. Arnav Ltd. has budgeted to produce 4,200 units of Q. Arnav Ltd. absorbs its overheads on direct labour hour (effective hours) basis. Actual fixed and variable overheads incurred were Rs.1,55,000 and Rs.2,85,000 respectively.

CALCULATE:

(i) Labour rate variance;
(ii) Labour efficiency variance;
(iii) Labour mix variance;
(iv) Labour yield variance;
(v) Labour idle time variance;
(vi) Variable overhead expenditure variance and
(vii) Variable overhead efficiency variance. [MTP Oct. '18, 10 Marks)

CLASSWORK SECTION

Q.1. XYZ Ltd. has a production capacity of 2,00,000 units per year. Normal capacity utilisation is reckoned as 90%. Standard variable production costs are ₹ 11 per unit. The fixed costs are ₹ 3,60,000 per year. Variable selling costs are ₹ 3 per unit and fixed selling costs are ₹ 2,70,000 per year. The unit selling price is ₹ 20.

In the year just ended on 30th June, 20X4, the production was 1,60,000 units and sales were 1,50,000 units. The closing inventory on 30th June was 20,000 units. The actual variable production costs for the year were ₹ 35,000 higher than the standard.

(i) Calculate the profit for the year
   (a) by absorption costing method and
   (b) by marginal costing method.

(ii) Explain the difference in the profits

Q.2. MNP Ltd sold 2,75,000 units of its product at ₹ 37.50 per unit. Variable costs are ₹ 17.50 per unit (manufacturing costs of ₹ 14 and selling cost ₹ 3.50 per unit). Fixed costs are incurred uniformly throughout the year and amount to ₹ 35, 00,000 (including depreciation of ₹ 15, 00,000). There is no beginning or ending inventories.

Required:
Estimate breakeven sales level quantity and cash breakeven sales level quantity.

Q.3. The ratio of variable cost to sales is 70%. The break-even point occurs at 60% of the capacity sales. Find the capacity sales when fixed costs are ₹ 90,000. Also compute profit at 75% of the capacity sales.

Q.4. A single product company sells its product at ₹ 60 per unit. In 20X3, the company operated at a margin of safety of 40%. The fixed costs amounted to ₹ 3,60,000 and the variable cost ratio to sales was 80%. In 20X4, it is estimated that the variable cost will go up by 10% and the fixed cost will increase by 5%.

(i) Find the selling price required to be fixed in 20X4 to earn the same P/V ratio as in 20X3.

(ii) Assuming the same selling price of ₹ 60 per unit in 20X4, find the number of units required to be produced and sold to earn the same profit as in 20X3.

Q.5. A company had incurred fixed expenses of ₹ 4,50,000, with sales of ₹ 15,00,000 and earned a profit of ₹ 3,00,000 during the first half year. In the second half, it suffered a loss of ₹ 1,50,000.

Calculate :

(i) The profit-volume ratio, break-even point and margin of safety for the first half year.

(ii) Expected sales volume for the second half year assuming that selling price and fixed expenses remained unchanged during the second half year.

(iii) The break-even point and margin of safety for the whole year.

Q.6. The profit for the year of R.J. Ltd. works out to 12.5% of the capital employed and the relevant figures are as under:

Sales	₹ 5,00,000
Direct Materials	₹ 2,50,000
Direct Labour	₹ 1,00,000
Variable Overheads	₹ 40,000
Capital Employed	₹4,00,000

The new Sales Manager who has joined the company recently estimates for next year a profit of about 23% on capital employed, provided the volume of sales is increased by 10% and simultaneously there is an increase in Selling Price of 4% and an overall cost reduction in all the elements of cost by 2%.

Required

Find out by computing in detail the cost and profit for next year, whether the proposal of Sales Manager can be adopted.

Q.7. An automobile manufacturing company produces different models of Cars. The budget in respect of model 007 for the month of March, 20X5 is as under:

Budgeted Output 40,000 Units

	₹ In lacs	₹ In lacs
Net Realisation		700
Variable Costs:		
Materials	264	
Labour	52	
Direct expenses	124	440
Specific Fixed Costs	90	
Allocated Fixed Costs	112.50	202.50
Total Costs		642.50
Profit		57.50
Sales		700.00

Calculate :

(i) Profit with 10 percent increase in selling price with a 10 percent reduction in sales volume.

(ii) Volume to be achieved to maintain the original profit after a 10 percent rise in material costs, at the originally budgeted selling price per unit.

Q.8. A company has a P/V ratio of 40%. By what percentage must sales be increased to offset: 20% reduction in selling price?

Q.9. An Indian soft drink company is planning to establish a subsidiary company in Bhutan to produce mineral water. Based on the estimated annual sales of 40,000 bottles of the mineral water, cost studies produced the following estimates for the Bhutanese subsidiary:

	Total annual costs	Percent of Total Annual Cost which is variable
Material	2,10,000	100%
Labour	1,50,000	80%
Factory Overheads	92,000	60%
Administration Expenses	40,000	35%

The Bhutanese production will be sold by manufacturer's representatives who will receive a commission of 8% of the sale price. No portion of the Indian office expenses is to be allocated to the Bhutanese subsidiary. You are required to

(i) Compute the sale price per bottle to enable the management to realize an estimated 10% profit on sale proceeds in Bhutan.

(ii) Calculate the break-even point in Ngultrum sales as also in number of bottles for the Bhutanese subsidiary on the assumption that the sale price is ₹ 14 per bottle.

Q.10. The product mix of a Gama Ltd. is as under:

	Products	
	M	N
Units	54,000	18,000
Selling pric	₹ 7.50	₹15.00
Variable cost	₹ 6.00	₹ 4.50

Find the break-even points in units, if the company discontinues product 'M' and replace with product 'O'. The quantity of product 'O' is 9,000 units and its selling price and variable costs respectively are ₹ 18 and ₹ 9. Fixed Cost is ₹ 15,000.

Q.11. M.K. Ltd. manufactures and sells a single product X whose selling price is ₹ 40 per unit and the variable cost is ₹ 16 per unit.

(i) If the Fixed Costs for this year are ₹ 4,80,000 and the annual sales are at 60% margin of safety, calculate the rate of net return on sales, assuming an income tax level of 40%

(ii) For the next year, it is proposed to add another product line Y whose selling price would be ₹ 50 per unit and the variable cost ₹ 10 per unit. The total fixed costs are estimated at ₹ 6,66,600. The sales mix of X : Y would be 7 : 3. At what level of sales next year, would M.K. Ltd. break even? Give separately for both X and Y the breakeven sales in rupee and quantities.

Q.12. You are given the following data:

	Sales	Profit
Year 1	₹ 1,20,000	₹ 8,000
Year 2	₹ 1,40,000	₹ 13,000

Find out –

(i) P/V ratio,

(ii) B.E. Point,

(iii) Profit when sales are ₹ 1,80,000,

(iv) Sales required earn a profit of ₹ 12,000,

(v) Margin of safety in year 2.

Q.13. A company sells its product at ₹ 15 per unit. In a period, if it produces and sells 8,000 units, it incurs a loss of ₹ 5 per unit. If the volume is raised to 20,000 units, it earns a profit of ₹ 4 per unit. Calculate break-even point both in terms of Value as well as in units.

Q.14. A company can make any one of the 3 products X, Y or Z in a year. It can exercise its option only at the beginning of each year. Relevant information about the products for the next year is given below.

	X	Y	Z
Selling Price (₹ / unit)	10	12	12
Variable Costs (₹ / unit)	6	9	7
Market Demand (unit)	3,000	2,000	1,000
Production Capacity (unit)	2,000	3,000	900
Fixed Costs (₹)	30,000		

Required

Compute the opportunity costs for each of the products.

Q.15. X Ltd. supplies spare parts to an air craft company Y Ltd. The production capacity of X Ltd. facilitates production of any one spare part for a particular period of time. The following are the cost and other information for the production of the two different spare parts A and B:

Per unit	Part A	Part B
Alloy usage	1.6 kgs.	1.6 kgs.
Machine Time: Machine A	0.6 hrs.	0.25 hrs.
Machine Time: Machine B	0.5 hrs.	0.55 hrs.
Target Price (₹)	145	115

Total hours available — Machine A : 4,000 hours; Machine B : 4,500 hours

Alloy available is 13,000 kgs. @ ₹ 12.50 per kg.

Variable overheads per machine hour — Machine A: ₹ 80; Machine B: ₹ 100

Required

(i) Identify the spare part which will optimize contribution at the offered price.

(ii) If Y Ltd. reduces target price by 10% and offers ₹ 60 per hour of unutilized machine hour, what will be the total contribution from the spare part identified above?

Q.16. (a) You are given the following data for the coming year for a factory.

Budgeted output	8,00,000 units
Fixed expenses	40,00,000
Variable expenses per unit	₹100
Selling price per unit	₹ 200

Draw a break-even chart showing the break-even point.

(b) If price is reduced to ₹ 180, what will be the new break-even point?

Q.17.The following are cost data for three alternative ways of processing the clerical work for cases brought before the LC Court System:

	A Manual (₹)	B Semi- Automatic (₹)	C Fully- Automatic (₹)
Monthly fixed costs:			
Occupancy	15,000	15,000	15,000
Maintenance contract	-	5,000	10,000
Equipment lease	-	25,000	1,00,000
Unit variable costs			
(per report):			
Supplies	40	80	20
Labour	₹ 200 (5 hrs x ₹ 40)	₹ 60(1 hr x ₹ 60)	₹ 20 (0.25 hr x ₹ 80)

Required

(i) Calculate cost indifference points. Interpret your results.

(ii) If the present case load is 600 cases and it is expected to go up to 850 cases inear future, which method is most appropriate on cost considerations?

Q.18. XY Ltd. makes two products X and Y, whose respective fixed costs are F1 and F2. You are given that the unit contribution of Y is one fifth less than the unit contribution of X, that the total of F1 and F2 is ₹ 1,50,000, that the BEP of X is 1,800 units (for BEP of X F2 is not considered) and that 3,000 units is the in difference point between X and Y. (i.e. X and Y make equal profits at 3,000 unit volume, considering their respective fixed costs). There is no inventory build up as whatever is produced is sold.

Required

Find out the values F1 and F2 and units contributions of X and Y.

Q.19. PREPARE a profit graph for products A, B and C and find break-even point from the following data:

Products	A	B	C	Total
Sales (₹)	7,500	7,500	3,750	18,750
Variable cost (₹)	1,500	5,250	4,500	11,250
Fixed cost (₹)	---	---	---	5,000

Q.20. By noting "P/V will increase or P/V will decrease or P/V will not change", as the case may be, STATE how the following independent situations will affect the P/V ratio:

(i) An increase in the physical sales volume;
(ii) An increase in the fixed cost;
(iii) A decrease in the variable cost per unit;
(iv) A decrease in the contribution margin;
(v) An increase in selling price per unit;
(vi) A decrease in the fixed cost;
(vii) A 10% increase in both selling price and variable cost per unit;
(viii) A 10% increase in the selling price per unit and 10% decrease in the physical sales volume;
(ix) A 50% increase in the variable cost per unit and 50% decrease in the fixed cost.
(x) An increase in the angle of incidence.

Q.21. Prisha Limited manufactures three different products and the following information has been collected from the books of accounts:

	Products		
	A	B	C
Sales Mix	40%	35%	25%
Selling Price	₹ 300	₹ 400	₹ 200
Variable Cost	₹ 150	₹ 200	₹ 120
Total Fixed Costs			₹ 18,00,000
Total Sales			₹ 60,00,000

The company has currently under discussion, a proposal to discontinue the manufacture of Product C and replace it with Product E, when the following results are anticipated:

	Products		
	A	B	E
Sales Mix	45%	30%	25%
Selling Price	₹ 300	₹400	₹ 300
Variable Cost	₹ 150	₹200	₹ 150
Total Fixed Costs			₹ 18,00,000
Total Sales			₹ 64,00,000

Required:

(i) CALCULATE the total contribution to sales ratio and present break-even sales at existing sales mix.

(ii) CALCULATE the total contribution to sales ratio and present break-even sales at proposed sales mix.

(iii) STATE whether the proposed sales mix is accepted or not?

Q.22. A Ltd. manufacture and sales its product R-9. The following figures have been collected from cost records of last year for the product R-9:

Elements of Cost	Variable Cost portion	Fixed Cost
Direct Material	30% of Cost of Goods Sold	–
Direct Labour	15% of Cost of Goods Sold	–
Factory Overhead	10% of Cost of Goods Sold	₹ 2,30,000
Administration Overhead	2% of Cost of Goods Sold	₹ 71,000
Selling & Distribution Overhead	4% of Cost of Sales	₹ 68,000

Last Year 5,000 units were sold at ₹ 185 per unit. From the given DETERMINE the followings:

(i) Break-even Sales (in rupees)

(ii) Profit earned during last year

(iii) Margin of safety (in %)

(iv) Profit if the sales were 10% less than the actual sales.

(Assume that Administration Overhead is related with production activity)

[RTP-May'2020]

Q.23. When volume is 4000 units, average cost is ? 3.75 per unit. When volume is 5000 units, average cost is ₹ 3.50 per unit. The Break-Even point is 6000 units.

Calculate:- (i) Variable Cost per unit (ii) Fixed Cost and (iii) Profit Volume Ratio.

[Sugg.-Nov'19,5 Marks]

Q.24.Moon Ltd. produces products 'X', 'Y' and 'Z' and has decided to analyse it's production mix in respect of these three products - 'X', 'Y' and 'Z'.

You have the following information :

	X	Y	Z
Direct Materials ₹ (per unit)	160	120	80
Variable Overheads ₹ (per unit)	8	20	12

Direct labour :

Departments	Rate per Hour (₹)	Hours per unit	Hours per unit	Hours per unit
		X	Y	Z
Department-A	4	6	10	5
Department-B	8	6	15	11

From the current budget, further details are as below :

	X	Y	Z
Annual Production at present (in units)	10,000	12,000	20,000
Estimated Selling Price per unit (₹)	312	400	240
Sales departments estimate of possible sales in the coming year (in units)	12,000	16,000	24,000

There is a constraint on supply of labour in Department -A and its manpower cannot be increased beyond its present level.

Required:

(i) Identify the best possible product mix of Moon Ltd.

(ii) Calculate the total contribution from the best possible product mix.

[Sugg.-Nov'20,5 Marks]

Q.25.

(a) RPP Manufacturers is approached by an international customer for one-time special order similar to one offered to its domestic customers. Per unit data for sales to regular customers is provided below:

Direct material	₹ 693
Direct labour	₹ 315
Variable manufacturing support	₹ 504
Fixed manufacturing support	₹ 1092
Total manufacturing costs	₹ 2604
Markup (50%)	₹ 1302
Targeted selling price	₹ 3906

It is provided that RPP Manufacturers has excess capacity.

Required:

(i) WHAT is the full cost of the product per unit?

(ii) WHAT is the contribution margin per unit?

(iii) WHICH costs are relevant for making the decision regarding this one-time special order? WHY?

(iv) For RPP Manufacturers, WHAT is the minimum acceptable price of this one- time-special order only

(v) For this one-time-only special order, SHOULD RPP Manufacturers consider a price of ₹ 2100 per unit? WHY or why not?

(b) The lab corner of Newlife Hospital Trust operates two types of specialist MRI scanning machine-MR10 and MR59. Following details are estimated for the next period:

Machine	MR10	MR59
Running hours	1,100	2,000
	(₹)	(₹)
Variable running costs excluding special technology	68,750	1,60,000
Fixed Costs	50,000	2,43,750

A brain scan is normally carried out on machine type MR10. This task uses special technology costing ₹ 100 each and takes four hours of machine time. Because of the nature of the process, around 10% of the scans produce blurred and therefore useless results.

Required:

(i) CALCULATE the total cost of a satisfactory brain scan on machine type MR10.

(ii) Brain scans can also be done on machine type MR59 and would take only 1.8 hours per scan with a reduced reject rate of 6%. However, the cost of the special technology would be ₹ 137.50 per scan. ADVISE which type should be used, assuming sufficient capacity is available on both types of machines. Consider fixed costs will remain unchanged. [RTP Nov. 22]

Q.26. Two manufacturing companies A and B are planning to merge. The details are as follows:

	A	B
Capacity utilisation (%)	90	60
Sales (₹)	63,00,000	48,00,000
Variable Cost (₹)	39,60,000	22,50,000
Fixed Cost (₹)	13,00,000	15,00,000

Assuming that the proposal is implemented, calculate:

(i) Break-Even sales of the merged plant and the capacity utilization at that stage.

(ii) Profitability of the merged plant at 80% capacity utilization.

(iii) Sales Turnover of the merged plant to earn a profit of ₹ 60,00,000.

(iv) When the merged plant is working at a capacity to earn a profit of ₹ 60,00,000, what percentage of increase in selling price is required to sustain an increase of 5% in fixed overheads.

[Sugg.Jan'21, 10 Marks]

Q.27.Top-tech a manufacturing company is presently evaluating two possible machines for the manufacture of superior Pen-drives. The following information is available:

Particulars	Machine A	Machine B
Selling price per unit	₹ 400.00	₹ 400.00
Variable cost per unit	₹ 240.00	₹ 260.00
Total fixed costs per year	₹ 350 lakhs	₹ 200 lakhs
Capacity (in units)	8,00,000	10,00,000

Required:

(i) Recommend which machine should be chosen?

(ii) Would you change your answer, if you were informed that in near future demand will be unlimited and the capacities of the two machines are as follows?

Machine A - 12,00,000 units

Machine B - 12,00,000 units

Why? [Sugg.May'22, 10 Marks]

HOME WORK SECTION

Q.1. Wonder Ltd. manufactures a single product, ZEST. The following figures relate to ZEST for a one-year period:

Activity Level	50%	100%
Sales and production (units)	400	800
	(₹)	(₹)
Sales	8,00,000	16,00,000
Production costs:		
- Variable	3,20,000	6,40,000
- Fixed	1,60,000	1,60,000
Selling and distribution costs:		
- Variable	1,60,000	3,20,000
- Fixed	2,40,000	2,40,000

The normal level of activity for the year is 800 units. Fixed costs are incurred evenly throughout the year, and actual fixed costs are the same as budgeted. There were no stocks of ZEST at the beginning of the year.

In the first quarter, 220 units were produced and 160 units were sold. Required:

(a) COMPUTE the fixed production costs absorbed by ZEST if absorption costing is used?

(b) CALCULATE the under/over-recovery of overheads during the period?

(c) CALCULATE the profit using absorption costing?

(d) CALCULATE the profit using marginal costing?

Q.2. If P/V ratio is 60% and the Marginal cost of the product is ₹ 20. CALCULATE the selling price?

Q.3. The following information is given by Star Ltd.:

Margin of Safety	₹ 1,87,500
Total Cost	₹ 1,93,750
Margin of Safety	3,750 units
Break-even Sales	1,250 units Required:

CALCULATE Profit, P/V Ratio, BEP Sales (in ₹) and Fixed Cost.

Q.4. You are required to-

			(₹)
(i)	DETERMINE profit, when sales	=	2,00,000
	Fixed Cost	=	40,000
	BEP	=	1,60,000
(ii)	DETERMINE sales, when fixed cost	=	20,000
	Profit	=	10,000
	BEP	=	40,000

Q.5. A company has made a profit of ₹ 50,000 during the year 2019-20. If the selling price and marginal cost of the product are ₹ 15 and ₹ 12 per unit respectively, FIND OUT the amount of margin of safety.

Q.6. The following information is given by Star Ltd.:

Margin of Safety	₹ 1,87,500
Total Cost	₹ 1,93,750
Margin of Safety	3,750 units
Break-even Sales	1,250 units Required:

CALCULATE Profit, P/V Ratio, BEP Sales (in ₹) and Fixed Cost.

Q.7. Following figures have been extracted from the books of M/s. RST Private Limited:

Financial Year	Sales (₹)	Profit/Loss (₹)
2016-17	4,00,000	15,000(loss)
2017-18	5,00,000	15,000 (Profit)

You are required to calculate:

(i) Profit Volume Ratio

(ii) Fixed Costs

(iii) Break Even Point

(iv) Sales required to earn a profit of ₹ 45,000.

(v) Margin of Safety in Financial Year 2017-18. [Sugg.May '18, 4 Marks]

Q.8. Yamuna Ltd. manufactures a product, currently utilising 80% capacity with a turnover of Rs.8,00,000 at Rs.25 per unit. T he cost data are as under: Material cost Rs.7.50 per unit, Labour cost Rs.6.25 per unit Semi-variable cost (Including variable cost of Rs.3.75) per unit Rs.1,80,000. Fixed cost Rs. 90,000 upto 80% level of output, beyond this an additional Rs. 20,000 will be incurred. Calculate :

(i) Activity level at Break-Even-Point

(ii) Number of units to be sold to earn a net income of 8% of sales

(iii) Activity level needed to earn a profit of Rs. 95,000. [MTP April '19, 4 Marks]

Q.9. SK Ltd. engaged in the manufacture of tyres. Analysis of income statement indicated a profit of ₹150 lakhs on a sales volume of 50,000 units. The fixed cost is ₹ 850 lakhs which appears to be high. Existing selling price is ₹ 3,400 per unit. The company is considering to revise the profit target to ₹ 350 lakhs. You are required to COMPUTE-

(i) Break-even point at existing levels in units and in rupees.

(ii) The number of units required to be sold to earn the target profit.

(iii) Profit with 15% increase in selling price and drop in sales volume by 10%.

(iv) Volume to be achieved to earn target profit at the revised selling price as calculated in (ii) above, if a reduction of 8% in the variable costs and ₹ 85 lakhs in the fixed cost is envisaged. [MTP March '18, 10 Marks]

Q.10. C.T. Ltd. manufactures and sells a single product X whose selling price is Rs. 100 per unit and the variable cost is Rs. 60 per unit.

(i) If the Fixed Costs for this year are Rs. 24,00,000 and the annual sales are at 60% margin of safety, CALCULATE the rate of net return on sales, assuming an income tax level of 40%.

(ii) For the next year, it is proposed to add another product line Y whose selling price would be Rs. 150 per unit and the variable cost Rs. 100 per unit. The total fixed costs are estimated at Rs. 28,00,000. The sales mix of X : Y would be 5 : 3. COMPUTE the break- even sales in units for both the products. [MTP Oct. '19, 5 Marks]

Q.10. A company has three factories situated in North, East and South with its Head Office in Mumbai. The Management has received the following summary report on the operations of each factory for a period:

(₹ in '000)

Factory	Sales		Profit	
	Actual	Over / (Under) Budget	Actual	Over / (Under) Budget
North	1,100	(400)	135	(180)
East	1,450	150	210	90
South	1,200	(200)	330	(110)

CALCULATE the following for each factory and for the company as a whole for the period:

(i) Fixed Cost

(ii) Break-even Sales [MTP Nov. '21]

Q.11. PJ Ltd manufactures hockey sticks. It sells the products at ₹ 500 each and makes a profit of ₹ 125 oneach stick. The Company is producing 5,000 sticks annually by using 50% of its machinery capacity. The cost of each stick is as under:

Direct Material	₹ 150
Direct Wages	₹ 50
Works Overhead	₹ 125 (50% fixed)
Selling Expenses	₹ 50 (25% variable)

The anticipation for the next year is that cost will go up as under:

Fixed Charges	10%
Direct Wages	20%
Direct Material	5%

There will not be any change in selling price.

There is an additional order for 2,000 sticks in the next year.

Calculate the lowest price that can be quoted so that the Company can earn the same profit as it has earned in the current year? [Sugg.Nov'19, 10 Marks]

Q.12. During a particular period ABC Ltd has furnished the following data: Sales ₹ 10,00,000 Contribution to sales ratio 37% and Margin of safety is 25% of sales.

A decrease in selling price and decrease in the fixed cost could change the "contribution to sales ratio" to 30% and "margin of safety" to 40% of the revised sales. Calculate:

(i) Revised Fixed Cost.

(ii) Revised Sales and

(iii) New Break-Even Point. [Sugg.Jan'21, 5 Marks]

Q.13. LR Ltd. is considering two alternative methods to manufacture a new product it intends to market. The two methods have a maximum output of 50,000 units each and produce identical items with a selling price of ₹ 25 each. The costs are:

	Method-1 Semi-Automatic (₹)	Method-2 Fully-Automatic (₹)
Variable cost per unit	15	10
Fixed costs	1,00,000	3,00,000

You are required to calculate:

(1) Cost Indifference Point in units. Interpret your results.

(2) The Break-even Point of each method in terms of units. [Sugg.Jul'21, 5 Marks]

Q.14. AZ company has prepared its budget for the production of 2,00,000 units. The variable cost per unit is ₹ 16 and fixed cost is ₹ 4 per unit. The company fixes its selling price to fetch a profit of 20% on total cost.

You are required to calculate:

(i) Present break-even sales (in ₹ and in quantity).

(ii) Present profit-volume ratio.

(iii) Revised break-even sales in ₹ and the revised profit-volume ratio, if it reduces its selling price by 10%.

(iv) What would be revised sales- in quantity and the amount, if a company desires a profit increase of 20% more than the budgeted profit and selling price is reduced by 10% as above in point (iii). [Sugg.Dec'21, 10 Marks]

Q.15. UV Limited started a manufacturing unit from 1st October 2021. It produces designer lamps and sells its lamps at ₹ 450 per unit.

During the quarter ending on 31st December, 2021, it produced and sold 12,000 units and suffered a loss of ₹ 35 per unit.

During the quarter ending on 31st March, 2022, it produced and sold 30,000 units and earned a profit of ₹ 40 per unit.

You are required to calculate:

(i) Total fixed cost incurred by UV ltd. per quarter.

(ii) Break Even sales value (in rupees)

(iii) Calculate Profit, if the sale volume reaches 50,000 units in the next quarter (i.e., quarter ending on 30th June, 2022). [Sugg.May'22, 10 Marks]

CLASS TEST

Q.1. (a) If margin of safety is ₹ 2,40,000 (40% of sales) and P/V ratio is 30% of AB Ltd, CALCULATE its (1) Break even sales, and (2) Amount of profit on sales of ₹9,00,000.

(b) X Ltd. has earned a contribution of ₹2,00,000 and net profit of ₹1,50,000 of sales of ₹ 8,00,000. What is its margin of safety?

Q.2. Mr. X has ₹ 2,00,000 investments in his business firm. He wants a 15 per cent return on his money. From an analysis of recent cost figures, he finds that his variable cost of operating is 60 per cent of sales, his fixed costs are ₹ 80,000 per year. Show COMPUTATIONS to answer the following questions:

(i) What sales volume must be obtained to break even?

(ii) What sales volume must be obtained to get 15 per cent return on investment?

(iii) Mr. X estimates that even if he closed the doors of his business, he would incur ₹ 25,000 as expenses per year. At what sales would he be better off by locking his business up?

Q.3. M/s Gaurav Private Limited is manufacturing and selling two products: 'BLACK' and 'WHITE' at selling price of ₹ 20 and ₹ 30 respectively.The following sales strategy has been outlined for the financial year 2019-20:

(i) Sales planned for the year will be ₹ 81,00,000 in the case of 'BLACK' and ₹ 54,00,000 in the case of 'WHITE'.

(ii) The selling price of 'BLACK' will be reduced by 10% and that of 'WHITE' by 20%.

(iii) Break-even is planned at 70% of the total sales of each product.

(iv) Profit for the year to be maintained at ₹ 8,26,200 in the case of 'BLACK' and ₹ 7,45,200 in the case of 'WHITE'. This would be possible by reducing the present annual fixed cost of ₹ 42,00,000 allocated as ₹ 22,00,000 to 'BLACK' and ₹ 20,00,000 to 'WHITE'

You are required to calculate:

(1) Number of units to be sold of 'BLACK' and 'WHITE' to Break even during the financial year 2019-20.

(2) Amount of reduction in fixed cost product-wise to achieve desired profit mentioned at (iv) above. [Sugg.May '19, 5 Marks]

Q.4. PH Gems Ltd. is manufacturing readymade suits. It has annual production capacity of 2,000 pieces. The Cost Accountant has presented following information for the year to the management:

Particulars	Amount (₹)	Amount (₹)
Sales 1,500 pieces @ ₹ 1,800 per piece		27,00,000
Direct Material	5,94,200	
Direct Labour	4,42,600	
Overheads (40% Fixed)	11,97,000	22,33,800
Net Profit		4,66,300

Evaluate following options:

(i) If selling price is increased by ₹ 200, the sales will come down to 60% of the total annual capacity. Should the company increase its selling price?

(ii) The company can earn a profit of 20% on sales if the company provide TIEPIN with ready-made suit. The cost of each TIEPIN is ₹ 18. Calculate the sales to earn a profit of 20% on sales.

[Sugg.May '18, 10 Marks]

Q.5.

Fixed Cost	Rs. 1,20,000
Variable costs	Rs. 3 per unit
Selling price	Rs. 7 per unit
Output	Rs. 50,000 units

CALCULATE the profit for each of the following situation with the above data:

(i) with the data above

(ii) with a 10% increase in output & sales.

(iii) with a 10% increase in fixed costs.

(iv) with a 10% increase in variable costs.

(v) with a 10% increase in selling price.

(vi) taking all the above situations.

[MTP Aug. '18, 10 Marks]

Q.6. Arnav Ltd. is producing a single product, has the profit-volume ratio of 40%. The company wishes to increase the selling price by 10% which will increase the variable cost by 5%. The fixed overheads will increase from its present level of Rs.20,00,000 to Rs.30,00,000.

Required:

(i) Compute the company's original break-even point sales and the break-even point sales after the increase.

(ii) Estimate the sales value for the firm to make a profit of Rs. 4,50,000 after the increase.

[MTP Oct. '18, 5 Marks]

CLASSWORK SECTION

Q. 1. A factory which expects to operate 7,000 hours, i.e., at 70% level of activity, furnishes details of expenses as under:

Variable expenses	₹ 1,260
Semi-variable expenses	₹ 1,200
Fixed expenses	₹ 1,800

The semi-variable expenses go up by 10% between 85% and 95% activity and by 20% above 95% activity. Construct a flexible budget for 80, 90 and 100 per cent activities.

Q.2. Action Plan Manufacturers normally produce 8,000 units of their product in a month, in their Machine Shop. For the month of January, they had planned for a production of 10,000 units. Owing to a sudden cancellation of a contract in the middle of January, they could only produce 6,000 units in January.

Indirect manufacturing costs are carefully planned and monitored in the Machine Shop and the Foreman of the shop is paid a 10% of the savings as bonus when in any month the indirect manufacturing cost incurred is less than the budgeted provision.

The Foreman has put in a claim that he should be paid a bonus of (₹ 88.50 for the month of January. The Works Manager wonders how anyone can claim a bonus when the Company has lost a sizeable contract. The relevant figures are as under:

Indirect manufacturing	Expenses for a normal month (₹)	Planned for January (₹)	Actual in costs January ((₹)
Salary of foreman	1,000	1,000	1,000
Indirect labour	720	900	600
Indirect material	800	1,000	700
Repairs and maintenance power	600	650	600
Power	800	875	740
Tools consumed	320	400	300
Rates and taxes	150	150	150
Depreciation	800	800	800
Insurance	100	100	100
	5290	5,875	4,990

Do you agree with the Works Manager? Is the Foreman entitled to any bonus for the performance in January? Substantiate your answer with facts and figures.

Q.3. A Factory manufactures a uniform type of article and has a capacity of 4,000 units per week. The following information shows the different elements of cost for three consecutive weeks when the output has changed every week.

Units produced	Direct materials (₹)	Direct labour (₹)	Factory overheads (₹)
2,000	12,000	6,000	12,500
2,800	16,800	8,400	16,500
3,700	22,200	11,100	21,000

The factory has received an order for 5,000 units and it desires a profit of 16 2/3% on selling price. Find out the price at which each unit should be sold.

Q.4. Concorde Ltd. manufactures two products using two types of materials and one grade of labour. Shown below is an extract from the company's working papers for the next month's budget:

	Product - A	Product - B
Budgeted sales (in units)	2,400	3,600
Budgeted material consumption per unit (in kg):		
Material – X	5	3
Material – Y	4	6
Standard labour hours allowed per unit of product	3	5

Material-X and Material-Y cost ₹ 4 and ₹ 6 per kg and labours are paid ₹ 25 per hour. Overtime premium is 50% and is payable, if a worker works for more than 40 hours a week. There are 180 direct workers.

The target productivity ratio (or efficiency ratio) for the productive hours worked by the direct workers in actually manufacturing the products is 80%. In addition the non-productive down-time is budgeted at 20% of the productive hours worked.

There are four 5-days weeks in the budgeted period and it is anticipated that sales and production will occur evenly throughout the whole period.

It is anticipated that stock at the beginning of the period will be:

Product-A	400 units
Product-B	200 units
Material-X	1,000 kg.
Material-Y	500 kg.

The anticipated closing stocks for budget period are as below:

Product-A	4 days sales
Product-B	5 days sales
Material-X	10 days consumption
Material-Y	6 days consumption

Required:
Calculate the Material Purchase Budget and the Wages Budget for the direct workers, showing the quantities and values, for the next month.

Q.5. A single product company estimated its sales for the next year quarter-wise as under:

Quarter	Sales (Units)
I	30,000
II	37,500
III	41,250
IV	45,000

The opening stock of finished goods is 10,000 units and the company expects to maintain the closing stock of finished goods at 16,250 units at the end of the year.

The production pattern in each quarter is based on 80% of the sales of the current quarter and 20% of the sales of the next quarter.

The opening stock of raw materials in the beginning of the year is 10,000 kg. and the closing stock at the end of the year is required to be maintained at 5,000 kg. Each unit of finished output requires 2 kg. of raw materials.

The company proposes to purchase the entire annual requirement of raw materials in the first three quarters in the proportion and at the prices given below:

Quarter	Purchase of raw materials % to total annual requirement in quality	Price per kg. (₹)
I	30%	2
II	50%	3
III	20%	4

The value of the opening stock of raw materials in the beginning of the year is ₹ 20,000.

You are required to present the following for the next year, quarter wise:

(i) Production budget (in units).

(ii) Raw material consumption budget (in quantity).

(iii) Raw material purchase budget (in quantity and value).

(iv) Priced stores ledger card of the raw material using First in First out meth.

Q.6. Floatglass Manufacturing Company requires you to present the Master budget for the next year from the following information:

Sales:	
Toughened Glass	₹ 6, 00,000
Bent Glass	₹ 2, 00,000
Direct material cost	60% of sales
Direct wages	20 workers @ ₹ 150 per month
Factory overheads:	
Indirect labour –	
Works manager	₹ 500 per month
Foreman	₹ 400 per month
Stores and spares	2.5% on sales
Depreciation on machinery	₹ 12,600
Light and power	₹ 3,000
Repairs and maintenance	₹ 8,000
Others sundries	10% on direct wages
Administration, selling and distribution expenses	₹ 36,000 per year

Q.7. The accountant of manufacturing company provides you the following details for year 20X2:

	(₹)		(₹)
Direct materials	1, 75,000	other variable costs	80,000
Direct Wages	1, 00,000	other fixed costs	80,000
Fixed factory overheads	1, 00,000	Profit	1, 15,000
Variable factory overheads	1, 00,000	Sales	7, 50,000

During the year, the company manufactured two products A and B and the output and costs were:

	A	B
Output (units)	2,00,000	1, 00,000
Selling price per unit	₹ 2.00	₹ 3.50
Direct materials per unit	₹ 0.50	₹ 0.75
Direct wages per unit	₹ 0.25	₹0.50

Variable factory overhead is absorbed as a percentage of direct wages. Other variable costs have been computed as: Product A ₹ 0.25 per unit; and B ₹ 0.30 per unit.

During 20X3, it is expected that the demand for product A will fall by 25 % and for B by 50%. It is decided to manufacture a further product C, the cost for which are estimated as follows:

	Product C
Output (units)	2,00,000
Selling price per unit	₹ 1.75
Direct materials per unit	₹ 0.40
Direct wages per unit	₹ 0.25

It is anticipated that the other variable costs per unit will be the same as for product A.

Prepare a budget to present to the management, showing the current position and the position for 20X3. Comment on the comparative results.

Q. 8. A company is engaged in the manufacture of specialised sub-assemblies required for certain electronic equipment. The company envisages that in the forthcoming month, December, 2020, the sales will be in the ratio of 3 : 4 : 2 respectively of sub-assemblies, ACB, MCB and DP.

The following is the schedule of components required for manufacture:

Component requirements

Sub-assembly	Selling Price	Base board	IC08	IC12	IC26
ACB	520	1	8	4	2
MCB	500	1	2	10	6
DP	350	1	2	4	8
Purchase price (₹)		60	20	12	8

The direct labour time and variable overheads required for each of the sub- assemblies are:

Labour hours Variable

	Grade A	Grade B	overheads
ACB	8	16	36
MCB	6	12	24
DP	4	8	24
Direct wage rate per hour (₹)	5	4	–

The labourers work 8 hours a day for 25 days a month.

The opening stocks of sub-assemblies and components for December, 2020 are as under:

Sub-assemblies		Components	
ACB	800	Base Board	1,600
MCB	1,200	IC08	1,200
DP	2,800	IC12	6,000
		IC26	4,000

Fixed overheads amount to ₹7,57,200 for the month and a monthly profit target of ₹ 12 lacs has been set.

The company is eager for a reduction of closing inventories for December, 2020 of sub-assemblies and components by 10% of quantity as compared to the opening stock. PREPARE the following budgets for December 2020

(a) Sales budget in quantity and value.
(b) Production budget in quantity
(c) Component usage budget in quantity.
(d) Component purchase budget in quantity and value.
(e) Manpower budget showing the number of workers and the amount of wages payable.

Q.9. Following data is available for DKG and Co:

Standard working hours	8 hours per day of 5 days per week
Maximum capacity	50 employees
Actual working	40 employees

Actual hours expected to be worked per four week	6,400 hours
Std. hours expected to be earned per four weeks	8,000 hours
Actual hours worked in the four- week period	6,000 hours
Standard hours earned in the four- week period	7,000 hours.

The related period is of 4 weeks. In this period there was a one special day holiday due to national event. CALCULATE the following ratios:

(1) Efficiency Ratio, (2) Activity Ratio, (3) Calendar Ratio, (4) Standard Capacity Usage Ratio, (5) Actual Capacity Usage Ratio. (6) Actual Usage of Budgeted Capacity Ratio.

Q.10. B Ltd manufactures two products viz., X and Y and sells them through two divisions, East and West. For the purpose of Sales Budget to the Budget Committee, following information has been made available for the year 2019-20:

Product	Budgeted Sales		Actual Sales	
	East Division	West Division	East Division	West Division
X	800 units at ₹18	1,200 units at ₹18	1,000 units at ₹18	1,400 units at ₹18
Y	600 units at ₹42	1,000 units at ₹42	400 units at ₹42	800 units at ₹42

Adequate market studies reveal that product X is popular but underpriced. It is expected that if the price of X is increased by ₹2, it will, find a ready market. On the other hand, Y is overpriced and if the price of Y is reduced by ₹2 it will have more demand in the market. The company management has agreed for the aforesaid price changes. On the basis of these price changes and the reports of salesmen, following estimates have been prepared by the Divisional Managers:

Percentage increase in sales over budgeted sales

Product	East Division	West Division
X	+ 12.5%	+ 7.5%
Y	+ 22.5%	+ 12.5%

With the help of intensive advertisement campaign, following additional sales (over and above the above mentioned estimated sales by Divisional Mangers) are possible:

Product	East Division	West Division
X	120 units	140 units
Y	80 units	100 units

You are required to PREPARE Sales Budget for 2020-21 after incorporating above estimates and also SHOW the Budgeted Sales and Actual Sales of 2019-20.

Q.11. K Ltd. produces and markets a very popular product called 'X'. The company is interested in presenting its budget for the second quarter of 2020.

The following information are made available for this purpose:

(i) It expects to sell 1,50,000 bags of 'X' during the second quarter of 2020 at the selling price of ₹1,200 per bag.

(ii) Each bag of 'X' requires 2.5 mtr. of raw – material 'Y' and 7.5 mtr. of raw – material 'Z'.

(iii) Stock levels are planned as follows:

Particulars	Beginning of Quarter	End of Quarter
Finished Bags of 'X' (Nos.)	45,000	33,000
Raw – Material 'Y' (mtr)	96,000	78,000
Raw – Material 'Z' (mtr)	1,71,000	1,41,000
Empty Bag (Nos.)	1,11,000	84,000

(iv) 'Y' cost ₹160 per mtr., 'Z' costs ₹30 per mtr. and 'Empty Bag' costs ₹110 each.

(v) It requires 9 minutes of direct labour to produce and fill one bag of 'X'. Labour cost is ₹ 70 per hour.

(vi) Variable manufacturing costs are ₹60 per bag. Fixed manufacturing costs ₹40,00,000 per quarter.

(vii) Variable selling and administration expenses are 5% of sales and fixed administration and selling expenses are ₹3,75,000 per quarter.

Required

(i) PREPARE a production budget for the said quarter in quantity.

(ii) PREPARE a raw – material purchase budget for 'Y', 'Z' and 'Empty Bags' for the said quarter in quantity as well as in rupees.

(iii) COMPUTE the budgeted variable cost to produce one bag of 'X'.

Q.12. TQM Ltd. has furnished the following information for the month ending 30th June, 2020:

	Master Budget	Actual	Variance
Units produced and sold	80,000	72,000	
Sales (₹)	3,20,000	2,80,000	40,000 (A)
Direct material (₹)	80,000	73,600	6,400 (F)
Direct wages (₹)	1,20,000	1,04,800	15,200 (F)
Variable overheads (₹)	40,000	37,600	2,400 (F)
Fixed overhead (₹)	40,000	39,200	800 (F)
Total Cost	2,80,000	2,55,200	

The Standard costs of the products are as follows:

	Per unit (₹)
Direct materials (1 kg. at the rate of ₹1 per kg.)	1.00
Direct wages (1 hour at the rate of ₹ 1.50)	1.50
Variable overheads (1 hour at the rate of ₹ 0.50)	0.50

Actual results for the month showed that 78,400 kg. of material were used and 70,400 labour hours were recorded.

Required:

(i) PREPARE Flexible budget for the month and compare with actual results.

(ii) CALCULATE Material, Labour, Sales Price, Variable Overhead and Fixed Overhead Expenditure variances and Sales Volume (Profit) variance.

Q.13. Jigyasa Ltd. is drawing a production plan for its two products Minimax (MM) and Heavyhigh (HH) for the year 2020-21. The company's policy is to hold closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month. The following are the estimated data for two products:

	Minimax (MM)	Heavyhigh (HH)
Budgeted Production units	1,80,000	1,20,000
	(₹)	(₹)
Direct material cost per unit	220	280
Direct labour cost per unit	130	120
Manufacturing overhead	4,00,000	5,00,000

The estimated units to be sold in the first four months of the year 2020- 21 are as under

	April	May	June	July
Minimax	8,000	10,000	12,000	16,000
Heavyhigh	6,000	8,000	9,000	14,000

PREPARE production budget for the first quarter in month-wise.

Q.14. Maharatna Ltd., a public sector undertaking (PSU), produces product A. The company is in process of preparing its revenue budget for the year 2022. The company has the following information which can be useful in preparing the budget:

(i) It has anticipated 12% growth in sales volume from the year 2021 of 4,20,000 tonnes.

(ii) The sales price of ₹23,000 per tonne will be increased by 10% provided Wholesale Price Index (WPI) increases by 5%.

(iii) To produce one tonne of product A, 2.3 tonnes of raw material are required. The raw material cost is ₹4,500 per tonne. The price of raw material will also increase by 10% if WPI increase by 5%.

(iv) The projected increase in WPI for 2022 is 4%

(v) A total of 6,000 employees works for the company. The company works 26 days in a month.

(vi) 85% of employees of the company are permanent and getting salary as per 5- year wage agreement. The earnings per manshift (means an employee cost for a shift of 8 hours) is ₹ 3,000 (excluding terminal benefits). The new wage agreement will be implemented from 1st July 2022 and it is expected that a 15% increase in pay will be given.

(vii) The casual employees are getting a daily wage of ₹ 850. The wages in linked to Consumer Price Index (CPI). The present CPI is 165.17 points and it is expected to be 173.59 points in year 2022.

(viii) Power cost for the year 2021 is ₹ 42,00,000 for 7,00,000 units (1 unit = 1 Kwh). 60% of power is used for production purpose (directly related to production volume) and remaining are for employee quarters and administrative offices.

(ix) During the year 2021, the company has paid ₹ 60,00,000 for safety and maintenance works. The amount will increase in proportion to the volume of production.

(x) During the year 2021, the company has paid ₹ 1,20,000 for the purchase of diesel to be used in car hired for administrative purposes. The cost of diesel will increase by 15% in year 2022.

(xi) During the year 2021, the company has paid ₹ 6,00,000 for car hire charges (excluding fuel cost). In year 2022, the company has decided to reimburse the diesel cost to the car rental company. Doing this will attract 5% GST on Reverse Charge Mechanism (RCM) basis on which the company will not get GST input credit.

(xii) Depreciation on fixed assets for the year 2021 is ₹ 80,40,00,000 and it will be 15% lower in 2022.

Required:

From the above information PREPARE Revenue (Flexible) budget for the year 2022 and also show the budgeted profit/ loss for the year. [RTP, May 22]

Q.15. SR Ltd. is a manufacturer of Garments. For the first three months of financial year 2022-23 commencing on 1st April 2022, production will be constrained by direct labour. It is estimated that only 12,000 hours of direct labour hours will be available in each month.

For market reasons, production of either of the two garments must be at least 25% of the production of the other. Estimated cost and revenue per garment are as follows:

	Shirt (₹)	Short (₹)
Sales price	60	44
Raw Materials		
Fabric @12 per metre	24	12
Dyes and cotton	6	4

Direct labour @ 8 per hour	8	4
Fixed Overhead @ 4 per hour	4	2
Profit	18	22

From the month of July 2022 direct labour will no longer be a constraint. The company expects to be able to sell 15,000 shirts and 20,000 shorts in July, 2022. There will be no opening stock at the beginning of July 2022.

Sales volumes are expected to grow at 10% per month cumulatively thereafter throughout the year. Following additional information is available:

- The company intends to carry stock of finished garments sufficient to meet 40% of the next month's sale from July 2022 onwards.
- The estimated selling price will be same as above. Required:
  - I. Calculate the number of shirts and shorts to be produced per month in the first quarter of financial year 2022-2023 to maximize company's profit.
  - II. Prepare the following budgets on a monthly basis for July, August and September 2022:
    - (i) Sales budget showing sales units and sales revenue for each product.
    - (ii) Production budget (in units) for each product. [Sugg.May'22, 10 Marks]

HOME WORK SECTION

Q. 1. ABC Ltd. is currently operating at 75% of its capacity. In the past two years, the levels of operations were 55% and 65% respectively. Presently, the production is 75,000 units. The company is planning for 85% capacity level during 2020-21. The cost details are as follows:

	55% (₹)	65% (₹)	75% (₹)
Direct Materials	11,00,000	13,00,000	15,00,000
Direct Labour	5,50,000	6,50,000	7,50,000
Factory Overheads	3,10,000	3,30,000	3,50,000
Selling Overheads	3,20,000	3,60,000	4,00,000
Administrative Overheads	1,60,000	1,60,000	1,60,000
	24,40,000	28,00,000	31,60,000

Profit is estimated @ 20% on sales.

The following increases in costs are expected during the year:

In percentage

Direct Materials	8
Direct Labour	5
Variable Factory Overheads	5
Variable Selling Overheads	8
Fixed Factory Overheads	10
Fixed Selling Overheads	15
Administrative Overheads	10

PREPARE flexible budget for the period 2020-21 at 85% level of capacity. Also ascertain profit and contribution.

Q.2. KLM Limited has prepared its expense budget for 50,000 units in its factory for the year 2019-20 as detailed below:

	(₹ per unit)
Direct Materials	125
Direct Labour	50
Variable Overhead	40
Direct Expenses	15
Selling Expenses (20% fixed)	25
Factory Expenses (100% fixed)	15
Administration expenses (100% fixed)	8
Distribution expenses (85% variable)	20
Total	298

PREPARE an expense budget for the production of 35,000 units and 70,000 units.

[RTP Nov'19]

Q.3. An electronic gadget manufacturer has prepared sales budget for the next few months. In this respect, following figures are available:

Months	Electronic gadgets' sales
January	5000 units
February	6000 units
March	7000 units
April	7500 units
May	8000 units

To manufacture an electronic gadget, a standard cost of ₹ 1,500 is incurred and it is sold through dealers at an uniform price of ₹ 2,000 per gadget to customers. Dealers are given a discount of 15% on selling price.

Apart from other materials, two units of batteries are required to manufacture a gadget. The company wants to hold stock of batteries at the end of each month to cover 30% of next month's production and to hold stock of manufactured gadgets to cover 25% of the next month's sale.

3250 units of batteries and 1200 units of manufactured gadgets were in stock on 1st January.

Required:

(i) Prepare production budget (in units) for the month of January, February, March and April.

(ii) Prepare purchase budget for batteries (in units) for the month of January, February and March and calculate profit for the quarter ending on March.

[Sugg.Nov '18, 10 Marks]

Q.4. R Limited is presently operating at 50% capacity and producing 60,000 units. The entire output is sold at a price of ₹ 200 per unit. The cost structure at the 50% level of activity is as under:

	₹
Direct Material	75 per unit
Direct Wages	25 per unit
Variable Overheads	25 per unit
Direct Expenses	15 per unit
Factory Expenses (25% fixed)	20 per unit
Selling and Distribution Exp. (80% variable)	10 per unit
Office and Administrative Exp. (100% fixed)	5 per unit

The company anticipates that the variable costs will go up by 10% and fixed costs will go up by 15%. You are required to PREPARE an Expense budget, on the basis of marginal cost for the company at 50% and 60% level of activity and COMPUTE profits at respective levels.

[MTP March '18, 10 Marks]

Q. 5. V Ltd. produces and markets a very popular product called 'X'. The company is interested in presenting its budget for the second quarter of 2019.

The following information are made available for this purpose:

(i) It expects to sell 50,000 bags of 'X' during the second quarter of 2019 at the selling price of Rs. 900 per bag.

(ii) Each bag of 'X' requires 2.5 kgs. of a raw – material called 'Y' and 7.5 kgs. of raw – material called 'Z'.

(iii) Stock levels are planned as follows:

Particulars	Beginning of Quarter	End of Quarter
Finished Bags of 'X' (Nos.)	15,000	11,000
Raw – Material 'Y' (Kgs.)	32,000	26,000
Raw – Material 'Z' (Kgs.)	57,000	47,000
Empty Bag (Nos.)	37,000	28,000

(iv) 'Y' cost Rs.120 per Kg., 'Z' costs Rs.20 per Kg. and 'Empty Bag' costs Rs.80 each.

(v) It requires 9 minutes of direct labour to produce and fill one bag of 'X'. Labour cost is Rs.50 per hour.

(vi) Variable manufacturing costs are Rs.45 per bag. Fixed manufacturing costs Rs.30,00,000 per quarter.

(vii) Variable selling and administration expenses are 5% of sales and fixed administration and selling expenses are Rs.20,50,000 per quarter.

Required

(i) PREPARE a production budget for the said quarter.

(ii) PREPARE a raw – material purchase budget for 'Y', 'Z' and 'Empty Bags' for the said quarter in quantity as well as in rupees.

(iii) COMPUTE the budgeted variable cost to produce one bag of 'X'.

(iv) PREPARE a statement of budgeted net income for the said quarter and show both per unit and total cost data. [MTP Oct. '19, 10 Marks]

Q.6. PSV Ltd. manufactures and sells a single product and estimated the following related information for the period November, 2020 to March, 2021.

Particulars	November, 2020	December, 2020	January, 2021	February, 2021	March, 2021
Opening Stock of Finished Goods (in Units)	7,500	3,000	9,000	8,000	6,000
Sales (in Units)	30,000	35,000	38,000	25,000	40,000
Selling Price per unit (in ₹)	10	12	15	15	20

Additional Information:

- Closing stock of finished goods at the end of March, 2021 is 10,000 units.
- Each unit of finished output requires 2 kg of Raw Material 'A' and 3 kg of Raw Material 'B'.

You are required to prepare the following budgets for the period November, 2020 to March, 2021 on monthly basis:

(i) Sales Budget (in ₹)

(ii) Production budget (in units) and

(iii) Raw material Budget for Raw material 'A' and 'B' separately (in units)

[Sugg.Jul'21, 10 Marks]

CLASS TEST

Q. 1. S Ltd. has prepared budget for the coming year for its two products A and B.

	Product A (₹)	Product B (₹)
Production & Sales unit	6,000 units	9,000 units
Raw material cost per unit	60.00	42.00
Direct labour cost per unit	30.00	18.00
Variable overhead per unit	12.00	6.00
Fixed overhead per unit	8.00	4.00
Selling price per unit	120.00	78.00

After some marketing efforts, the sales quantity of the Product A & B can be increased by 1,500 units and 500 units respectively but for this purpose the variable overhead and fixed overhead will be increased by 10% and 5% respectively for the both products. You are required to PREPARE flexible budget for both the products:

(a) Before marketing efforts

(b) After marketing efforts. [RTP May'19]

Q. 2. Calculate from the following figures:

(i) Efficiency ratio

(ii) Activity ratio and

(iii) Capacity ratio.

Budgeted Production	880 units
Standard Hours per unit	10 hours
Actual Production	750 units
Actual Working Hours	6,000 hours

[MTP Aug. '18, 5 Marks]

Q.3. The Accountant of KPMR Ltd. has prepared the following budget for the coming year 2022 for its two products 'AYE' and 'ZYE':

Particulars	Product 'AYE'	Product 'ZYE'
Production and Sales (in Units)	4,000	3,000
	Amount (in ₹)	Amount (in ₹)
Selling Price per unit	200	180
Direct Material per unit	80	70
Direct Labour per unit	40	35
Variable Overhead per unit	20	25
Fixed Overhead per unit	10	10

After reviewing the above budget, the management has called the marketing team for suggesting some measures for increasing the sales. The marketing team has suggested that by promoting the products on social media, the sales quantity of both the products can be increased by 5%. Also, the selling price per unit will go up by 10%. But this will result in increase in expenditure on variable overhead and fixed overhead by 20% and 5% respectively for both the products.

You are required to prepare flexible budget for both the products:

(i) Before promotion on social media,

(ii) After promotion on social media. [Sugg.Dec'21, 10 Marks]

THEORY SECTION

Know Your Preparation

Chpt No	Name	Reading	Revision	Writing
1	Introduction to Cost & Management accounting			
2	Material Cost			
3	Employee Cost			
4	Overheads: Absorption costing method			
5	Activity Based Costing			
6	Cost Sheet			
7	Cost Accounting System			
8	Unit & Batch Costing			
9	Job Costing & Contract Costing			
10	Process & Operation Costing			
11	Joint Products & By Products			
12	Service Costing			
13	Standard Costing			
14	Marginal Costing			
15	Budget & Budgetary Control			

Question 1.

DESCRIBE the main objectives of introduction of a Cost and Management Accounting System in a manufacturing organization

Answer

The main objectives of Cost and Management accounting are explained as below:

(i) Ascertainment of Cost: The main objective of Cost Accounting is accumulation and ascertainment of cost. Costs are accumulated, assigned and ascertained for each cost object. This cost object may be a unit, job, operation, process, department or service.

(ii) Determination of Selling Price and Profitability: The cost accounting system helps in determination of selling price and thus profitability of a cost object. Though in a competitive business environment selling prices are determined by external factors but cost accounting system provides a basis for price fixation and rate negotiation.

(iii) Cost Control: Maintaining discipline in expenditure is one of the main objectives of a good cost accounting system. It ensures that expenditures are in consonance with predetermined set standard and any variation from these set standards is noted and reported on continuous basis. To exercise control over cost, following steps are followed:

(a) Determination of pre-determined standard or results:

(b) Measurement of actual performance

(c) Comparison of actual performance with set standard or target:

(d) Analysis of variance and action:

(iv) Cost Reduction: It may be defined "as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability for the use intended or diminution in the quality of the product."

Cost reduction is an approach of management where cost of an object is believed to have a scope of further reduction. No cost is termed as lowest and every possibility of cost reduction is explored.

(v) Assisting management in decision making: Cost and Management Accounting by providing relevant information, assist management in planning, implementing, measuring, controlling and evaluating of various activities. A robust cost and management accounting system provides internal and external information to the industry which will be relevant for decision making.

Question 2.

EXPLAIN the difference between Cost Control and Control Reduction.

(RTP Nov 2018, RTP May 2019, QP May 2019, MTP Aug 2018, MTP Apr 2019, MTP Apr 2021)

Answer

Cost Control	Cost Reduction
1. Cost control aims at maintaining the costs in accordance with the established standards.	1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously
2. Cost control seeks to attain lowest possible cost under existing conditions.	2. Cost reduction recognises no condition as permanent, since a change will result in lower cost.

3.	In case of cost control, emphasis is on past and present	3.	In case of cost reduction, it is on present and future.
4.	Cost control is a preventive function	4.	Cost reduction is a corrective function. It operates even when an efficient cost control system exists.
5.	Cost control ends when targets are achieved.	5.	Cost reduction has no visible end.

Question 3.

DIFFERENTIATE between Cost Accounting and Management Accounting.

(RTP Nov 2019, RTP May 2020, QP Nov 2020)

Answer

Difference between Cost Accounting and Management Accounting

	Basis	Cost Accounting	Management Accounting
(i)	Nature	It records the quantitative aspect only.	It records both qualitative and quantitative aspect.
(ii)	Objective	It records the cost of producing a product and providing a service.	It Provides information to management for planning and co-ordination.
(iii)	Area	It only deals with cost Ascertainment.	It is wider in scope as it includes financial accounting, budgeting, taxation, planning etc.
(iv)	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
(v)	Development	Its development is related to industrial revolution.	It develops in accordance to the need of modern business world.
(vi)	Rules and Regulation	It follows certain principles and procedures for recording costs of different products.	It does not follow any specific rules and regulations.

Question 4.

Difference between Financial Accounting and Cost Accounting

Answer

	Basis	Financial Accounting	Cost Accounting
(i)	Objective	It provides information about the financial performance of an entity.	Ascertainment of cost for the purpose of cost control and decision making.
(ii)	Nature	It classifies records, present and interprets transactions in monetary terms.	It classifies, costs records, present, and interprets it in a significant manner.
(iii)	Recording of data	It records Historical data.	It makes use of both historical and pre-determined costs.
(iv)	Users of information	The users of financial accounting statements are shareholders, creditors, financial analysts and government and its agencies, etc.	The cost accounting information is generally used by internal management. But sometimes regulatory authorities also.

(v)	Analysis of cost and profit	It shows profit or loss of the organization either segment wise or as a whole.	It provides the cost details for each cost object i.e. product, process, job, operation, contracts, etc.
(vi)	Time period	Financial Statements are prepared usually for a year.	Reports and statements are prepared as and when required.
(vii)	Presentation of information	A set format is used for presenting financial information.	In general, no set formats for presenting cost information is followed.

Question 5.

Why are cost and management accounting information are required by the staff at operational level? Describe. (QP May 2018)

Answer

Operational level staffs- The operational level staffs like supervisors, foreman, team leaders are requiring information

(i) to know the objectives and performance goals for them

(ii) to know product and service specifications like volume, quality and process etc.

(iii) to know the performance parameters against which their performance is measured and evaluated.

(iv) to know divisional (responsibility centre) profitability etc.

Question 6.

DISCUSS the essential features of a good cost accounting system?

(RTP Nov 2018, MTP Oct 2019, MTP Nov 2019)

Answer

The essential features, which a good cost accounting system should possess, are as follows:

(a) Informative and simple: Cost accounting system should be tailor-made, practical, simple and capable of meeting the requirements of a business concern.

The system of costing should not sacrifice the utility by introducing inaccurate and unnecessary details.

(b) Accurate and authentic: The data to be used by the cost accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken.

(c) Uniformity and consistency: There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for benchmarking and comparability of the results of the system for both horizontal and vertical analysis.

(d) Integrated and inclusive: The cost accounting system should be integrated with other systems like financial accounting, taxation, statistics and operational research etc. to have a complete overview and clarity in results.

(e) Flexible and adaptive: The cost accounting system should be flexible enough to make necessary amendment and modifications in the system to incorporate changes in technological, reporting, regulatory and other requirements.

(f) Trust on the system: Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflects a strong conviction in using information for decision making.

Question 7.

DESCRIBE the factors which are to be considered before installing a system of cost accounting.

(MTP Aug 2018)

Answer

A well established Costing system should provide all relevant information as and when required by management as well as various stakeholders.

Before setting up a system of cost accounting the factors mentioned below should be studied:

(a) Objective: The objective of setting up the costing system, for example whether it is being introduced for fixing prices or for establishing a system of cost control.

(b) Nature of Business or Industry: The industry in which the business is operating. Every business or industry has its own uniqueness and objectives. According to its cost information requirement, cost accounting methods are followed. For example, an oil refinery maintains process wise cost accounts to find out the cost incurred on a particular process, say in crude refinement process etc.

(c) Organisational Hierarchy: Costing system should fulfil the information requirements of different levels of management. Top management is concerned with the corporate strategy, strategic level management is concerned with marketing strategy, product diversification, product pricing etc. Operational level management needs the information on standard quantity to be consumed, report on idle time etc.

(d) Knowing the product: Nature of the product determines the type of costing system to be implemented. The product which has by-products requires costing system which accounts for by-products as well. In case of perishable or short self-life products, marginal costing is appropriate to know the contribution and minimum price at which products could be sold.

(e) Knowing the production process: A good costing system can never be established without the complete knowledge of the production process. Cost apportionment can be done on the most appropriate and scientific basis if a cost accountant can identify degree of effort or resources consumed in a particular process. This also includes some basic technical know-how and process peculiarity.

(f) Information synchronisation: Establishment of a department or a system requires substantial amount of organisational resources. While drafting a costing system, information needs of various other departments should be taken into account. For example, in a typical business organisation accounts department needs to submit monthly stock statement to its lender bank, quantity wise stock details at the time of filing returns to tax authorities etc.

(g) Method of maintenance of cost records: The organization must determine beforehand the manner in which Cost and Financial accounts could be inter-locked into a single integral accounting system and how the results of separate sets of accounts i.e. cost and financial, could be reconciled by means of control accounts.

(h) Statutory compliances and audit: Records are to be maintained to comply with statutory requirements and applicable cost accounting standards should be followed.

(i) Information Attributes: Information generated from the Costing system should possess all the attributes of useful information i.e. it should be complete, accurate, timely, relevant. to have an effective management information system (MIS).

Question 8.

DISCUSS the impact of Information Technology (IT) on cost accounting system.

(RTP May 2020, MTP Mar 2019, QP Jan 2021)

Answer

The impact of IT in cost accounting system may include the following:

(i) After the introduction of ERPs, different functional activities get integrated and as a consequence a single entry into the accounting system provides custom made reports for every purpose and saves an organisation from preparing different sets of documents. Reconciliation process of results of both cost and financial accounting systems become simpler and less sophisticated.

(ii) A move towards paperless environment can be seen where documents like Bill of Material, Material Requisition Note, Goods Received Note, labour utilisation report etc. are no longer required to be prepared in multiple copies, the related department can get e-copy from the system.

(iii) Information Technology with the help of internet (including intranet and extranet) helps in resource procurement and mobilisation. For example, production department can get materials from the stores without issuing material requisition note physically. Similarly, purchase orders can be initiated to the suppliers with the help of extranet. This enables an entity to shift towards Just-in-Time (JIT) approach of inventory management and production.

(iv) Cost information for a cost centre or cost object is ascertained with accuracy in timely manner. Each cost centre and cost object is codified and all related costs are assigned to the cost object or cost centre. This process automates the cost accumulation and ascertainment process. The cost information can be customised as per the requirement. For example, when an entity manufacture or provide services, it can know information job-wise, batch-wise, process-wise, cost centre wise etc.

(v) Uniformity in preparation of report, budgets and standards can be achieved with the help of IT. ERP software plays an important role in bringing uniformity irrespective of location, currency, language and regulations.

(vi) Cost and revenue variance reports are generated in real time basis which enables the management to take control measures immediately.

(vii) IT enables an entity to monitor and analyse each process of manufacturing or service activity closely to eliminate non value added activities.

The above are examples of few areas where Cost Accounting is done with the help of IT.

Question 9.

Mention and explain types of responsibility centres.

(QP Nov 2018)

Answer

There are four types of responsibility centres:

(i) Cost Centres: The responsibility centre which is held accountable for incurrence of costs which are under its control. The performance of this responsibility centre is measured against pre-determined standards or budgets. The cost centres are of two types:

(a) Standard Cost Centre and (b) Discretionary Cost Centre

(ii) Revenue Centres: The responsibility centres which are accountable for generation of revenue for the entity. Sales Department for example, is the responsible for achievement of sales target and revenue generation. Though, revenue centres does not have control on the all expenditures it incurs but some time expenditures related with selling activities like commission to sales person etc. are incurred by revenue centres.

(iii) Profit Centres: These are the responsibility centres which have both responsibility of generation of revenue and incurrence of expenditures. Since, managers of profit centres are accountable for both costs as well as revenue, profitability is the basis for measurement of performance of these responsibility centres. Examples of profit centres are decentralised branches of an organisation.

(iv) Investment Centres: These are the responsibility centres which are not only responsible for profitability but also has the authority to make capital investment decisions. The performance of these responsibility centres is measured based on Return on Investment (ROI) besides profit.

Question 10.

STATE the limitations of cost and management accounting.

(MTP Oct 2018)

Answer

Like other branches of accounting, cost and management accounting is also having certain limitations. The limitations of cost and management accounting are as follows:

1. Expensive: It is expensive because analysis, allocation and absorption of overheads require considerable amount of additional work, and hence additional money.

2. Requirement of Reconciliation: The results shown by cost accounts differ from those shown by financial accounts. Thus Preparation of reconciliation statements is necessary to verify their accuracy.

3. Duplication of Work: It involves duplication of work as organization has to maintain two sets of accounts i.e. Financial Account and Cost Account.

4. Inefficiency: Costing system itself does not control costs but its usage does.

Question 11.

Discuss the different cost centres that on organization can have?

Answer

Cost Centres: The responsibility centre which is held accountable for incurrence of costs which are under its control. The performance of this responsibility centre is measured against pre-determined standards or budgets. The cost centres are of two types:

(a) Standard Cost Centre and (b) Discretionary Cost Centre2

(a) Standard Cost Centre: Cost Centre where output is measurable and input required for the output can be specified. Based on a well-established study, an estimate of standard units of input to produce a unit of output is set. The actual cost for inputs is compared with the standard cost. Any deviation (variance) in cost is measured and analysed into controllable and uncontrollable cost. The manager of the cost centre is expected to comply with the standard and held responsible for adverse cost variances. The input-output ratio for a standard cost centre is clearly identifiable.

(b) Discretionary Cost Centre: The cost centre whose output cannot be measured in financial terms, thus input-output ratio cannot be defined. The cost of input is compared with allocated budget for the activity. Examples of discretionary cost centres are Research & Development department, Advertisement department where output of these department cannot be measured with certainty and corelated with cost incurred on inputs.

Question 12.

DISCUSS the Standard and Discretionary Cost Centres. (MTP Mar 2021)

Answer

(i) Standards Cost Centre: Cost Centre where output is measurable and input required for the output can be specified. Based on a well-established study, an estimate of standard units of input to produce a unit of output is set. The actual cost for inputs is compared with the standard cost. Any deviation (variance) in cost is measured and analysed into controllable and uncontrollable cost. The manager of the cost centre is supposed to comply with the standard and held responsible for adverse cost variances. The input-output ratio for a standard cost centre is clearly identifiable.

(ii) Discretionary Cost Centre: The cost centre whose output cannot be measured in financial terms, thus input-output ratio cannot be defined. The cost of input is compared with allocated budget for the activity. Example of discretionary cost centres are Research & Development department, Advertisement department where output of these department cannot be measured with certainty and co-related with cost incurred on inputs.

Question 13.

DISCUSS on (a) Discretionary Cost Centre and (b) Investment Centre

(RTP May 2018, RTP Nov 2020)

Answer

(a) Discretionary Cost Centre: The cost centre whose output cannot be measured in financial terms, thus input-output ratio cannot be defined. The cost of input is compared with allocated budget for the activity. Example of discretionary cost centres are Research & Development department, Advertisement department where output of these department cannot be measured with certainty and co- related with cost incurred on inputs.

(b) Investment Centres: These are the responsibility centres which are not only responsible for profitability but also has the authority to make capital investment decisions. The performance of these responsibility centres are measured on the basis of Return on Investment (ROI) besides profit. Examples of investment centres are Maharatna, Navratna and Miniratna companies of Public Sector Undertakings of Central Government.

Question 14.

DISCUSS cost classification based on variability and controllability.

(RTP May 2019, MTP Mar 2018, RTP May 2021)

Answer

Cost classification based on variability

(a) Fixed Costs – These are the costs which are incurred for a period, and which, within certain output and turnover limits, tend to be unaffected by fluctuations in the levels of activity (output or turnover). They do not tend to increase or decrease with the changes in output. For example, rent, insurance of factory building etc., remain the same for different levels of production.

(b) Variable Costs – These costs tend to vary with the volume of activity. Any increase in the activity results in an increase in the variable cost and vice-versa. For example, cost of direct labour, etc.

(c) Semi-variable Costs – These costs contain both fixed and variable components and are thus partly affected by fluctuations in the level of activity. Examples of semi variable costs are telephone bills, gas and electricity etc.

Cost classification based on controllability

(a) Controllable Costs - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For example, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management.

(b) Uncontrollable Costs - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For example, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman.

Question 15.

EXPLAIN the difference between product cost and period cost.

(MTP Apr 2019)

Answer

Product costs are those costs that are identified with the goods purchased or produced for resale. In a manufacturing organisation they are attached to the product and that are included in the inventory valuation for finished goods, or for incomplete goods. Product cost is also known as inventoriable cost. Under absorption costing method it includes direct material, direct labour, direct expenses, directly attributable costs (variable and non-variable) and other production (manufacturing) overheads. Under

marginal costing method Product Costs includes all variable production costs and the all fixed costs are deducted from the contribution.

Periods costs are the costs, which are not assigned to the products but are charged as expense against revenue of the period in which they are incurred. General Administration, marketing, sales and distributor overheads are recognized as period costs.

Question 16.

DEFINE Controllable Cost and Uncontrollable Cost.

(RTP Nov 2018, MTP Mar 2019, MTP Mar 2021)

Answer

(i) Controllable Costs: - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For example, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management.

(ii) Uncontrollable Costs - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For example, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman.

Question 17.

DISCUSS the four different methods of costing alongwith their applicability to concerned industry?

(MTP Mar 2018)

Answer

Four different methods of costing along with their applicability to concerned industry have been discussed as below:

(i) Job Costing: The objective under this method of costing is to ascertain the cost of each job order. A job card is prepared for each job to accumulate costs. The cost of the job is determined by adding all costs against the job it has incurred. This method of costing is used in printing press, foundries and general engineering workshops, advertising etc.

(ii) Batch Costing: This system of costing is used where small components/ parts of the same kind are required to be manufactured in large quantities. Here batch of similar products is treated as a job and cost of such a job is ascertained as discussed under (1), above. If in a cycle manufacturing unit, rims are produced in batches of 2,500 units each, then the cost will be determined in relation to a batch of 2,500 units.

(iii) Contract Costing: If a job is very big and takes a long time for its completion, then method used for costing is known as Contract Costing. Here the cost of each contract is ascertained separately. It is suitable for firms engaged in the construction of bridges, roads, buildings etc.

(iv) Operating Costing: The method of Costing used in service rendering undertakings is known as operating costing. This method of costing is used in undertakings like transport, supply of water, telephone services, hospitals, nursing homes etc.

Question 18.

Mention the Cost Unit of the following Industries:

(i)	Electricity	(ii)	Automobile
(iii)	Cement	(iv)	Steel
(v)	Gas	(vi)	Brick Making
(vii)	Coal Mining	(viii)	Engineering
(ix)	Professional Services	(x)	Hospital

(QP Nov 2019)

Answer

Cost Unit of Industries:

S. No.	Industry	Cost Unit Basis
(i)	Electricity	Kilowatt-hour (kWh)
(ii)	Automobile	Number
(iii)	Cement	Ton/ per bag etc.
(iv)	Steel	Ton
(v)	Gas	Cubic feet
(vi)	Brick-making	1,000 bricks
(vii)	Coal mining	Tonne/ton
(viii)	Engineering	Contract, job
(ix)	Professional services	Chargeable hour, job, contract
(x)	Hospitals	Patient day

Question 19.

State the Method of Costing to be used in the following industries:

(i)	Real Estate	(ii)	Motor repairing workshop
(iii)	Chemical Industry	(iv)	Transport service
(v)	Assembly of bicycles	(vi)	Biscuits manufacturing Industry
(vii)	Power supply Companies	(viii)	Car manufacturing Industry
(ix)	Cement Industry	(x)	Printing Press

(QP Nov 2020)

Answer

Method of costing used in different industries:

	Industries	Method of Costing
(i)	Real Estate	Contract Costing
(ii)	Motor Repairing Workshop	Job Costing
(iii)	Chemical Industry	Process Costing
(iv)	Transport Service	Service/Operating Costing
(v)	Assembly of Bicycles	Unit/ Single/Output/Multiple Costing
(vi)	Biscuits Manufacturing Industry	Batch Costing
(vii)	Power Supply Companies	Service/Operating Costing
(viii)	Car Manufacturing Industry	Multiple Costing
(ix)	Cement Industry	Unit/Single/Output Costing
(x)	Printing Press	Job Costing

Question 20.

(d) State the method of costing that would be most suitable for:

(i) Oil Refinery

(ii) Interior Decoration

(iii) Airlines Company

(iv) Advertising

(v) Car Assembly (QP Jan 2021)

'

Answer

(d) Method of Costing

S.No.	Industry	Method of Costing
(i)	Oil Refinery	Process Costing
(ii)	Interior Decoration	Job Costing
(iii)	Airlines Company	Operation/ Service Costing
(iv)	Advertising	Job Costing
(v)	Car Assembly	Multiple Costing

Question 21.

WRITE a note on the following, indicating in which kinds of industries or undertakings, the different methods could be suitably applied:

(a) Single or output costing

(b) Batch Costing

(c) Process costing

(d) Operating Costing

(e) Contract Costing

(f) Multiple Costing

Answer

Different industries follow different methods of costing because of the differences in the nature of their work. The various methods of costing are as follows:

Methods	Description
a) Single or Output Costing	Under this method, the cost of a product is ascertained, the product being the only one produced like bricks, coals, etc.
b) Batch Costing	This method is the extension of job costing. A batch may represent a number of small orders passed through the factory in batch. Each batch here is treated as a unit of cost and thus separately costed. Here cost per unit is determined by dividing the cost of the batch by the number of units produced in the batch.
(c) Process Costing	Under this method, the cost of completing each stage of work is ascertained, like cost of making pulp and cost of making paper from pulp. In mechanical operations, the cost of each operation may be ascertained separately; the name given is operation costing.
(d) Operating Costing	It is used in the case of concerns rendering services like transport, supply of water, retail trade etc.

e) Contract Costing	Under this method, the cost of each contract is ascertained separately. It is suitable for firms engaged in the construction of bridges, roads, buildings etc.
(f) Multiple Costing	It is a combination of two or more methods of costing outlined above. Suppose a firm manufactures bicycles including its components; the parts will be costed by the system of job or batch costing but the cost of assembling the bicycle will be computed by the Single or output costing method. The whole system of costing is known as multiple costing.

Question 22.

STATE the method of costing and the suggested unit of cost for the following industries:

(a) Transport (b) Power

(c) Hotel (d) Hospital

(e) Steel (f) Coal

(g) Bicycles (h) Bridge Construction

(i) Interior Decoration (j) Advertising

(k) Furniture (l) Brick-works

Answer

Particulars	Method of Costing	Unit of cost
Transport	Operating Costing	Passenger - Kilometer
Power	Operating Costing	Kilo-watt hour (kWh)
Hotel	Operating Costing	Room/ meal
Hospital	Operating Costing	Patient day
Steel	Single or Output Costing	Ton
Coal	Single or Output Costing	Tonne/ ton
Bicycles	Multiple Costing	Per part and per cycle
Bridge Construction	Contract Costing	Per contract
Interior Decoration	Job Costing	Per Job
Advertising	Job Costing	Per Job
Furniture	Job Costing	Per Job
Brick-works	Single or Output Costing	1,000 bricks

Question 1.

DISTINGUISH between Bill of Materials and Material Requisition Note.

(MTP OCT 2019, MTP NOV 2019, MTP OCT 2020)

Answer

Bills of Material	Material Requisition Note
1. It is document or list of materials prepared by the engineering/ drawing department.	1. It is prepared by the foreman of the consuming department.
2. It is a complete schedule of component parts and raw materials required for a particular job or work order.	2. It is a document authorizing Store-Keeper to issue material to the consuming department.
3. It often serves the purpose of a Store Requisition as it shows the complete schedule of materials required for a particular job i.e. it can replace stores requisition.	3. It cannot replace a bill of material.
4. It can be used for the purpose of quotation.	4. It is useful in arriving historical cost only.
5. It helps in keeping a quantitative control on materials drawn through Stores Requisition.	5. It shows the material actually drawn from stores.

Question 2.

Answer any four of the following:

State how the following items are treated in arriving at the value of cost of material purchased:

(i) Detention Charges/Fines

(ii) Demurrage

(iii) Cost of Returnable containers

(iv) Central Goods and Service Tax (CGST)

(v) Shortage due to abnormal reasons. (QP Jan 2021)

Answer

Treatment of items in arriving at the value of cost of material Purchased

S. No.	Items	Treatment
(i)	Detention charges/ Fine	Detention charges/ fines imposed for non- compliance of rule or law by any statutory authority. It is an abnormal cost and not included with cost of purchase.
(ii)	Demurrage	Demurrage is a penalty imposed by the transporter for delay in uploading or offloading of materials. It is an abnormal cost and not included with cost of purchase.
(iii)	Cost of returnable containers	Treatment of cost of returnable containers are as follows: Returnable Containers: If the containers are returned and their costs are refunded, then cost of containers should not be considered in the cost of purchase. If the amount of refund on returning the container is less than the amount paid, then, only the short fall is added with the cost of purchase.

(iv)	Central Goods and Service Tax (CGST)	Central Goods and Service Tax (CGST) is paid on manufacture and supply of goods and collected from the buyer. It is excluded from the cost of purchase if the input credit is available for the same. Unless mentioned specifically CGST is not added with the cost of purchase.
(v)	Shortage due to abnormal reasons	Shortage arises due to abnormal reasons such as material mishandling, pilferage, or due to any avoidable reasons are not absorbed by the good units. Losses due to abnormal reasons are debited to costing profit and loss account.

Question 3.

DISTINGUISH clearly between Bin cards and Stores Ledger.

Answer

Bin Card	Stores Ledger
It is maintained by the storekeeper in the store.	It is maintained in cost accounting department.
It contains only quantitative details of material received, issued and returned to stores.	It contains information both in quantity and value.
Entries are made when transaction takes place.	It is always posted after the transaction.
Each transaction is individually posted.	Transactions may be summarized and then posted.
Inter-department transfers do not appear in Bin Card.	Material transfers from one job to another job are recorded for costing purposes.

Question 4.

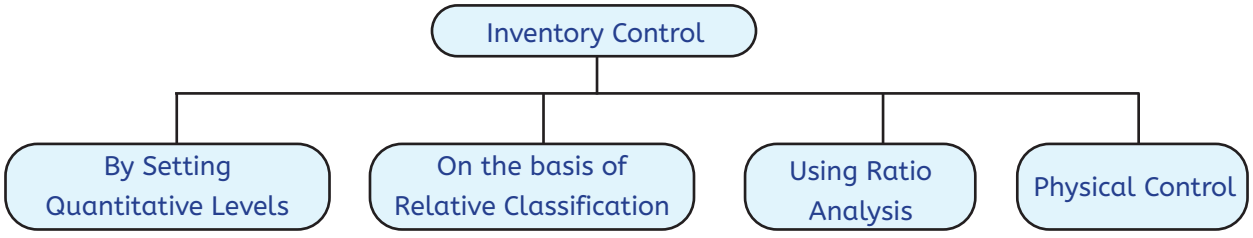
Define Inventory Control and give its objectives.

List down the basis to be adopted for Inventory Control. (QP Nov 2019)

Answer

Inventory Control: The Chartered Institute of Management Accountants (CIMA) defines Inventory Control as "The function of ensuring that sufficient goods are retained in stock to meet all requirements without carrying unnecessarily large stocks."

The objective of inventory control is to make a balance between sufficient stock and over- stock. The stock maintained should be sufficient to meet the production requirements so that uninterrupted production flow can be maintained. Insufficient stock not only pause the production but also cause a loss of revenue and goodwill. On the other hand, Inventory requires some funds for purchase, storage, maintenance of materials with a risk of obsolescence, pilferage etc. A trade-off between Stock-out and Over-stocking is required. The management may employ various methods of Inventory control to have a balance. Management may adopt the following basis for Inventory control:



Question 5.

DISTINGUISH between Re-order level and Re-order quantity.

Answer

(i) Re-order Stock Level (ROL): This level lies between minimum and the maximum levels in such a way that before the material ordered is received into the stores, there is sufficient quantity in hand to cover both normal and abnormal consumption situations. In other words, it is the level at which fresh order should be placed for replenishment of stock.

(ii) Re-Order Quantity: Re-order quantity is the quantity of materials for which purchase requisition is made by the store department. While setting the quantity to be re-ordered, consideration is given to the maintenance of minimum level of stock, re-order level, minimum delivery time and the most important the cost. Hence, the quantity should be where, the total of carrying cost and ordering cost is at minimum. For this purpose, an economic order quantity should be calculated.

Economic Order Quantity (EOQ): The size of an order for which total of ordering and carrying cost are minimum.

Ordering Cost: Ordering costs are the costs which are associated with the purchase or order of materials such as cost to invite quotations, documentation works like preparation of purchase orders, employee cost directly attributable to the procurement of material, transportation and inspection cost etc.

Carrying Cost: Carrying costs are the costs for holding/ carrying of inventories in store such as the cost of fund invested in inventories, cost of storage, insurance cost, obsolescence etc.

The Economic Order Quantity (EOQ) is calculated as below:

$$EOQ = \sqrt{\frac{2 \times \text{Annual Requirement (A)} \times \text{Cost per order (O)}}{\text{Carrying Cost per unit per annum (C)}}}$$

Annual Requirement (A)- It represents demand for raw material or Input for a year.

Cost per Order (O) - It represents cost of placing an order for purchase.

Carrying Cost (C) – It represents cost of carrying average inventory on annual basis.

Question 6.

Explain 'Just In Time' (JIT) approach of inventory management.

(QP May 2018)

Answer

Just in Time (JIT) Inventory Management

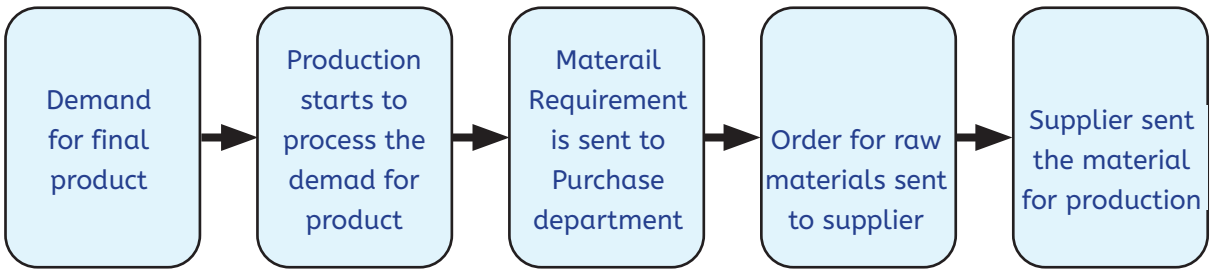
JIT is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production.

JIT is based on two principles

(i) Produce goods only when it is required and

(ii) the products should be delivered to customers at the time only when they want.

It is also known as 'Demand pull' or 'Pull through' system of production. In this system, production process actually starts after the order for the products is received. Based on the demand, production process starts and the requirement for raw materials is sent to the purchase department for purchase. This can be understood with the help of the following diagram:



Question 7.

EXPLAIN the concept of "ABC Analysis" as a technique of inventory control.

Answer

ABC Analysis: This system exercises discriminating control over different items of inventory on the basis of the investment involved. Usually the items are classified into three categories according to their relative importance, namely, their value and frequency of replenishment during a period.

(i) 'A' Category: This category of items consists of only a small percentage i.e., about 10% of the total items handled by the stores but require heavy investment about 70% of inventory value, because of their high prices or heavy requirement or both. Items under this category can be controlled effectively by using a regular system which ensures neither over-stocking nor shortage of materials for production. Such a system plans its total material requirements by making budgets. The stocks of materials are controlled by fixing certain levels like maximum level, minimum level and re-order level.

(ii) 'B' Category: This category of items is relatively less important; they may be 20% of the total items of material handled by stores. The percentage of investment required is about 20% of the total investment in inventories. In the case of these items, as the sum involved is moderate, the same degree of control as applied in 'A' category of items is not warranted. The orders for the items, belonging to this category may be placed after reviewing their situation periodically.

(iii) 'C' Category: This category of items does not require much investment; it may be about 10% of total inventory value but they are nearly 70% of the total items handled by store. For these category of items, there is no need of exercising con- stant control. Orders for items in this group may be placed either after six months or once in a year, after ascertaining consumption requirements. In this case the objective is to economies on ordering and handling costs.

Question 8.

EXPLAIN the advantages that would accrue in using the LIFO method of pricing for the valuation of raw material stock. (MTP April 2021)

Answer

The advantages that would accrue in using the LIFO method of pricing for the valuation of raw material stock are as follows:

- The cost of materials issued will be either nearer to and or will reflect the current market price. Thus, the cost of goods produced will be related to the trend of the market price of materials. Such a trend in price of materials enables the matching of cost of production with current sales revenues.

- The use of the method during the period of rising prices does not reflect undue high profit in the income statement as it was under the first-in-first-out or average method. In fact, the profit shown here is relatively lower because the cost of production takes into account the rising trend of material prices.
- In the case of falling prices profit tends to rise due to lower material cost, yet the finished products appear to be more competitive and are at market price.
- Over a period, the use of LIFO helps to iron out the fluctuations in profits.
- In the period of inflation LIFO will tend to show the correct profit and thus avoid paying undue taxes to some extent.

Question 9.

STATE how normal and abnormal loss of material arising during storage are treated in Cost Accounts?

Answer

Loss of materials during handling, storage, process may occur any of the following forms:

(i) Waste: The portion of raw material which is lost during storage or production and discarded. The waste may or may not have any value.

Treatment of Waste

Normal- Cost of normal waste is absorbed by good production units.

Abnormal- The cost of abnormal loss is transferred to Costing Profit and loss account.

(ii) Scrap: The materials which are discarded and disposed-off without further treatment. Generally, scrap has either no value or insignificant value. Sometimes, it may be reintroduced into the process as raw material.

Treatment of Scrap

Normal- The cost of scrap is borne by good units and income arises on account of realisable value is deducted from the cost.

Abnormal- The scrap account should be charged with full cost. The credit is given to the job or process concerned. The profit or loss in the scrap account, on realisation, will be transferred to the Costing Profit and Loss Account.

(iii) Spoilage: It is the term used for materials which are badly damaged in manufacturing operations, and they cannot be rectified economically and hence taken out of the process to be disposed off in some manner without further processing.

Treatment of Spoilage

Normal- Normal spoilage (i.e., which is inherent in the operation) costs are included in costs, either by charging the loss due to spoilage to the production order or by charging it to the production overhead so that it is spread over all the products.

Any value realised from spoilage is credited to production order or production overhead account, as the case may be.

Abnormal- The cost of abnormal spoilage (i.e., arising out of causes not inherent in manufacturing process) is charged to the Costing Profit and Loss Account. When spoiled work is the result of rigid specification, the cost of spoiled work is absorbed by good production while the cost of disposal is charged to production overhead.

(iv) Defectives: It signifies those units or portions of production which do not meet the quality standards. Defectives arise due to sub-standard materials, bad- supervision, bad-planning, poor workmanship, inadequate-equipment and careless inspection.

The defectives which can be re-made as per the quality standard by using additional materials are known as reworks. Reworks include repairs, reconditioning and refurbishing.

Defectives which cannot be brought up to the quality standards are known as rejects. The rejects may either be disposed- off or re-cycled for production process.

Treatment of Defectives:

Normal- An amount equal to the cost less realisable value on sale of defectives are charged to material cost of good production.

Abnormal- Material Cost of abnormal defectives are not included in material cost but treated as loss after giving credit to the realisable value of such defectives. The material cost of abnormal loss is transferred to costing profit and loss account.

Reclamation of loss from defective units

In the case of articles that have been spoiled, it is necessary to take steps to reclaim as much of the loss as possible. For this purpose:

(i) All defective units should be sent to a place fixed for the purpose;
(ii) These should be dismantled;
(iii) Goods and serviceable parts should be separated and taken back into the stock;
(iv) Parts which can be made serviceable by further work should be separated and sent to the workshop for the purpose and taken into stock after the defects have been removed; and
(v) Parts which cannot be made serviceable should be collected in one place for being melted or sold off.

Printed forms should be used to record quantities for all purposes aforementioned.

(v) Obsolescence: Obsolescence is defined as "the loss in the intrinsic value of an asset due to its supersession". In simple words, obsolescence refers to the loss in the value of an asset due to technological advancements.

Treatment: Materials may become obsolete under any of the following circum- stances:

(i) where it is a spare part or a component of a machinery that is used in manufacturing and is now obsolete;
(ii) where it is used in the manufacturing of a product which has now become obsolete;
(iii) where the material itself is replaced by another material due to either improved quality or fall in price.

In all the three cases, the value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials is an abnormal loss and it does not form part of the cost of manufacture.

Question 10.

Explain obsolescence and circumstances under which materials become obsolete. State the steps to be taken for its treatment. (QP Nov 2018)

Answer

Obsolescence: Obsolescence is defined as "the loss in the intrinsic value of an asset due to its supersession". Materials may become obsolete under any of the following circumstances:

(i) where it is a spare part, or a component of a machinery used in manufacture and that machinery becomes obsolete;

(ii) where it is used in the manufacture of a product which has become obsolete;

(iii) where the material itself is replaced by another material due to either improved quality or fall in price.

Treatment:In all three cases, the value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials on abnormal loss does not form part of the cost of manufacture.

Question 11.

DISCUSS the accounting treatment of defectives in Cost Accounts.

Answer

Loss of materials during handling, storage, process may occur any of the following forms:

(i) Waste: The portion of raw material which is lost during storage or production and discarded. The waste may or may not have any value.

Treatment of Waste

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Treatment of Scrap

Normal- The cost of scrap is borne by good units and income arises on account of realisable value is deducted from the cost.

Abnormal- The scrap account should be charged with full cost. The credit is given to the job or process concerned. The profit or loss in the scrap account, on realisation, will be transferred to the Costing Profit and Loss Account.

(iii) Spoilage: It is the term used for materials which are badly damaged in manufacturing operations, and they cannot be rectified economically and hence taken out of the process to be disposed off in some manner without further processing.

Treatment of Spoilage

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Any value realised from spoilage is credited to production order or production overhead account, as the case may be.

Abnormal- The cost of abnormal spoilage (i.e., arising out of causes not inherent in manufacturing process) is charged to the Costing Profit and Loss Account. When spoiled work is the result of rigid specification, the cost of spoiled work is absorbed by good production while the cost of disposal is charged to production overhead.

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(v) Parts which cannot be made serviceable should be collected in one place for being melted or sold off.

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Treatment: Materials may become obsolete under any of the following circum- stances:

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(ii) where it is used in the manufacturing of a product which has now become obsolete;
(iii) where the material itself is replaced by another material due to either improved quality or fall in price.

In all the three cases, the value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials is an abnormal loss and it does not form part of the cost of manufacture.

Question 12.

STATE how Economic Batch Quantity is determined? (MTP Mar 2018)

Answer

In batch costing the most important problem is the determination of 'Economic Batch Quantity' The determination of economic batch quantity involves two types of costs viz,

(i) set up cost and

(ii) carrying cost. With the increase in the batch size, there is an increase in the carrying cost but the set-up cost per unit of the product is reduced; this situation is reversed when the batch size is reduced. Thus there is one particular batch size for which both set up and carrying costs are minimum. This size of a batch is known as economic or optimum batch quantity.

Economic batch quantity can be determined with the help of a table, graph or mathematical formula. The mathematical formula usually used for its determination is as follows:

$$EBQ = \sqrt{\frac{2DC}{C}}$$

Where,

D = Annual demand for the product S = Setting up cost per batch

C = Carrying cost per unit of production per annum

Question 13.

EXPLAIN how is slow moving and non-moving item of stores detected and what steps are necessary to reduce such stocks?

Answer

Fast Moving, Slow Moving and Non Moving (FSN) Inventory: It is also known as FNS (Fast, Normal and Slow moving) classification of inventory analysis.

Under this system, inventories are controlled by classifying them on the basis of frequency of usage. The classification of items into these three categories depends on the nature and managerial discretion. A threshold range on the basis of inventory turnover is decided and classified accordingly.

(i) Fast Moving- This category of items are placed nearer to store issue point and the stock is reviewed frequently for making of fresh orders.

(ii) Slow Moving- This category of items are stored little far and stock is reviewed periodically for any obsolescence. and may be shifted to Non-moving category.

(iii) Non Moving- This category of items are kept for disposal. This category of items is reported to the management and an appropriate provision for loss may be created.

Some of the reasons for slow moving and non-moving inventories are stated below:

(i) Failure of production management to communicate the updated requirement to the stores management

(ii) Technological upgradation in terms of new machine requiring new kind of material or existing material becoming obsolete.

(iii) Lack of periodic review of inventories.

By careful observation, timely identification and adoption of inventory management techniques such as maintenance of minimum level or just in time approach, one can manage slow moving and non-moving inventories. We may calculate inventory turnover ratio and present the reports of comparison of actual and standards with variations, if any to the management.

Question 14.

Write short notes on any three of the following:

(i) Danger Level

(ii) Just in Time Inventory Management

(iii) Maximum stock level and Minimum Stock level

(iv) Obsolescence

Answer

(I) Danger level: It is the level at which normal issues of the raw material inventory are stopped and emergency issues are only made. It can be calculated as below:

Danger Level = Average Consumption* × Lead time for emergency purchase

*Some time minimum consumption is also used.

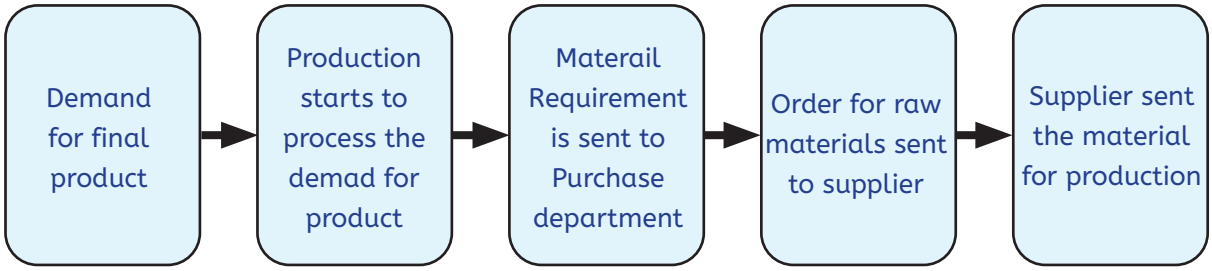
(ii) JIT is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production.

JIT is based on two principles

(i) Produce goods only when it is required and

(ii) the products should be delivered to customers at the time only when they want.

It is also known as 'Demand pull' or 'Pull through' system of production. In this system, production process actually starts after the order for the products is received. Based on the demand, production process starts and the requirement for raw materials is sent to the purchase department for purchase. This can be understood with the help of the following diagram:



(iii) Maximum Stock Level: It is the highest level of quantity for any material which can be held in stock at any time. Any quantity beyond this level cause extra amount of expenditure due to engagement of fund, cost of storage, obsolescence etc.

It can be calculated as below:

Maximum Stock Level = Re-order Level + Re-order Quantity - (Minimum Consumption Rate × Minimum Re-order Period)

Here, Re-order Quantity may be EOQ

Minimum Stock Level: It is lowest level of material stock, which must be maintained in hand at all times, so that there is no stoppage of production due to non-availability of inventory.

It is calculated as below:

Minimum Stock Level = Re-order Stock Level - (Average Consumption Rate × Average Re-order Period)

(iv) Obsolescence: Obsolescence is defined as "the loss in the intrinsic value of an asset due to its supersession". In simple words, obsolescence refers to the loss in the value of an asset due to technological advancements.

Treatment: Materials may become obsolete under any of the following circum- stances:

(i) where it is a spare part or a component of a machinery that is used in manufacturing and is now obsolete;

(ii) where it is used in the manufacturing of a product which has now become obsolete;

(iii) where the material itself is replaced by another material due to either improved quality or fall in price.

In all the three cases, the value of the obsolete material held in stock is a total loss and immediate steps should be taken to dispose it off at the best available price. The loss arising out of obsolete materials is an abnormal loss and it does not form part of the cost of manufacture.

Question 1.

DISCUSS the accounting treatment of Idle time and overtime wages.

(RTP May 2019, MTP April 2019, MTP May 2020)

Answer

Accounting treatment of idle time wages & overtime wages in cost accounts: Normal idle time is treated as a part of the cost of production. Thus, in the case of direct workers, an allowance for normal idle time is built into the labour cost rates. In the case of indirect workers, normal idle time is spread over all the products or jobs through the process of absorption of factory overheads.

Under Cost Accounting, the overtime premium is treated as follows:

- If overtime is resorted to at the desire of the customer, then the overtime premium may be charged to the job directly.
- If overtime is required to cope with general production program or for meeting urgent orders, the overtime premium should be treated as overhead cost of particular department or cost center which works overtime.
- Overtime worked on account of abnormal conditions should be charged to costing Profit & Loss Account.
- If overtime is worked in a department due to the fault of another department the overtime premium should be charged to the latter department.

Question 2.

DISCUSS the effect of overtime payment on productivity.

Answer

Work done beyond normal working hours is known as 'overtime work'. Overtime payment is the amount of wages paid for working beyond normal working hours. Overtime payment consist of two elements- (i) Normal wages for overtime work and (ii) Premium payment for overtime work.

Overtime Payment = Wages paid for overtime at normal rate + Premium (extra) payment for overtime work

Overtime premium: The rate for overtime work is higher than the normal time rate; usually it is at double the normal rates. The extra amount so paid over the normal rate is called overtime premium.

Rate and conditions for overtime premium may either be fixed by an entity itself or it may be required by any statute in force. The overtime premium should not be less than the premium calculated as per the statute.

Occasional overtime is a healthy sign as it indicates that the firm has the optimum capacity and that the capacity is being fully utilised. But persistent overtime is rather a bad sign because it may indicate either (a) that the firm needs larger capacity in men and machines, or (b) that men have got into the habit of postponing their ordinary work towards the evening so that they can earn extra money in the form of overtime wages.

Question 3.

STATE the circumstances in which time rate system of wage payment can be preferred in a factory.

Answer

Under this system, the workers are paid on time basis i.e. hour, day, week, or month. The amount of wages due to a worker are arrived at by multiplying the time worked (including normal idle period) by rate for the time.

Time based wages payment is suitable for the employees

(i) whose services cannot be directly or tangibly measured, e.g., general helpers, supervisory and clerical staff etc.

(ii) engaged in highly skilled jobs,

(iii) where the pace of output is independent of the operator, e.g., automatic chemical plants.

Question 4.

DISCUSS the objectives of time keeping & time booking.

Answer

Attendance Procedure / Time-keeping

It refers to correct recording of the employees' attendance time. Students may note the difference between "time keeping" and "time booking". The latter refers to break up of time on various jobs while the former implies a record of total time spent by the employees in a factory.

Objectives of Time-keeping: Correct recording of employees' attendance time is of utmost importance where payment is made on the basis of time worked.

Where payment is made by results viz; straight piece work, it would still be necessary to correctly record attendance for the purpose of ensuring that proper discipline and adequate rate of production are maintained. The objectives of time- keeping are as follows:

(i) For the preparation of payrolls.

(ii) For calculating overtime.

(iii) For ascertaining and controlling employee cost.

(iv) For ascertaining idle time.

(v) For disciplinary purposes.

(vi) For overhead distribution.

Question 5.

DISCUSS the two types of cost associated with labour turnover.

Answer

Two types of costs which are associated with employee turnover are:

(a) Preventive Costs: The cost incurred to prevent employee turnover or keep it as lowest as possible. Cost incurred for prevention of employee turnover includes the following:

  (i) Cost of medical benefit provided to the employees;

  (ii) Cost incurred on employees' welfare like pension etc.

  (iii) Cost on other benefits with an objective to retain employees.

(b) Replacement Costs: These are the costs which arise due to employee turnover. If employees leave soon after they acquire the necessary training and experience of good work, additional costs will have to be incurred on new workers, i.e., cost of recruitment, training and induction, abnormal breakage and scrap and extra wages and overheads due to the inefficiency of new workers.

It is obvious that a company will incur very high replacement costs if the rate of employee turnover is high. Similarly, only adequate preventive costs can keep Employee turnover at a low level. Each company must, therefore, work out the optimum level of Employee turnover keeping in view its personnel policies and the behaviour of replacement cost and preventive costs at various levels of Employee turnover rates.

Question 6.

DISCUSS the remedial steps to be taken to minimize the labour turnover.

(MTP Oct 2019)

Answer

The following steps are useful for minimizing labour turnover:

(a) Exit interview: An interview to be arranged with each outgoing employee to ascertain the reasons of his leaving the organization.

(b) Job analysis and evaluation: to ascertain the requirement of each job.

(c) Organization should make use of a scientific system of recruitment, placement and promotion for employees.

(d) Organization should create healthy atmosphere, providing education, medical and housing facilities for workers.

(e) Committee for settling workers grievances.

Question 7.

DESCRIBE briefly, how wages may be calculated under the following systems:

(i) Rowan system

(ii) Halsey system

Answer

(i) Rowan Premium Plan: According to this system a standard time allowance is fixed for the performance of a job and bonus is paid if time is saved.

Under Rowan System the bonus is that proportion of the time wages as time saved bears to the standard time.

$$\text{Time taken} \times \text{Rate per hour} + \frac{\text{Time Saved}}{\text{Time allowed}} \times \text{Time taken} \times \text{Rate per hour}$$

(ii) Halsey Premium Plan: Under Halsey premium plan a standard time is fixed for each job or process. If there is no saving on this standard time allowance, the worker is paid only his day rate. He gets his time rate even if he exceeds the standard time limit, since his day rate is guaranteed.

If, however, he does the job in less than the standard time, he gets a bonus equal to 50 percent of the wages of time saved; the employer benefits by the other 50 percent. The scheme also is sometimes referred to as the Halsey fifty percent plan. Earnings under Halsey Premium plan is calculated as under:

Wages = Time taken × Time rate + 50% of time saved × Time rate

Question 1.

STATE what is blanket overhead rate? In which situations, blanket rate is to be used and why?

Answer

Blanket Overhead Rate: Blanket overhead rate refers to the computation of one single overhead rate for the whole factory. It is to be distinguished from the departmental overhead rate which refers to a separate rate for each individual cost centre or department. The use of blanket rate may be proper in certain factories producing only one major product in a continuous process or where the work performed in every department is fairly uniform or standardised.

This overhead rate is computed as follows:

$$\text{Blanket Rate} = \frac{\text{Total overheads for the factory}}{\text{Total number of units of base for the factory}}$$

A blanket rate should be applied in the following cases:

(1) Where only one major product is being produced.

(2) Where several products are produced, but

(a) All products pass through all departments; and

(b) All products are processed for the same length of time in each department. Where these conditions do not exist, departmental rates should be used.

Question 2.

DISCUSS the step method and reciprocal service method of secondary distribution of overheads.

Answer

(i) Step Method or Non-reciprocal method: This method gives cognizance to the services rendered by service department to another service department. Therefore, as compared to previous method, this method is more complicated because a sequence of apportionments has to be selected here. The sequence here begins with the department that renders maximum number of services to the other service department(s). In other words, the cost of the service department that serves the largest number of services to the other service department(s) and production department(s) is distributed first. After this, the cost of service department serving the next largest number of departments is apportioned.

This process continues till the cost of last service department is apportioned. The cost of last service department is apportioned among production departments only.

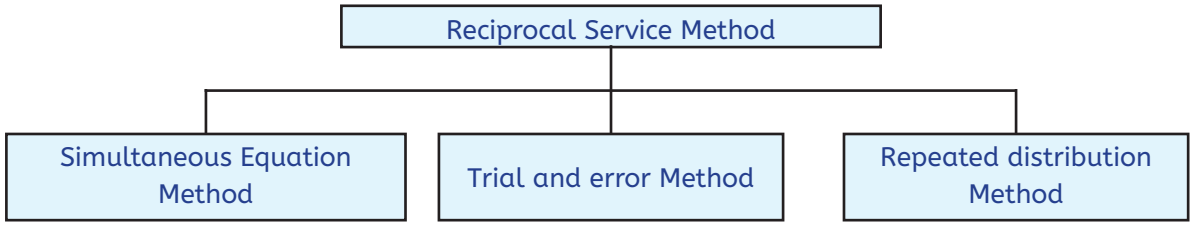
Some authors are of the view that the cost of service department with largest amount of cost should be distributed first.

(ii) Reciprocal Service Method: This method recognises the fact that where there are two or more service departments they may render services to each other and, therefore, these inter-departmental services are to be given due weight while re-distributing the expenses of the service departments.

The methods available for dealing with reciprocal services are:

(a) Simultaneous equation method; (b) Trial and error method;

(c) Repeated distribution method.



Question 3.

DISCUSS the problems of controlling the selling and distribution overheads.

Answer

Control of Selling & Distribution Overheads

Control of selling and distribution expenses is a difficult task. The reasons for this are as follows:

1. The incidence of selling and distribution overheads depends mainly on external factors, such as distance of market, extent and nature of competition, terms of sales, etc. which are beyond the control of management.

2. These overheads are dependent upon the customers, behaviour, their liking and disliking, tastes etc. Therefore, as such control over the overheads may result in loss of customers.

3. These expenses being of the nature of policy costs are not amenable to control.
   In spite of the above difficulties, the following methods may be used for controlling them.
   (a) Comparison with past performance - According to this method, selling and distribution overheads are compared with the figures of the previous period. Alternatively, the expenses may be expressed as a percentage of sales, and the percentages may be compared with those of the past period. This method is suitable for small concerns.

   (b) Budgetary Control - A budget is set up for selling and distribution expenses. The expenses are classified into fixed and variable. If necessary, a flexible budget may be prepared indicating the expenses at different levels of sales. The actual expenses are compared with the budgeted figures and in the case of variances suitable actions are taken.

   (c) Standard Costing - Under this method standards are set up in relation to the standard sales volume. Standards may be set up for salesmen, territories, products etc. Once the standards are set up, comparison is made between the actuals and standards: variances are enquired into and suitable action taken.

Question 4.

DISTINGUISH between cost allocation and cost absorption.

Answer

Allocation	Apportionment
Allocation deals with the whole items of cost, which are identifiable with any one department. For example, indirect wages of three departments are separately obtained and hence each department will be charged by the respective amount of wages individually.	Apportionment deals with the proportions of an item of cost for example; the cost of the benefit of a service department will be divided between those departments which has availed those benefits.
Allocation is a direct process of charging expenses to different cost centres	Apportionment is an indirect process because there is a need for the identification of the appropriate portion of an expense to be borne by the different departments benefited.

Question 5.

EXPLAIN Single and Multiple Overhead Rates.

Answer

The overhead rates may be of the following types:

1. Normal Rate: This rate is calculated by dividing the actual overheads by actual base. It is also known as actual rate.

   It is calculated by the following formula:

$$\text{Normal overhead Rate} = \frac{\text{Actual amount of overheads}}{\text{Actual base}}$$

2. Pre-determined Overhead Rate: This rate is determined in advance by estimating the amount of the overhead for the period in which it is to be used. It is computed by the following formula:

$$\text{Pre-determined Rate} = \frac{\text{Budgeted amount of overheads}}{\text{Budgeted base}}$$

   The amount of overhead rate of expenses for absorbing them to production may be estimated on the following three bases.

   (1) The figure of the previous year or period may be adopted as the overhead rate to be charged to production in the current year. The assumption is that the value of production as well as overheads will remain constant or that the two will change, proportionately.

   (2) The overhead rate for the year may be determined on the basis of estimated expenses and anticipated volume of production activity.

   For instance, if expenses are estimated at ₹10,000 and output at 4,000 units, the overhead rate will be ₹2.50 per unit.

   (3) The overhead rate for a year may be fixed on the basis of the normal volume of the business.

3. Blanket Overhead Rate: Blanket overhead rate refers to the computation of one single overhead rate for the whole factory. It is to be distinguished from the departmental overhead rate which refers to a separate rate for each individual cost centre or department. The use of blanket rate may be proper in certain factories producing only one major product in a continuous process or where the work performed in every department is fairly uniform or standardised.

   This overhead rate is computed as follows:

$$\text{Blanket Rate} = \frac{\text{Total overheads for the factory}}{\text{Total number of units of base for the factory}}$$

   A blanket rate should be applied in the following cases:

   (1) Where only one major product is being produced.

   (2) Where several products are produced, but

   (a) All products pass through all departments; and

   (b) All products are processed for the same length of time in each department. Where these conditions do not exist, departmental rates should be used.

4. Departmental Overhead Rate: It refers to the computation of one single overhead rate for a particular production unit or department. Where the product lines are varied or machinery is used to a varying degree in the different departments, that is, where conditions throughout the factory are not uniform, the use of departmental rates is to be preferred.

This overhead rate is determined by the following formula:

$$\text{Departmental overhead Rate} = \frac{\text{Overheads of department or cost centre}}{\text{Corresponding base}}$$

Question 6.

EXPLAIN how would you treat the idle capacity costs in Cost Accounts?

Answer

Treatment of Idle capacity costs: Idle capacity costs can be treated in product costing, in the following ways:

(a) If the idle capacity cost is due to unavoidable reasons such as repairs, maintenance, changeover of job etc. a supplementary overhead rate may be used to recover the idle capacity cost. In this case, the costs are charged to the production capacity utilised.

(b) If the idle capacity cost is due to avoidable reasons such as faulty planning, power failure etc.; the cost should be charged to costing profit and loss account.

(c) If the idle capacity cost is due to seasonal factors, then, the cost should be charged to the cost of production by inflating overhead rates.

Question 7.

DISCUSS the difference between allocation and apportionment of overhead.

(MTP Oct 2018)

Answer

The difference between the allocation and apportionment is important to understand because the purpose of these two methods is the identification of the items of cost to cost un its or centers. However, the main difference between the above methods is given below.

(1) Allocation deals with the whole items of cost, which are identifiable with any one department. For example, indirect wages of three departments are separately obtained and hence each department will be charged by the respective amount of wages individually.

On the other hand, apportionment deals with the proportions of an item of cost for example; the cost of the benefit of a service department will be divided between those departments which has availed those benefits.

(2) Allocation is a direct process of charging expenses to different cost centres whereas apportionment is an indirect process because there is a need for the identification of the appropriate portion of an expense to be borne by the different departments benefited.

(3) The allocation or apportionment of an expense is not dependent on its nature, but the relationship between the expense and the cost centre decides that whether it is to be allocated or apportioned.

(4) Allocation is a much wider term than apportionment.

Question 8.

EXPLAIN what are the methods of re-apportionment of service department expenses over the production departments? Discuss.

Answer

Methods for Re-apportionment: The re-apportionment of service department expenses over the production departments may be carried out by using any one of the following methods:

(i) Direct re-distribution method.

(ii) Step method of secondary distribution or non-reciprocal method.

(iii) Reciprocal Service method.

(i) Direct Re-Distribution Method: Service department costs under this method are apportioned over the production departments only, ignoring the services rendered by one service department to the other. To understand the applications of this method, go through the illustration which follows.

(ii) Step Method or Non-reciprocal method: This method gives cognizance to the services rendered by service department to another service department. Therefore, as compared to previous method, this method is more complicated because a sequence of apportionments has to be selected here. The sequence here begins with the department that renders maximum number of services to the other service department(s). In other words, the cost of the service department that serves the largest number of services to the other service department(s) and production department(s) is distributed first. After this, the cost of service department serving the next largest number of departments is apportioned.

This process continues till the cost of last service department is apportioned. The cost of last service department is apportioned among production departments only.

Some authors are of the view that the cost of service department with largest amount of cost should be distributed first.

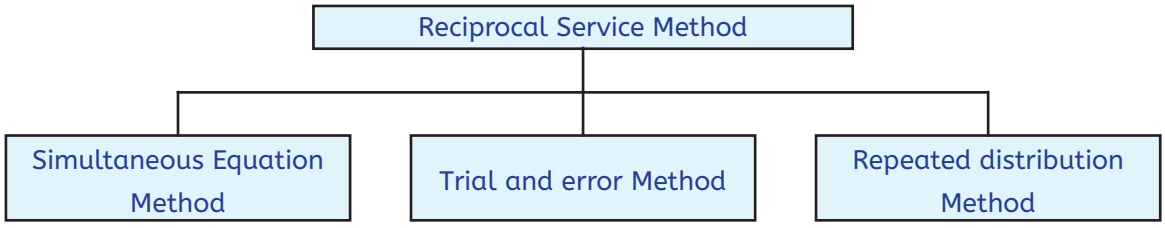
(iii) Reciprocal Service Method: This method recognises the fact that where there are two or more service departments they may render services to each other and, therefore, these inter-departmental services are to be given due weight while re-distributing the expenses of the service departments.

The methods available for dealing with reciprocal services are:

(a) Simultaneous equation method;

(b) Trial and error method;

(c) Repeated distribution method.



(a) Simultaneous Equation Method:

According to this method firstly, the costs of service departments are ascertained. These costs are then re-distributed to production departments on the basis of given percentages. (Refer to the following illustration to understand the method)

Question 9.

State the bases of apportionment of following overhead costs:

(i) Air-conditioning

(ii) Time keeping

(iii) Depreciation of plant and machinery

(iv) Power/steam consumption

(v) Electric power (Machine operation) (QP Nov 2018)

Answer

(c)

Overhead Cost	Bases of Apportionment
(i) Air- conditioning	Floor area, or volume of department
(ii) Time keeping	Number of workers
(iii) Depreciation of plant and machinery	Capital values
(iv) Power/steam consumption	Technical estimates
(v) Electric power (machine operation)	Horse power of machines, or Number of machine hour, or value of machines or units consumed. Kilo-watt hours.

Question 10.

Explain Direct Expenses and how these are measured and their treatment in cost accounting.

(QP May 2019)

Answer

Direct Expense: Expenses other than direct material cost and direct employee cost, which are incurred to manufacture a product or for provision of service and can be directly traced in an economically feasible manner to a cost object. The following costs are examples for direct expenses:

(i) Royalty paid/ payable for production or provision of service;

(ii) Hire charges paid for hiring specific equipment;

(iii) Cost for product/ service specific design or drawing;

(iv) Cost of product/ service specific software;

(v) Other expenses which are directly related with the production of goods or provision of service.

The above list of expenses is not exhaustive; any other expenses which are directly attributable to the production or service are also included as direct expenses.

Measurement of Direct Expenses

The direct expenses are measured at invoice or agreed price net of rebate or discount but includes duties and taxes (for which input credit not available), commission and other directly attributable costs.

In case of sub-contracting, where goods are get manufactured by job workers independent of the principal entity, are measured at agreed price. Where the principal supplies some materials to the job workers, the value of such materials and other incidental expenses are added with the job charges paid to the job workers.

Treatment of Direct Expenses

Direct Expenses forms part the prime cost for the product or service to which it can be directly traceable and attributable. In case of lump-sum payment or one time payment, the cost is amortised over the estimated production volume or benefit derived. If the expenses incurred are of insignificant amount i.e. not material, it can be treated as part of overheads.

Question 11.

Explain Blanket Overhead Rate and Departmental Overhead Rate. How they are calculated? State the conditions required for the application of Blanket Overhead Rate.

(QP Jan 2021)

Answer

Blanket Overhead Rate: Blanket overhead rate refers to the computation of one single overhead rate for the whole factory.

This overhead rate is computed as follows:

$$\text{Blanket Rate} = \frac{\text{Total overheads for the factory}}{\text{Total number of units of base for the factory}}$$

Departmental Overhead Rate: It refers to the computation of one single overhead rate for a particular production unit or department.

This overhead rate is determined by the following formula:

$$\text{Departmental overhead Rate} = \frac{\text{Overheads of department or cost centre}}{\text{Corresponding base}}$$

Conditions required for the Application of Blanket Overhead:

A blanket rate should be applied in the following cases:

(1) Where only one major product is being produced.

(2) Where several products are produced, but

- (a) All products pass through all departments; and
- (b) All products are processed for the same length of time in each department.

Question 12.

STATE Direct Expenses with examples. (MTP April 2019)

Answer

Expenses other than direct material cost and direct employee cost, which are incurred to manufacture a product or for provision of service and can be directly traced in an economically feasible manner to a cost object. The following costs are examples for direct expenses:

(a) Royalty paid/ payable for production or provision of service;

(b) Hire charges paid for hiring specific equipment;

(c) Cost for product/ service specific design or drawing;

(d) Cost of product/ service specific software;

(e) Other expenses which are directly related with the production of goods or provision of service.

Question 1.

DEFINE the following terms:

(i) Cost driver

(ii) Activity cost pool

Answer

(i) Cost Driver–It is a factor that causes a change in the cost of an activity. There are two categories of cost driver.

- Resource Cost Driver– It is a measure of the quantity of resources consumed by an activity. It is used to assign the cost of a resource to an activity or cost pool.
- Activity Cost Driver–It is a measure of the frequency and intensity of demand, placed on activities by cost objects. It is used to assign activity costs to cost objects.

(ii) Cost Pool-It represents a group of various individual cost items. It consists of costs that have same cause and effect relationship. Example machine set-up.

Examples of Cost Drivers:

Business functions	Cost Driver
Research and Development	• Number of research projects • Personnel hours on a project
Design of products, services and procedures	• Number of products in design • Number of parts per product • Number of engineering hours
Customer Service	• Number of service calls • Number of products serviced • Hours spent on servicing products
Marketing	• Number of advertisements • Number of sales personnel • Sales revenue
Distribution	• Number of units distributed • Number of customers

Question 2.

EXPLAIN in brief the problems of traditional costing where overhead costs are allocated based on volume

Answer

1. Overhead, in traditional costing system, overhead costs are grouped together under cost center and then absorbed into product costs on either of the basis such as direct labour hours, machine hours, volume etc.

2. In certain cases, this traditional costing system gives inaccurate cost information.

3. Some traditional systems treat overheads in a detailed way and relate them to service cost centres as well as production cost centres. The service centre overheads are then spread over the production cost centres before absorption rates are calculated.

4. The main cause of inaccuracy is in the calculation of the overhead rate itself, which is usually based on direct labour hours or machine hours. These rates assume that products that take longer to make, generate more overheads and so on.

5. Organisations, who do not wish to know how much it costs to make a product with precise accuracy, may be happy with traditional costing system. Others, however, fix their price on cost basis and need to determine it with reasonable accuracy.

Question 3.

STATE what is Activity based costing? How are product costs determined in ABC?

Answer

Activity Based Costing is an accounting methodology that assigns costs to activities rather than products or services. This enables resources & overhead costs to be more accurately assigned to products & services that consume them. ABC is a technique which involves identification of cost with each cost driving activity and making it as the basis for apportionment of costs over different cost objects/ jobs/ products/ customers or services.

ABC assigns cost to activities based on their use of resources. It then assigns cost to cost objects, such as products or customers, based on their use of activities. ABC can track the flow of activities in organization by creating a link between the activity (resource consumption) and the cost object.

Cost Allocation under Traditional and Activity Based Costing System

In traditional absorption costing overheads are first related to cost centres (Production & Service Centres) and then to cost objects, i.e., products. In ABC overheads are related to activities or grouped into cost pools. Then they are related to the cost objects, e.g., products. The two processes are, therefore, very similar, but the first stage is different, as ABC uses activities instead of functional departments (cost centres). The problem with functional departments is that they tend to include a series of different activities, which incur a number of different costs that behave in different ways. Activities also tend to run across functions; for instance, procurement of materials often includes raising a requisition note in a manufacturing department or stores. It is not raised in the purchasing department where most procurement costs are incurred. Activity costs tend to behave in a similar way to each other i.e., they have the same cost driver. Therefore, ABC gives a more realistic picture of the way in which costs behave.

STAGES IN ACTIVITY BASED COSTING (ABC)

The different stages in ABC calculations are listed below:

(1) Identify the different activities within the organisation:
(2) Relate the overheads to the activities,
(3) Support activities are then spread across the primary activities
(4) Determine the activity cost drivers
(5) Calculate activity cost driver rates for each activity,

Question 4.

A manufacturing company in India wants to replace its traditional costing system by ABC. It produces a number of products, each having complex production process of different degree. SUGGEST various requirements for installing activity based costing.

Answer

A number of distinct practical stages are required in the ABC implementation which are given as below:

(1) Staff Training: The co-operation of the workforce is critical to the successful implementation of ABC. Staff training should be done to create an awareness on the purpose of ABC.

(2) Process Specification: Informal, but structured interviews with key members of personnel will identify the different stages of the production process, the commitment of resources to each, processing times and bottlenecks.

(3) Activity Definition: The activities must be defined clearly in the early stage in order to manage the problems, if any, effectively. There might be overloading of information from the new data, but the same is needed in codification.

(4) Activity Driver Selection: Cost driver for each activity shall be selected.

(5) Assigning Cost: A single representative activity driver can be used to assign costs from the activity pools to the cost objects.

Question 5.

DESCRIBE various levels of activities under ABC.

Answer

The categories of activities help to determine the type of activity cost driver required.

The categories of activities are:

Level of Activities	Meaning	Example
1.Unit level activities	These are those activities for which the consumption of resources can be identified with the number of units produced.	• The use of indirect materials/consumables tends to increase in proportion to the number of units produced. • The inspection or testing of every item produced, if this was deemed necessary or, perhaps more likely, every 100th item produced.
2.Batch level activities	The activities such as setting up of a machine or processing a purchase order are performed each time a batch of goods is produced. The cost of batch related activities varies with number of batches made, but is common (or fixed) for all units within the batch.	• Material ordering–where an order is placed for every batch of production • Machine set-up costs–where machines need resetting between each different batch of production. • Inspection of products where the first item in every batch is inspected rather than every 100th item quoted above.
3. Product level activities	These are the activities which are performed to support different products in product line	• Designing the product, • Producing parts specifications • Keeping technical drawings of products up to date.

4.Facilities level activities	These are the activities which cannot be directly attributed to individual products. These activities are necessary to sustain the manufacturing process and are common and joint to all products manufactured	• Maintenance of buildings • Plant security

Question 6.

STATE what are the benefits of ABC?

Answer

The main advantages of using Activity Based Costing are:

(i) More accurate costing of products/services.

(ii) Overhead allocation is done on logical basis.

(iii) It enables better pricing policies by supplying accurate cost information.

(iv) Utilizes unit cost rather than just total cost

(v) Help to identify non-value added activities which facilitates cost reduction.

(vi) It is helpful to the organizations with multiple products.

(v) It highlights problem areas which require attention of the management.

Question 7.

STATE what are the limitations of ABC?

Answer

The main limitations using Activity Based Costing are:

(i) It is more expensive, particularly in comparison with traditional costing system.

(ii) It is not helpful to the small organizations.

(iii) It may not be applied to organizations with limited products.

(iv) Selection of the most suitable cost driver may not be easy/ may be difficult or complicated.

Question 8.

STATE what are the practical applications of ABC?

Answer

ABC can act as a decision making tool in the following ways:

(i) ABC along with some other cost management technique can be utilized to improve performance and profitability of an organization.

(ii) Wholesale distributors can gain significant advantage in the decision-making process through implementation of ABC concepts by correlating costs to various activities. Introduction of new product or vendor can be better decided through ABC.

(iii) ABC can assist in decisions related to facility and resource expansion. Often the basis for relocation or opening of a new distribution center is based on cost associations. Reduction in freight or other logistic costs can offset the expense of the new facility, staff or equipment. The ABC model can

identify the specific cost elements being targeted, providing a much clearer picture which aids in management actions.

(iv) ABC augments decision support for human resources.. Since the activity (and therefore costs) can be associated to an individual, new levels of financial performance can be determined. This might be evident in the case of branch management or sales.

(v) Companies who wish to determine price based on cost plus markup basis find ABC method of costing very relevant and are able to determine competitive prices for their products.

Question 9.

STATE what is Activity based Management? How does ABC help ABM?

Answer

Meaning of Activity Based Management

The term Activity based management (ABM) is used to describe the cost management application of ABC. The use of ABC as a costing tool to manage costs at activity level is known as Activity Based Cost Management (ABM). ABM is a discipline that focuses on the efficient and effective management of activities as the route to continuously improving the value received by customers. ABM utilizes cost information gathered through ABC.

Various analysis in Activity Based Management

The various types of analysis involved in ABM are as follows:

(1) Cost Driver Analysis:

(2) Activity Analysis.

(3) Performance Analysis:

Activity Based Management in Business

Activity based management can be used in the following ways

(i) Cost Reduction: ABM helps the organisation to identify costs against activities and to find opportunities to streamline or reduce the costs or eliminate the entire activity, especially if there is no value added.

(ii) Business Process Re-engineering: Business process re-engineering involves examining business processes and making substantial changes to how organisation currently operates. ABM is a powerful tool for measuring business performance, determining the cost of business output and is used as a means of identifying opportunities to improve process efficiency and effectiveness.

(iii) Benchmarking: Benchmarking is a process of comparing of ABC-derived activity costs of one segment of company with those of other segments. It requires uniformity in the definition of activities and measurement of their costs.

(iv) Performance Measurement: Many organisations are now focusing on activity performance as a means of facing competitors and managing costs by monitoring the efficiency and effectiveness of activities.

Area	Measure
Quality of purchased component	Zero defects
Quality of output	% yield
Customer awareness	Orders; number of complaints

Question 10.

DEFINE Activity based Budgeting. STATE what are its key elements?

Answer

Meaning of Activity Based Budgeting (ABB)

Activity based budgeting analyse the resource input or cost for each activity. It provides a framework for estimating the amount of resources required in accordance with the budgeted level of activity. Actual results can be compared with budgeted results to highlight both , in financial and non-financial terms, those activities with major discrepancies from budget for potential reduction in supply of resources. It is a planning and control system which seeks to support the objectives of continuous improvement. It means planning and controlling the expected activities of the organization to derive a cost-effective budget that meet forecast workload and agreed strategic goals. ABB is the reversing of the ABC process to produce financial plans and budgets.

Key Elements of ABB

The three key elements of activity based budgeting are as follows:-

- Type of work to be done
- Quantity of work to be done
- Cost of work to be done

Question 11.

Explain 'Activity Based Budgeting'. (QP Nov 2018)

Answer

Activity Based Budgeting (ABB)

- Activity based budgeting analyse the resource input or cost for each activity.
- It provides a framework for estimating the amount of resources required in accordance with the budgeted level of activity.
- Actual results can be compared with budgeted results to highlight both in financial and non-financial terms those activities with major discrepancies from budget for potential reduction in supply of resources.
- It is a planning and control system which seeks to support the objectives of continuous improvement.
- It means planning and controlling the expected activities of the organization to derive a cost-effective budget that meet forecast workload and agreed strategic goals.
- ABB is the reversing of the ABC process to produce financial plans and budgets.

Question 1.

DESCRIBE how costs are classified on the basis of function?

Answer

Under this classification, costs are divided according to the function for which they have been incurred. The following are the classification of costs based on functions:

(i) Direct Material Cost
(ii) Direct Employee (labour) Cost
(iii) Direct Expenses
(iv) Production/ Manufacturing Overheads
(v) Administration Overheads
(vi) Selling Overheads
(vii) Distribution Overheads
(viii) Research and Development costs etc.

Question 2.

EXPLAIN the treatment of administration overheads.

Answer

The costs as classified on the basis of functions are grouped into the following cost heads in a cost sheet:

(i) Prime Cost
(ii) Cost of Production
(iii) Cost of Goods Sold
(iv) Cost of Sales

Cost of Production

In a conventional cost sheet, this item of cost can be seen. It is the total of prime cost and factory related costs and overheads.

Prime Cost	xxx
Add : Factory Overheads	xxx
Gross Works Costs	xxxx
Add: Opening stock of Work-in-process	xxx
Less: Closing stock of Work-in-process	(xxx)
Factory or Works Costs	xxxx
Add: Quality Control Cost	xxx
Add: Research & Development cost (Process related)	xxx
Add: Administrative Overheads related with production	xxx
Less: Credit for recoveries (miscellaneous income)	(xxx)
Add: Packing Cost (Primary packing)	xxx
Cost of Production	xxxx

Administrative Overheads: It includes only those administration overheads which are related to production. The general administration overhead is not included in production cost.

Cost of Sales

It is the total cost of a product incurred to make the product available to the customer or consumer. It includes Cost of goods sold, administration and marketing expenses. It is calculated as below:

Cost of Goods Sold	xxx
Add: Administrative Overheads (General)	xxx
Add: Selling Overheads	xxx
Add: Packing Cost (secondary)	xxx
Add: Distribution Overheads	xxx
Cost of Sales	xxxx

Administrative Overheads: It is the cost related with general administration of the entity. It includes the followings:

(a) Depreciation and maintenance of, building, furniture etc. of corporate or general management.

(b) Salary of administrative employees, accountants, directors, secretaries etc.

(c) Rent, rates & taxes, insurance, lighting, office expenses etc.

(d) Indirect materials- printing and stationery, office supplies etc.

(e) Legal charges, audit fees, corporate office expenses like directors' sitting fees, remuneration and commission, meeting expenses etc.

Question 3.

STATE the advantages of a cost sheet (MTP Oct 2018)

Answer

The main advantages of a Cost Sheet are as follows:

(i) It provides the total cost figure as well as cost per unit of production.

(ii) It helps in cost comparison.

(iii) It facilitates the preparation of cost estimates required for submitting tenders.

(iv) It provides sufficient help in arriving at the figure of selling price.

(v) It facilitates cost control by disclosing operational efficiency.

Question 1.

EXPLAIN what are the essential pre-requisites of Integrated accounting system?

(QP Nov 2020)

Answer

The essential pre-requisites for integrated accounts include the following steps:

- The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate up to the stage of prime cost or factory cost while other prefer full integration of the entire accounting records.
- A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
- An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.
- Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.
- Under this system there is no need for a separate cost ledger. Of course, there will be a number of subsidiary ledgers; in addition to the useful Customers' Ledger and the Bought Ledger, there will be: (a) Stores Ledger; (b) Stock Ledger and (c) Job Ledger.

Question 2.

Explain integrated accounting system and state its advantages.

(QP May 2019)

Answer

Integrated Accounting System: Integrated Accounts is the name given to a system of accounting, whereby cost and financial accounts are kept in the same set of books. Obviously, then there will be no separate sets of books for Costing and Financial records. Integrated accounts provide or meet out fully the information requirement for Costing as well as for Financial Accounts. For Costing it provides information useful for ascertaining the cost of each product, job, and process, operation of any other identifiable activity and for carrying necessary analysis. Integrated accounts provide relevant information which is necessary for preparing profit and loss account and the balance sheets as per the requirement of law and also helps in exercising effective control over the liabilities and assets of its business.

Advantages of Integrated Accounting System

The main advantages of Integrated Accounts are as follows:

(i) No need for Reconciliation - The question of reconciling costing profit and finan- cial profit does not arise, as there is only one figure of profit.

(ii) Less efforts - Due to use of one set of books, there is a significant saving in efforts made.

(iii) Less time consuming - No delay is caused in obtaining information as it is provided from books of original entry.

(iv) Economical process - It is economical also as it is based on the concept of "Centralisation of Accounting function".

Question 3.

EXPLAIN why is it necessary to reconcile the Profits between the Cost Accounts and Financial Accounts?

Answer

1. When the cost and financial accounts are kept separately, it is imperative that these should be reconciled to make the cost accounts reliable.

2. It is necessary for reconciliation of the two sets of accounts that sufficient details are available to locate the differences and the reasons for the same.
3. It is, therefore, important that in the financial accounts, the expenses should be analysed in the same way as in the cost accounts.
4. It is important, however, to know the causes which, generally, give rise to differences in the Cost and Financial Accounts.

Circumstances where reconciliation statement can be avoided: When the Cost and Financial Accounts are integrated - there is no need to have a separate reconciliation statement between the two sets of accounts. Integration means that the same set of accounts fulfil the requirement of both i.e., Cost and Financial Accounts.

Question 4.

STATE what are the reasons for disagreement of profits as per cost accounts and financial accounts? Discuss.

Answer

It is important, to know the causes which, generally, give rise to differences in the Cost and Financial Accounts. These are briefly summarised below:

Causes of differences in Financial and Cost Accounts:

1. Items included in Financial Accounts only-
   - (a) Purely Financial Expenses:
     - (i) Interest on loans or bank mortgages.
     - (ii) Expenses and discounts on issue of shares, debentures etc.
     - (iii) Other capital losses i.e., loss by fire not covered by insurance etc.
     - (iv) Losses on the sales of fixed assets and investments
     - (v) Goodwill written off
     - (vi) Preliminary expenses written off
     - (vii) Income tax, donations, subscriptions
     - (viii) Expenses of the company's share transfer office, if any.
   - (b) Purely Financial Income
     - (i) Interest received on bank deposits, loans and investments
     - (ii) Dividends received
     - (iii) Profits on the sale of fixed assets and investments
     - (iv) Transfer fee received.
     - (v) Rent receivables

2. Item included in Cost Accounts only (notional expenses):
   - (i) Charges in lieu of rent where premises are owned
   - (ii) Interest on capital at notional figure though not incurred
   - (iii) Salary for the proprietor at notional figure though not incurred
   - (iv) Notional Depreciation on the assets fully depreciated for which book value is nil.

3. Items whose treatment is different in the two sets of accounts: The objective of cost accounting is to provide information to management for decision making and control purposes while financial accounting conforms to external reporting requirements. Hence there are chances that certain items are treated differently in the two sets of accounts. For example, LIFO method is not allowed for inventory valuation in India as per the Accounting Standard 2 issued by the Council of the ICAI. However, this method may be adopted for cost accounts as it is more suitable for arriving at costs which may be used as a base for deciding selling prices. Similarly cost accounting may use a different method of depreciation than what is allowed under financial accounting.

4. Varying basis of valuation: It is another factor which sometimes is responsible for the difference. It is well known that in financial accounts stock are valued either at cost or market price, whichever is lower. But in Cost Accounts, stocks are only valued at cost.

Question 5.

LIST the Financial expenses which are not included in cost.

Answer

Purely Financial Expenses:

(i) Interest on loans or bank mortgages.
(ii) Expenses and discounts on issue of shares, debentures etc.
(iii) Other capital losses i.e., loss by fire not covered by insurance etc.
(iv) Losses on the sales of fixed assets and investments
(v) Goodwill written off
(vi) Preliminary expenses written off
(vii) Income tax, donations, subscriptions
(viii) Expenses of the company's share transfer office, if any.

Question 6.

STATE when is the reconciliation statement of Cost and Financial accounts not required?

Answer

When the cost and financial accounts are kept separately, it is imperative that these should be reconciled to make the cost accounts reliable. It is necessary for reconciliation of the two sets of accounts that sufficient details are available to locate the differences and the reasons for the same. It is, therefore, important that in the financial accounts, the expenses should be analysed in the same way as in the cost accounts.

Circumstances where reconciliation statement can be avoided: When the Cost and Financial Accounts are integrated - there is no need to have a separate reconciliation statement between the two sets of accounts. Integration means that the same set of accounts fulfil the requirement of both i.e., Cost and Financial Accounts.

Question 7.

Journalise the following transactions in cost books under Non-Integrated system of Accounting.

(i)	Credit Purchase of Material	₹ 27,000
(ii)	Manufacturing overhead charged to Production	₹ 6,000
(iii)	Selling and Distribution overheads recovered from Sales	₹ 4,000
(iv)	Indirect wages incurred	₹ 8,000
(v)	Material returned from production to stores	₹ 9,000

(QP Nov 2019)

Answer

Journal entries are as follows:

		Dr. (₹)	Cr. (₹)
(i)	Stores Ledger Control A/c..... Dr. To Cost Ledger Control A/c	27,000	27,000
(ii)	Work-in-Process Control A/c..... Dr. To Manufacturing Overhead Control A/c	6,000	6,000
(iii)	Cost of Sales A/c..... Dr. To Selling & Dist. Overhead Control A/c	4,000	4,000
(iv)	(1) Wage Control A/c..... Dr. To Cost Ledger Control A/c	8,000	8,000
	(2) Manufacturing Overhead Control A/c..... Dr. To Wages Control A/c	8,000	8,000
	OR		
	Manufacturing Overhead Control A/c..... Dr. To Cost Ledger Control A/c	8,000	8,000
(v)	Stores Ledger Control A/c .....Dr. To Work-in-Process Control A/c	9,000	9,000

*Cost Ledger Control A/c is also known as General Ledger Control A/c

Question 1.

DESCRIBE Unit Costing and Batch Costing giving example of industries where these are used?

Answer

UNIT COSTING

Unit costing is that method of costing where the output produced is identical and each unit of output requires identical cost. Unit costing is synonymously known as single or output costing, but these are sub-division of unit costing method. This method of costing is followed by industries which produce single output or few variants of a single output. Under this method costs, are collected and analysed element wise and then total cost per unit is ascertained by dividing the total cost with the number of units produced. If we have to state it in the form of a formula, then

$$\text{Cost per unit} = \frac{\text{Total Costof Production}}{\text{No. ofunits produced}}$$

This method of costing, therefore finds its application in industries like paper, cement, steel works, mining, breweries etc. These types of industries produce identical products and therefore have identical costs.

BATCH COSTING

Batch Costing is a type of specific order costing where articles are manufactured in predetermined lots, known as batch. Under this costing method, the cost object for cost determination is a batch for production rather output as seen in unit costing method.

A batch consists of certain number of units which are processed simultaneously to be for manufacturing operation. Under this method of manufacturing, the inputs are accumulated in the assembly line till it reaches minimum batch size. Soon after a batch size is reached, all inputs in a batch is processed for further operations.

Reasons for batch manufacturing may be either technical or economical or both. For example, in pen manufacturing industry, it would be too costly to manufacture one pen of a particular design at a time to meet the demand of one customer. On the other hand, the production, of say 10,000 pens, of the same design will reduce the cost to a sizeable extent.

To initiate production process, an entity has to incur expenditures on engaging workers for production and supervision, setting-up of machine to run for production etc. These are the minimum level of expenditures which have to be incurred each time a batch is run irrespective of number of units produced.

Question 2.

Explain 'Job Costing' and 'Batch Costing'. (QP May 2018)

Answer

Job costing: In this method of costing, cost of each job is ascertained separately. It is suitable in all cases where work is undertaken on receiving a customer's order like a printing press, motor work shop, etc. This method of costing is used for non- standard and non- repetitive products produced as per customer specifications and against specific orders. Jobs are different from each other and independent of each other. Each Job is unique.

Batch Costing: It is the extension of Job costing. Homogeneous products are produced in a continuous production flow in lots. A batch may represent a number of small orders passed through the factory in batch. Each batch here is treated as a unit of cost and thus separately costed. Here cost per unit is determined by dividing the cost of the batch by number of units produced in the batch.

Question 3.

DISTINGUISH between Job Costing & Batch Costing?

(RTP Nov 2018, MTP Oct 2019, MTP May 2020)

Answer

Sr. No	Job Costing	Batch Costing
1	Method of costing used for non- standard and non- repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality

Question 4.

In Batch Costing, STATE how is Economic Batch Quantity determined?

Answer

ECONOMIC BTCH QUANTITY (EBQ)

As the product is produced in batches or lots, the lot size chosen will be critical in achieving least cost of operation. Primarily, the total production cost under batch production comprises of two main costs, namely,

1. Machine Set Up Costs and
2. Inventory holding costs.

If the size is higher, the set up cost may decline due to lesser number of set ups required; but units in inventory will go up leading to higher holding costs. If the lot size is lower, lower inventory holding costs are accomplished but only with higher set up costs. Economic batch quantity is the size of a batch where total cost of set-up and holding costs are at minimum.

The economic batch size or Economic Batch Quantity may be determined by calculating the total cost for a series of possible batch sizes and checking which batch size gives the minimum cost. Alternatively, a formula can be derived which is similar to determination of Economic Order Quantity (EOQ). The objective here being to determine the production lot (Batch size) that optimizes on both set up and inventory holding cots formula. The mathematical formula usually used for its determination is as follows:

$$EBQ = \sqrt{\frac{2DS}{C}}$$

Where, D = Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production

Question 5.

Z Ltd. produces product ZZ in batches, management of the Z Ltd. wants to know the number of batches of product ZZ to be produced where the cost incurred on batch setup and carrying cost of production is at optimum level. How will they DETERMINE the optimum batch number.

Answer

ECONOMIC BTCH QUANTITY (EBQ)

As the product is produced in batches or lots, the lot size chosen will be critical in achieving least cost of operation. Primarily, the total production cost under batch production comprises of two main costs, namely,

1. Machine Set Up Costs and
2. Inventory holding costs.

If the size is higher, the set up cost may decline due to lesser number of set ups required; but units in inventory will go up leading to higher holding costs. If the lot size is lower, lower inventory holding costs are accomplished but only with higher set up costs. Economic batch quantity is the size of a batch where total cost of set-up and holding costs are at minimum.

The economic batch size or Economic Batch Quantity may be determined by calculating the total cost for a series of possible batch sizes and checking which batch size gives the minimum cost. Alternatively, a formula can be derived which is similar to determination of Economic Order Quantity (EOQ). The objective here being to determine the production lot (Batch size) that optimizes on both set up and inventory holding cots formula. The mathematical formula usually used for its determination is as follows:

$$EBQ = \sqrt{\frac{2DS}{C}}$$

Where, D = Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production

Question 1.

DESCRIBE job Costing giving example of industries where it is used?

Answer

Meaning of Job Costing

CIMA London defines Job Costing as "the category of basic costing methods which is applicable where the work consists of separate contracts, jobs or batches, each of which is authorised by specific order or contract." According to this method, costs are collected and accumulated according to jobs, contracts, products or work orders. Each job or unit of production is treated as a separate entity for the purpose of costing. Job costing is carried out for the purpose of ascertaining cost of each job and takes into account the cost of materials, employees and overhead etc. The job costing method is also applicable to industries in which production is carried out in batches. Batch production basically is of the same character as the job order production, the difference being mainly one in the size of different orders.

Principles of Job Costing

The job costing method may be regarded as the principal method of costing since the basic object and purpose of all costing is to:

- Analysis and ascertainment of cost of each unit of production
- Control and regulate cost
- Determine the profitability

The basic principles enunciated for the job costing method are valid essentially for all types of industry. For example, printing; furniture; hardware; ship-building; heavy machinery; interior decoration, repairs and other similar work.

Question 2.

DISTINGUISH between Job Costing & Batch Costing?

Answer

Distinction between Job and Batch Costing:

Sr. No	Job Costing	Batch Costing
1	Method of costing used for non- standard and non- repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality

Question 3.

WRITE a note on cost-plus-contracts. (RTP May 2021)

Answer

These contracts provide for the payment by the contractee of the actual cost of construction plus a stipulated profit, mutually decided between the two parties.

The main features of these contracts are as follows:

(i) The practice of cost-plus contracts is adopted in the case of those contracts where the probable cost of the contracts cannot be ascertained in advance with a reasonable accuracy.

(ii) These contracts are preferred when the cost of material and labour is not steady and the contract completion may take number of years.

(iii) The different costs to be included in the execution of the contract are mutually agreed, so that no dispute may arise in future in this respect. Under such type of contracts, contractee is allowed to check or scrutinize the concerned books, documents and accounts.

(iv) Such a contract offers a fair price to the contractee and also a reasonable profit to the contractor.

The contract price here is ascertained by adding a fixed and mutually pre-decided component of profit to the total cost of the work.

Question 4.

DESCRIBE the three advantages of Cost-plus contract.

(RTP May 2018, RTP Nov 2020)

Answer

Advantages of Cost plus contracts are as follows:

(i) The Contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.

(ii) It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.

(iii) Contractee can ensure himself about 'the cost of the contract', as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of the contract.

Question 5.

WRITE a note on Escalation Clause. (RTP May 2020)

Answer

Escalation clause in a contract empowers a contractor to revise the price of the contract in case of increase in the prices of inputs due to some macro- economic or other agreed reasons. A contract takes longer period to complete and the factors based on which price negotiation is done at the time of entering into the contract may change till the contract completes. This protect the contractor from adverse financial impacts and empowers the contractor to recover the increased prices. As per this clause, the contractor increases the contract price if the cost of materials, employees and other expenses increase beyond a certain limit. Inclusion of such a clause in a contract deed is called an "Escalation Clause".

Question 6.

EXPLAIN Retention money in Contract costing

Answer

Retention Money: In a contract, a contractee generally keeps some amount payable to contractor with himself as security deposit. In a contract, a contractor undertakes to completed a job work on the basis of pre- determined terms and conditions and work specifications. To ensure that the work carried out by the contractor is as per the plan and specifications, it is monitored periodically by the contractee. To have a cushion against any defect or undesirable work, the contractee upholds some money payable to contractor. This security money upheld by the contractee is known as retention money. In some contracts the contractor has to deposit some security money before staring of the contract as a term of contract. This is known as Earnest money. If any deficiency or defect is noticed in the work, it is to be rectified by the contractor before the release of the retention money. Retention money provides a safeguard against the risk of loss due to faulty workmanship.

Mathematically:

Retention Money = Value of work certified – Payment actually made/ cash paid

Question 1.

EXPLAIN briefly the procedure for the valuation of Work-in-process.

Answer

The valuation of work-in-process presents a good deal of difficulty because it has units under different stages of completion from those in which work has just begun to those which are only a step short of completion. Work-in-process can be valued on actual basis, i.e., materials used on the unfinished units and the actual amount of labour expenses involved. However, the degree of accuracy in such a case cannot be satisfactory. An alternative method is based on converting partly finished units into equivalent finished units.

Question 2.

EXPLAIN the term Equivalent units used in process industries. (RTP Nov 2019)

Answer

Equivalent Units: Equivalent units or equivalent production units, means converting the incomplete production units into their equivalent completed units. Under each process, an estimate is made of the percentage completion of work-in-process with regard to different elements of costs, viz., material, labour and overheads. It is important that the estimate of percentage of completion should be as accurate as possible. The formula for computing equivalent completed units is:

$$\text{Equivalent completed units} = \begin{pmatrix}\text{Actual number of units in}\\ \text{the process of manufacture}\end{pmatrix} \times \begin{pmatrix}\text{Percentage of}\\ \text{Work completed}\end{pmatrix}$$

For instance, if 25% of work has been done on the average of units still under process, then 200 such units will be equal to 50 completed units and the cost of work-in- process will be equal to the cost of 50 finished units.

Question 3.

"Operation costing is defined as refinement of Process costing." EXPLAIN it.

Answer

This product costing system is used when an entity produces more than one variant of final product using different materials but with similar conversion activities. Which means conversion activities are similar for all the product variants but materials differ significantly. Operation Costing method is also known as Hybrid product costing system as materials costs are accumulated by job order or batch wise but conversion costs i.e. labour and overheads costs are accumulated by department, and process costing methods are used to assign these costs to products. Moreover, under operation costing, conversion costs are applied to products using a predetermined application rate. This predetermined rate is based on budgeted conversion costs.

For example, a company is manufacturing two grades of products, Product- Deluxe and Product- Regular. Both the products pass through a similar production process but require different quality and quantities of raw materials. The cost of raw material is accumulated on the basis of job or batches or units of two variants of products. But the costs for the conversion activities need not to be identified with the product variants as both the Products requires similar activities for conversion. Hence, conversion activity costs are accumulated on the basis of departments or processes only. Example of industries are ready made garments, Shoe making, jewelry etc.

Question 4.

What is inter-process profit? STATE its advantages and disadvantages.

Answer

To control cost and to measure performance, different processes within an organization are designated as separate profit centres. In this type of organizational structure, the output of one process is transferred to the next process not at cost but at market value or cost plus a percentage of profit. The difference between cost and the transfer price is known as inter-process profits.

The advantages and disadvantages of using inter-process profit, in the case of process type industries are as follows:

Advantages:

1. Comparison between the cost of output and its market price at the stage of completion is facilitated.
2. Each process is made to stand by itself as to the profitability.

Disadvantages:

1. The use of inter-process profits involves complication.
2. The system shows profits which are not realised because of stock not sold out.

Question 5.

DESCRIBE Operation costing with two examples of industries where operation costing is applied.
(RTP May 2018, RTP Nov 2020)

Answer

This product costing system is used when an entity produces more than one variant of final product using different materials but with similar conversion activities. This means conversion activities are similar for all the product variants but materials differ significantly. Operation Costing method is also known as Hybrid product costing system as materials costs are accumulated by job order or batch wise but conversion costs i.e. labour and overheads costs are accumulated by department, and process costing methods are used to assign these costs to products. Moreover, under operation costing, conversion costs are applied to products using a predetermined application rate. This predetermined rate is based on budgeted conversion costs.

The two examples of industries are Ready made garments and Jewellery making.

Question 1.

DISTINGUISH between Joint products and By-products

Answer

(i) Joint Products - Joint products represent "two or more products separated in the course of the same processing operation usually requiring further processing, each product being in such proportion that no single product can be designated as a major product".

In other words, two or more products of equal importance, produced, simultaneously from the same process, with each having a significant relative sale value are known as joint products. For example, in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum. These are known as joint products.

(ii) By-Products - These are defined as "products recovered from material discarded in a main process, or from the production of some major products, where the material value is to be considered at the time of severance from the main product." Thus by-products emerge as a result of processing operation of another product or they are produced from the scrap or waste of materials of a process. In short a by-product is a secondary or subsidiary product which emanates as a result of manufacture of the main product.

The point at which they are separated from the main product or products is known as split-off point. The expenses of processing are joint till the split –off point.

Examples of by-products are molasses in the manufacture of sugar, tar, ammonia and benzole obtained on carbonisation of coal and glycerin obtained in the manufacture of soap.

Distinction between Joint-Product and By-Product - The main points of distinction as apparent from the definitions of Joint Products and By-Products are:

(a) Joint products are of equal importance whereas by-products are of small economic value.

(b) Joint products are produced simultaneously but the by-products are produced incidentally in addition to the main products.

Question 2.

DISCUSS the treatment of by-product cost in Cost Accounting.

(QP Nov 2018, RTP May 2020, MTP May 2020)

Answer

By-product cost can be dealt in cost accounting in the following ways:

(a) When they are of small total value: When the by-products are of small total value, the amount realised from their sale may be dealt in any one the following two ways:

1. The sales value of the by-products may be credited to the Costing Profit and Loss Account and no credit be given in the Cost Accounts. The credit to the Costing Profit and Loss Account here is treated either as miscellaneous income or as additional sales revenue.
2. The sale proceeds of the by-product may be treated as deductions from the total costs. The sale proceeds in fact should be deducted either from the production cost or from the cost of sales.

(b) When the by-products are of considerable total value: Where by-products are of considerable total value, they may be regarded as joint products rather than as by-products. To determine exact cost of by-products the costs incurred upto the point of separation, should be apportioned over by-products and joint products by using a logical basis.

(c) Where they require further processing: In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from the realisable value of by-products.

Question 3.

DESCRIBE net realizable value method of apportioning joint costs to by-products

(MTP Aug 2018, MTP Mar 2021)

Answer

Net Realisable Value method: The realisation on the disposal of the by-product may be deducted from the total cost of production so as to arrive at the cost of the main product. For example, the amount realised by the sale of molasses in a sugar factory goes to reduce the cost of sugar produced in the factory.

When the by-product requires some additional processing and expenses are incurred in making it saleable to the best advantage of the concern, the expenses so incurred should be deducted from the total value realised from the sale of the by-product and only the net realisations should be deducted from the total cost of production to arrive at the cost of production of the main product. Separate accounts should be maintained for collecting additional expenses incurred on:

(i) further processing of the by-product, and

(ii) selling, distribution and administration expenses attributable to the by-product.

Question 4.

HOW apportionment of joint costs upto the point of separation amongst the joint products using market value at the point of separation and net realizable value method is done? DISCUSS. (RTP May 2021)

Answer

Apportionment of Joint Cost amongst Joint Products using:

Market value at the point of separation: This method is used for apportionment of joint costs to joint products upto the split off point. It is difficult to apply if the market value of the product at the point of separation is not available. It is useful method where further processing costs are incurred disproportionately.

Net realizable value Method: From the sales value of joint products (at finished stage) the followings are deducted:

- Estimated profit margins
- Selling & distribution expenses, if any
- Post split off costs.

The resultant figure so obtained is known as net realizable value of joint products. Joint costs are apportioned in the ratio of net realizable value.

Question 5.

DESCRIBE briefly, how joint costs upto the point of separation may be apportioned amongst the joint products under the following methods:

(i) Average unit cost method

(ii) Contribution margin method

(iii) Market value at the point of separation

(iv) Market value after further processing

(v) Net realizable value method.

Answer

(i) Average Unit Cost Method: Under this method, total process cost (upto the point of separation) is divided by total units of joint products produced. On division average cost per unit of production is obtained.

Average unit cost = Total process cost (upto the point of separation) ÷ Total units of joint product produced.

This is a simple method. The effect of application of this method is that all joint products will have uniform cost per unit. If this method is used as the basis for price fixation, then all the products may have more or less the same price. Under this method customers of high quality items are benefitted as they have to pay less price on their purchase.

(ii) Contribution Margin Method: According to this method, joint costs are segregated into two parts - variable and fixed. The variable costs are apportioned over the joint products on the basis of units produced (average method) or physical quantities. In case the products are further processed after the point of separation, then all variable cost incurred be added to the variable costs determined earlier. In this way total variable cost is arrived which is deducted from their respective sales values to ascertain their contribution. The fixed costs are then apportioned over the joint products on the basis of the contribution ratios.

(iii) Market value at the point of separation: This method is used for the apportionment of joint costs to joint products upto the split off point. It is difficult to apply this method if the market value of the products at the point of separation is not available. It is a useful method where further processing costs are incurred disproportionately.

To determine the apportionment of joint costs over joint products, a factor known as multiplying factor is determined. This multiplying factor on multiplication with the sales values of each joint product gives rise to the proportion of joint cost.

$$\text{Multiply in factor : } \frac{\text{Joint Cost}}{\text{Total Sales Revenue}} \times 100$$

(iv) Market value after further processing: Here the basis of apportionment of joint cost is the total sales value of finished products and involves the same principle as discussed above.

(v) Net Realisable Value at Split-off Point Method: In this method of joint cost apportionment the followings are deducted from the sales value of joint products at final stage i.e. after processing:

	Product- A Amount (₹)	Product- B Amount (₹)	Product- C Amount (₹)
Sales Value (Units after processing × Selling Price)	xxx	xxx	xxx
Less: Profit Margin	(xxx)	(xxx)	(xxx)
Less: Selling & Distribution costs	(xxx)	(xxx)	(xxx)
Less: Post split-off cost	(xxx)	(xxx)	(xxx)
Net Realisable Value	xxx	xxx	xxx

Question 6.

Describe Composite Cost unit as used in Service Costing and discuss the ways of computing it.

(QP Nov 2019)

Answer

Composite Cost Unit: Sometime two measurement units are combined together to know the cost of service or operation. These are called composite cost units. For example, a public transportation undertaking would measure the operating cost per passenger per kilometre.

Examples of Composite units are Ton- km., Quintal- km, Passenger-km., Patient-day etc.

Composite unit may be computed in two ways:

(i) Absolute (Weighted Average) basis.

(ii) Commercial (Simple Average) basis.

In both bases of computation of service cost unit, weightage is also given to qualitative factors rather quantitative (which are directly related with variable cost elements) factors alone.

(i) Weighted Average or Absolute basis – It is summation of the products of qualitative and quantitative factors. For example, to calculate absolute Ton-Km for a goods transport is calculated as follows.:

$$\sum (\text{Weight Carried} \times \text{Distance})_1 + (\text{Weight Carried} \times \text{Distance})_2 + \ldots + (\text{Weight Carried} \times \text{Distance})_n$$

Similarly, in case of Cinema theatres, price for various classes of seats are fixed differently. For example–

First class seat may be provided with higher quality service and hence charged at a higher rate, whereas Second Class seat may be priced less. In this case, appropriate weight to be given effect for First Class seat and Second Class seat – to ensure proper cost per composite unit.

(ii) Simple Average or Commercial basis – It is the product of average qualitative and total quantitative factors. For example, in case of goods transport, Commercial Ton-Km is arrived at by multiplying total distance km., by average load quantity.

$$\sum (\text{Distance}_1 + \text{Distance}_2 + \ldots\ldots\ldots\ldots + \text{Distance}_n) \times \left(\frac{W_1 + W_2 + \ldots + W_n}{n} \right)$$

In both the example, variable cost is dependent of distance and is a quantitative factor. Since, the weight carried does not affect the variable cost hence and is a qualitative factor.

Question 1.

EXPLAIN briefly, what do you understand by Service Costing.

Answer

INTRODUCTION

Service sector, being a fastest growing sector and having a significant contribution towards the GDP in India, is a very important sector where the role of the cost and management accounting is inevitable. The competitiveness of a service entity is very much dependent on a robust cost and management accounting system for competitive pricing and identification of value adding activities. Providers of services like transportation, hotels, financial services & banking, insurance, electricity generation, transmission and distribution etc. are very much cost conscious and thrive to provide services in a cost-effective manner. Irrespective of regulatory requirements to maintain cost records and get the records audited, service costing becomes integral and inseparable part of each service entity. We will be discussing how costing is done in service sectors like Transportation, Toll roads, Electricity generation, transmission and distribution, Hospitals, Canteen & Restaurants, Hotels & Lodges, Educational institutes, Financial institutions, Insurance, Information Technology (IT) & Information Technology Enabled Services (ITES) etc.

Service costing is also known as operating costing.

Application of Service Costing:

Internal: The service costing is required for in-house services provided by a service cost centre to other responsibility centres as support services. Examples of support services are Canteen and hospital for staff, Boiler house for supplying steam to production departments, Captive Power generation unit, operation of fleet of vehicles for transport of raw material to factory or distribution of finished goods to the market outlets, IT department services used by other departments, research & development, quality assurance, laboratory etc.

External: When services are offered to outside customers as a profit centre in consonance with organisational objectives as an output like goods or passenger transport service provided by a transporter, hospitality services provided by a hotel, provision of services by financial institutions, insurance and IT companies etc.

In both the situation, all costs incurred are collected, accumulated for a certain period or volume, recorded in the cost accounting system and then expressed in terms of a cost unit of service.

Question 2.

Describe Composite Cost unit as used in Service Costing and discuss the ways of computing it. (QP Nov 2019)

Answer

Composite Cost Unit: Sometime two measurement units are combined together to know the cost of service or operation. These are called composite cost units. For example, a public transportation undertaking would measure the operating cost per passenger per kilometre.

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$$\sum (\text{Distance}_1 + \text{Distance}_2 + \ldots\ldots\ldots\ldots + \text{Distance}_n) \times \left(\frac{W_1 + W_2 + \ldots + W_n}{n} \right)$$

In both the example, variable cost is dependent of distance and is a quantitative factor. Since, the weight carried does not affect the variable cost hence and is a qualitative factor.

Question 3.

STATE the features of service costing?

Answer

Service Costing versus Product Costing:

Service costing differs from product costing (such as job or process costing) in the following ways due to some basic and peculiar nature.

(i) Unlike products, services are intangible and cannot be stored, hence, there is no inventory for the services.

(ii) Use of Composite cost units for cost measurement and to express the volume of outputs.

(iii) Unlike a product manufacturing, employee (labour) cost constitutes a major cost element than material cost.

(iv) Indirect costs like administration overheads are generally have a significant proportion in total cost of a service as unlike manufacturing sector, service sector heavily depends on support services and traceability of costs to a service may not economically feasible.

Question 4.

EXPLAIN standing charges and running charges in the case of transport organisations. LIST three examples of both. (MTP Oct 2020)

Answer

Standing Charges: These are the fixed costs that remain constant irrespective of the distance travelled. These costs include the following-

- Insurance
- License fees
- Salary to Driver, Conductor, Cleaners, etc. if paid on monthly basis
- Garage costs, including garage rent
- Depreciation (if related to efflux of time)
- Taxes
- Administration expenses, etc.

Running Charges: These costs are generally associated with the distance travelled. These costs include the following-

- Petrol and Diesel
- Lubricant oils,
- Wages to Driver, Conductor, Cleaners, etc. if it is related to operations
- Depreciation (if related to activity)
- Any other variable costs identified.`

Question 1.

DISCUSS the process of setting standards.

Answer

The process of standard cost is as below:

(i) Setting of Standards: The first step is to set standards which are to be achieved, the process of standard setting is explained below.

(ii) Ascertainment of actual costs: Actual cost for each component of cost is ascertained. Actual costs are ascertained from books of account, material invoices, wage sheet, charge slip etc.

(iii) Comparison of actual cost with standard cost: Actual costs are compared with the standards costs and variances are determined.

(iv) Investigate the reasons for variances: Variances arises are investigated for further action. Based on this, performance is evaluated and appropriate actions are taken.

(v) Disposition of variances: Variances arise are disposed-off by transferring it the relevant accounts (costing profit and loss account) as per the accounting method (plan) adopted.

Question 2.

DISCUSS the types of standards.

Answer

Types of standards are as below:

(i) Ideal Standards: These represent the level of performance attainable when prices for material and labour are most favourable, when the highest output is achieved with the best equipment and layout and when the maximum efficiency in utilisation of resources results in maximum output with minimum cost.

These types of standards are criticised on three grounds:

(a) Since such standards would be unattainable, no one would take these seriously.

(b) The variances disclosed would be variances from the ideal standards. These would not, therefore, indicate the extent to which they could have been reasonably and practically avoided.

(c) There would be no logical method of disposing of these variances.

(ii) Normal Standards: These are standards that may be achieved under normal operating conditions. The normal activity has been defined as "the number of standard hours which will produce at normal efficiency sufficient good to meet the average sales demand over a term of years".

These standards are, however, difficult to set because they require a degree of forecasting. The variances thrown out under this system are deviations from normal efficiency, normal sales volume, or normal production volume.

If the actual performance is found to be abnormal, large variances may result and necessitate revision of standards.

(iii) Basic or Bogey Standards: These standards are used only when they are likely to remain constant or unaltered over a long period. According to this standard, a base year is chosen for comparison purposes in the same way as statisticians use price indices. Since basic standards do not represent what should be attained in the present period, current standards should also be prepared if basic standards are used. Basic standards are, however, well suited to businesses having a small range of

products and long production runs. Basic standards are set, on a long- term basis and are seldom revised. When basic standards are in use, variances are not calculated. Instead, the actual cost is expressed as a percentage of basic cost. The current cost is also similarly expressed and the two percentages are compared to find out how much the actual cost has deviated from the current standard. The percentages are next compared with those of the previous periods to establish the trend of actual and current standard from basic cost.

(iv) Current Standards: These standards reflect the management's anticipation of what actual costs will be for the current period. These are the costs which the business will incur if the anticipated prices are paid for the goods and services and the usage corresponds to that believed to be necessary to produce the planned output.

The variances arising from expected standards represent the degree of efficiency in usage of the factors of production, variation in prices paid for materials and services and difference in the volume of production.

Question 3.

HOW material usage standard is set

Answer

Material Usage Variance

It measures variance in material cost due to usage/ consumption of materials. It is computed as below:

Material Usage Variance = [Standard Cost of Standard Quantity for Actual Production – Standard Cost of Actual Quantity*]

Or

Std. Price (SP)× {Std. Quantity (SQ) - Actual Quantity (AQ)}

Or

[(SQ × SP) – (AQ × SP)]

(The difference between the Standard Quantity specified for actual production and the Actual Quantity used, at Standard Price)

*Here actual quantity means actual quantity of material used.

Responsibility for material usage variance: Material usage is the responsibility of production department and it is held responsible for adverse usage variance.

Reasons for variance: Actual material consumption may differ from the standard quantity either due to difference in proportion used from standard proportion or due to difference in actual yield from standard yield.

Material usage variance is divided into two parts (a) Material usage mix variance and (b) Material yield variance.

(a) Material Mix Variance

Variance in material consumption may arise due to difference in proportion actually used from the standard mix/ proportion. It only arises when two or more inputs are used to produce a product. Mathematically,

Material Mix Variance = [Standard Cost of Actual Quantity in Standard Proportion − Standard Cost of Actual Quantity] Or Std. Price (SP) × {Revised Std. Quantity (RSQ) − Actual Quantity (AQ)} Or [(RSQ × SP) − (AQ × SP)] (The difference between the Actual Quantity in standard proportion and Actual Quantity in actual proportion, at Standard Price)

(b) Material Yield Variance (Material Sub-usage Variance)

Variance in material consumption which arises due to yield or productivity of the inputs. It may arise due to use of sub- standard quality of materials, inefficiency of workers or due to wrong processing.

Material Yield Variance = [Standard Cost of Standard Quantity for Actual Production − Standard Cost of Actual Quantity in standard proportion] Or Std. Price (SP) × {Std. Quantity (SQ) − Revised Standard Quantity (RSQ)} Or [(SQ × SP) − (RSQ × SP)] (The difference between the Standard Quantity specified for actual production and Actual Quantity in standard proportion, at Standard Purchase Price)

Verification of the formulae:

Material Cost Variance= Material Usage Variance + Material Price Variance* Or, Material Cost Variance= (Material Mix Variance + Material Revised usage Variance) + Material price variance

*If material purchased quantity and material consumed quantity is same

Question 4.

DISCUSS the various types of fixed overhead variances.

Answer

Fixed Overhead Cost Variance

The recovery of the fixed components of the estimated overheads depends upon capacity utilization.

In case a company produces less than the projected utilization it shall not be able to recover all the budgeted fixed overheads. This unrecovered portion is known as production volume variance.

The other variance is because of variations in actual spending when compared with both estimated fixed and estimated variable overheads. Such a variance is known as Overhead expenses variance.

(1) Production Volume Variance: The term fixed overheads implies that the element of cost does not vary directly in proportion to the output. In other words, fixed overheads do not change within a given range of activity.

However, the unit cost changes even though the fixed overheads are constant in total within the given range of output. So, higher the level of activity, the lower will be the unit cost or vice versa. The management is, therefore, faced with a costing difficulty because it requires a representative rate for charging fixed overheads irrespective of changes in volume of output.

(2) Overhead Expenses Variance: The Production Volume Variance analyses the unrecovered fixed overheads. Apart from this, there can be variations in the actual spending of both fixed and variable overheads when compared to what was established as a standard. Such variations can be accounted for by analyzing an overhead expenses variance.

Fixed Overhead Cost Variance: Fixed overhead cost variance is the difference between actual fixed overhead and absorbed fixed overhead. Fixed overhead variance is divided into two parts (A) Fixed Overhead Expenditure Variance and (B) Fixed Overhead Volume Variance.

(A) Fixed Overhead Expenditure Variance: This is the difference between the actual fixed overhead incurred and budgeted fixed overhead.

(B) Fixed Overhead Volume Variance: Variance in fixed overhead which arise due to the volume of production is called fixed overhead volume variance.

Fixed overhead volume variance is further divided into the three variances:

(a) Efficiency Variance

(b) Capacity Variance and

(c) Calendar Variance

(a) Fixed Overhead Efficiency Variance: This is the difference between fixed overhead absorbed and standard fixed overhead.

(b) Fixed Overhead Capacity Variance: This is the difference between standard fixed overhead and budgeted overhead.

(c) Fixed Overhead Calendar Variance: This variance arises due to difference in number of actual working days and the standard working days.

Question 5.

DISCUSS the steps to be followed to exercise control over cost. (MTP Oct 2020)

Answer

To exercise control over cost, following steps are followed:

(i) Determination of pre-determined standard or results: Standard cost or performance targets for a cost object or a cost centre is set before initiation of production or service activity. These are desired cost or result that need to be achieved.

(ii) Measurement of actual performance: Actual cost or result of the cost object or cost centre is measured. Performance should be measured in the same manner in which the targets are set i.e. if the targets are set up operation-wise, and then the actual costs should also be collected and measured operation-wise to have a common basis for comparison.

(iii) Comparison of actual performance with set standard or target: The actual performance so measured is compared against the set standard and desired target. Any deviation (variance) between the two is noted and reported to the appropriate person or authority.

(iv) Analysis of variance and action: The variance in results so noted are further analysed to know the reasons for variance and appropriate action is taken to ensure compliance in future. If necessary, the standards are further amended to take developments into account.

Question 1.

WRITE a short note on Angle of Incidence.

Answer

This angle is formed by the intersection of sales line and total cost line at the break- even point. This angle shows the rate at which profit is earned once the break- even point is reached. The wider the angle the greater is the rate of earning profits. A large angle of incidence with a high margin of safety indicates extremely favourable position.

The shaded area in the graph given below is representing the angle of incidence. The angle above and below the break-even point shows the rate of earning profitability (loss). Wider angle denotes higher rate of earnings and vice-versa.

Question 2.

DISCUSS basic assumptions of Cost Volume Profit analysis. (MTP April 2021)

Answer

Assumptions of Cost Volume Profit analysis:

1. Changes in the levels of revenues and costs arise only because of changes in the number of product (or service) units produced and sold – for example, the number of television sets produced and sold by Sony Corporation or the number of packages delivered by Overnight Express. The number of output units is the only revenue driver and the only cost driver. Just as a cost driver is any factor that affects costs, a revenue driver is a variable, such as volume, that causally affects revenues.

2. Total costs can be separated into two components; a fixed component that does not vary with output level and a variable component that changes with respect to output level. Furthermore, variable costs include both direct variable costs and indirect variable cos ts of a product. Similarly, fixed costs include both direct fixed costs and indirect fixed costs of a product

3. When represented graphically, the behaviours of total revenues and total costs are linear (meaning they can be represented as a straight line) in relation to output level within a relevant range (and time period).

4. Selling price, variable cost per unit, and total fixed costs (within a relevant range and time period) are known and constant.

5. The analysis either covers a single product or assumes that the proportion of different products when multiple products are sold will remain constant as the level of total units sold changes.

6. All revenues and costs can be added, subtracted, and compared without taking into account the time value of money.

Question 3.

DISCUSS the points of difference between absorption costing and marginal costing

(QP Nov 2020)

Answer

Difference between Marginal costing and Absorption costing

S. No.	Marginal costing	Absorption costing
1.	Only variable costs are considered for product costing and inventory valuation.	Both fixed and variable costs are considered for product costing and inventory valuation.
2.	Fixed costs are regarded as period costs. The Profitability of different products is judged by their P/V ratio.	Fixed costs are charged to the cost of production. Each product bears a reasonable share of fixed cost and thus the profitability of a product is influenced by the apportionment of fixed costs.
3.	Cost data presented highlight the total contribution of each product.	Cost data are presented in conventional pattern. Net profit of each product is determined after subtracting fixed cost along with their variable costs.
4.	The difference in the magnitude of opening stock and closing stock does not affect the unit cost of production.	The difference in the magnitude of opening stock and closing stock affects the unit cost of production due to the impact of related fixed cost.
5.	In case of marginal costing the cost per unit remains the same, irrespective of the production as it is valued at variable cost	In case of absorption costing the cost per unit reduces, as the production increases as it is fixed cost which reduces, whereas, the variable cost remains the same per unit.

Question 4.

WRITE a short note on Margin of safety.

Answer

The margin of safety can be defined as the difference between the expected level of sale and the breakeven sales. The larger the margin of safety, the higher is the chances of making profits.

The Margin of Safety can also be calculated by identifying the difference between the projected sales and breakeven sales in units multiplied by the contribution per unit. This is possible because, at the breakeven point all the fixed costs are recovered and any further contribution goes into the making of profits. It also can be calculated as:

$$\text{Margin of Safety} = \frac{\text{Profit}}{\text{P/V Ratio}}$$

Question 5.

What are the limitations of marginal costing? (QP May 2019)

Answer

Limitations of Marginal Costing

(i) Difficulty in classifying fixed and variable elements: It is difficult to classify exactly the expenses into fixed and variable category. Most of the expenses are neither totally variable nor wholly fixed. For example, various amenities provided to workers may have no relation either to volume of production or time factor.

(ii) Dependence on key factors: Contribution of a product itself is not a guide for optimum profitability unless it is linked with the key factor.

(iii) Scope for Low Profitability: Sales staff may mistake marginal cost for total cost and sell at a price; which will result in loss or low profits. Hence, sales staff should be cautioned while giving marginal cost.

(iv) Faulty valuation: Overheads of fixed nature cannot altogether be excluded particularly in large contracts, while valuing the work-in- progress. In order to show the correct position fixed overheads have to be included in work-in-progress.

(v) Unpredictable nature of Cost: Some of the assumptions regarding the behaviour of various costs are not necessarily true in a realistic situation. For example, the assumption that fixed cost will remain static throughout is not correct. Fixed cost may change from one period to another. For example, salaries bill may go up because of annual increments or due to change in pay rate etc. The variable costs do not remain constant per unit of output. There may be changes in the prices of raw materials, wage rates etc. after a certain level of output has been reached due to shortage of material, shortage of skilled labour, concessions of bulk purchases etc.

(vi) Marginal costing ignores time factor and investment: The marginal cost of two jobs may be the same but the time taken for their completion and the cost of machines used may differ. The true cost of a job which takes longer time and uses costlier machine would be higher. This fact is not disclosed by marginal costing.

(vii) Understating of W-I-P: Under marginal costing stocks and work in progress are understated.

Question 1.

EXPLAIN the Essentials of budget.

Answer

The main characteristics of budget are as follows:

1. A budget is concerned for a definite future period.
2. A budget is a written document.
3. A budget is a detailed plan of all the economic activities of a business.
4. All the departments of a business unit should co-operate for the preparation of a business budget.
5. Budget is a mean to achieve business objectives and it is not an end in itself.
6. Budget needs to be updated, corrected and controlled every time circumstances change. Therefore, it is a continuous process.
7. Budget helps in planning, coordination and control.
8. Different types of budgets are prepared by industries according to business requirements.
9. A budget acts as a business barometer.
10. Budget is usually prepared in the light of past experiences.
11. Budget is a constant endeavour of the Management.

Question 2.

DESCRIBE objectives of Budgetary Control System. (MTP Oct 2020)

Answer

Objectives of Budgetary Control System

1. Portraying with precision the overall aims of the business and determining targets of performance for each section or department of the business.

2. Laying down the responsibilities of each of the executives and other personnel so that everyone knows what is expected of him and how he will be judged. Budgetary control is one of the few ways in which an objective assessment of executives or department is possible.
3. Providing a basis for the comparison of actual performance with the predetermined targets and investigation of deviation, if any, of actual performance and expenses from the budgeted figures. This naturally helps in adopting corrective measures.

4. Ensuring the best use of all available resources to maximise profit or production, subject to the limiting factors. Since budgets cannot be properly drawn up without considering all aspects usually there is good co-ordination when a system of budgetary control operates.

5. Co-ordinating the various activities of the business, and centralising control and yet enabling management to decentralise responsibility and delegate authority in the overall interest of the business.

6. Engendering a spirit of careful forethought, assessment of what is possible and an attempt at it. It leads to dynamism without recklessness. Of course, much depends on the objectives of the firm and the vigour of its management.

7. Providing a basis for revision of current and future policies.

8. Drawing up long range plans with a fair measure of accuracy.

9. Providing a yardstick against which actual results can be compared.

Question 3.

DESCRIBE the steps necessary for establishing a good budgetary control system.

(MTP Apr 2021)

Answer

The following steps are necessary for establishing a good budgetary control system:

1. Determining the objectives to be achieved, over the budget period, and the policy or policies that might be adopted for the achievement of these objectives.

2. Determining the activities that should be undertaken for the achievement of the objectives.

3. Drawing up a plan or a scheme of operation in respect of each class of activity, in quantitative as well as monetary terms for the budget period.

4. Laying out a system of comparison of actual performance by each person, or department with the relevant budget and determination of causes for the variation, if any.

5. Ensuring that corrective action will be taken where the plan has not been achieved and, if that is not possible, for the revision of the plan.

Question 4.

State the limitations of Budgetary Control System. (QP Jan 2021)

Answer

Limitations of Budgetary Control System

Points	Description
1. Based on Estimates	Budgets are based on a series of estimates, which are based on the conditions prevalent or expected at the time budget is established. It requires revision in plan if conditions change.
2. Time factor	Budgets cannot be executed automatically. Some preliminary steps are required to be accomplished before budgets are implemented. It requires proper attention and time of management. Management must not expect too much during the initial development period.
3. Co-operation Required	Staff co-operation is usually not available during the initial budgetary control exercise. In a decentralised organisation, each unit has its own objective and these units enjoy some degree of discretion. In this type of organisation structure, coordination among different units is required. The success of the budgetary control depends upon willing co-operation and teamwork,

4. Expensive	The implementation of budget is somewhat expensive. For successful implementation of the budgetary control, proper organisation structure with responsibility is prerequisite. Budgeting process start from the collection of information to for preparing the budget and performance analysis. It consumes valuable resources (in terms of qualified manpower, equipment, etc.) for this purpose; hence, it is an expensive process.
5. Not a substitute for management	Budget is only a managerial tool and must be intelligently applied for management to get benefited. Budgets are not a substitute for good management.
6. Rigid document	Budgets are sometime considered as rigid documents. But in reality, an organisation is exposed to various uncertain internal and external factors. Budget should be flexible enough to incorporate ongoing developments in the internal and external factors affecting the very purpose of the budget.

Question 5.

DISCUSS the components of budgetary control system.

Answer

The policy of a business for a defined period is represented by the master budget, the detailed components of which are given in a number of individual budgets called functional budgets. These functional budgets are broadly grouped under the following heads:

1. Physical budgets: Those budgets which contain information in quantitative terms such as the physical units of sales, production etc. This may include quantity of sales, quantity of production, inventories, and manpower budgets are physical budgets.
2. Cost budgets: Budgets which provides cost information in respect of manufacturing, administration, selling and distribution, etc. for example, manufacturing costs, selling costs, administration cost, and research and development cost budgets are cost budgets.
3. Profit budgets: A budget which enables the ascertainment of profit. For example, sales budget, profit and loss budget, etc.
4. Financial budgets: A budget which facilitates in ascertaining the financial position of a concern, for example, cash budgets, capital expenditure budget, budgeted balance sheet etc.

Question 6.

EXPLAIN the meaning of Budget Manual. (RTP Nov 2019)

Answer

Budget Manual: A budget manual is a collection of documents that contains key information for those involved in the planning process. Typical contents could include the following:

- An introductory explanation of the budgetary planning and control process, including a statement of the budgetary objective and desired results.
- A form of organisation chart to show who is responsible for the preparation of each functional budget and the way in which the budgets are interrelated.
- A timetable for the preparation of each budget. This will prevent the formation of a 'bottleneck' with the late preparation of one budget holding up the preparation of all others.

- Copies of all forms to be completed by those responsible for preparing budgets, with explanations concerning their completion.
- A list of the organization's account codes, with full explanations of how to use them.
- Information concerning key assumptions to be made by managers in their budgets, for example the rate of inflation, key exchange rates, etc.

Question 7.

DESCRIBE the salient features of budget manual. (RTP May 2021)

Answer

(d) Salient features of Budget Manual

- Budget manual contains much information which is required for effective budgetary planning.
- A budget manual is a collection of documents that contains key information for those involved in the planning process.
- An introductory explanation of the budgetary planning and control process, including a statement of the budgetary objective and desired results is included in Budget Manual.
- Budget Manual contains a form of organisation chart to show who is responsible for the preparation of each functional budget and the way in which the budgets are interrelated.
- In contains a timetable for the preparation of each budget.
- Copies of all forms to be completed by those responsible for preparing budgets, with explanations concerning their completion is included in Budget Manual.

Question 8.

EXPLAIN briefly the concept of 'flexible budget'.

Answer

Flexible Budget: A flexible budget is a budget which, by recognising the difference in behaviour between fixed and variable costs in relation to fluctuations in output, turnover, or other variable factors, is designed to change appropriately with such fluctuations. According to CIMA, "a flexible budget is defined as a budget which, by recognizing the difference between fixed, semi-variable and variable costs is designed to change in relation to the level of activity attained." Unlike static (fixed) budgets, the flexible budgets show the expected results of a responsibility center for different activity levels.

One can view a flexible budget as a series of static budgets for different levels of activity. Such budgets are especially useful in estimating and controlling factory costs and operating expenses. It is more realistic and practicable because it gives due consideration to behaviour of revenue and cost at different levels of activity. While preparing a flexible budget, the expenses are classified into three categories viz.

(i) Fixed,

(ii) Variable, and

(iii) Semi-variable.

Semi-variable expenses are further segregated into fixed and variable expenses. Flexible budgeting may be resorted to under the following situations:

(i) In the case of new business venture, due to its typical nature, it may be difficult to forecast the demand of a product accurately.

(ii) Where the business is dependent upon the fluctuations of nature e.g., a person dealing in wool trade may have enough market demand, if temperature goes below the freezing point and much less demand if the weather is relatively warm.

(iii) In the case of labour intensive industry where the production of the entity is dependent upon the availability of labour.

Question 9.

What are the cases when a flexible budget is found suitable? (QP May 2019)

Answer

Flexible budgeting may be resorted to under following situations:

(i) In the case of new business venture due to its typical nature it may be difficult to forecast the demand of a product accurately.

(ii) Where the business is dependent upon the mercy of nature e.g., a person dealing in wool trade may have enough market if temperature goes below the freezing point.

(iii) In the case of labour-intensive industry where the production of the concern is dependent upon the availability of labour.

Suitability for flexible budget:

1. Seasonal fluctuations in sales and/or production, for example in soft drinks industry;
2. a company which keeps on introducing new products or makes changes in the design of its products frequently;
3. industries engaged in make-to-order business like ship building;
4. an industry which is influenced by changes in fashion; and
5. General changes in sales.

Question 10.

DISTINGUISH between Fixed and flexible budget. (MTP Aug 2018)

Answer

Difference between Fixed and Flexible Budgets:

Sl. No.	Fixed Budget	Flexible Budget
1.	It does not change with actual volume of activity achieved. Thus it is known as rigid or inflexible budget	It can be re-casted on the basis of activity level to be achieved. Thus it is not rigid.
2.	It operates on one level of activity and under one set of conditions. It assumes that there will be no change in the prevailing conditions, which is unrealistic.	It consists of various budgets for different levels of activity
3.	Here as all costs like - fixed, variable and semi-variable are related to only one level of activity so variance analysis does not give useful information.	Here analysis of variance provides useful information as each cost is analysed according to its behaviour.
4.	If the budgeted and actual activity levels differ significantly, then the aspects like cost ascertainment and price fixation do not give a correct picture.	Flexible budgeting at different levels of activity facilitates the ascertainment of cost, fixation of selling price and tendering of quotations.
5.	Comparison of actual performance with budgeted targets will be meaningless specially when there is a difference between the two activity levels.	It provides a meaningful basis of comparison of the actual performance with the budgeted targets.

Question 11.

LIST the eight functional budgets prepared by a business.

Answer

A functional budget is one which is related to function of the business as for example, production budget relating to the manufacturing function. Functional budgets are prepared for each function and they are subsidiary to the master budget of the business.

The various types of functional budgets to be prepared will vary according to the size and nature of the business.

The various commonly used functional budgets are:

(i) Sales budget
(ii) Production budget
(iii) Plant utilisation budget
(iv) Direct-material usage budget
(v) Direct-material purchase budget
(vi) Direct-labour (personnel) budget
(vii) Factory overhead budget
(viii) Production cost budget
(ix) Ending-inventory budget
(x) Cost-of-goods-sold budget
(xi) Selling and distribution cost budget
(xii) Administration expenses budget
(xiii) Research and development cost budget
(xiv) Capital expenditure budget
(xv) Cash budget

The important functional budgets (also known as schedules to master budget) and the master budget are discussed and illustrated below:

Question 12.

STATE the considerations on which capital expenditure budget is prepared.

Answer

Capital expenditure Budget:

The capital expenditure budget represents the planned outlay on fixed assets like land, building, plant and machinery, etc. during the budget period. This budget is subject to strict management control because it entails large amount of expenditure. The budget is prepared to cover a long period of years and it projects the capital costs over the period in which the expenditure is to be incurred and the expected earnings.

The preparation of capital budget is based on the following considerations:

1. Capital Budget is a budget prepared for capital receipts and expenditure such as investment on land and building, plant and machinery obtaining loans, issue of shares, purchase of assets etc.
2. Future development plans to increase output by expansion of plant facilities.
3. Replacement requests from the concerned departments.
4. Factors like sales potential to absorb the increased output, possibility of price reductions, increased costs of advertising and sales promotion to absorb increased output, etc.
5. Overhead on production facilities of certain departments as indicated by the plant utilisation budget.

Question 13.

Define Zero Base Budgeting and mention its various stages.

(QP Nov 2019, MTP May 2021)

Answer

Zero-based Budgeting: (ZBB) is an emergent form of budgeting which arises to overcome the limitations of incremental (traditional) budgeting system. Zero- based Budgeting (ZBB) is defined as 'a method of budgeting which requires each cost element to be specifically justified, although the activities to which the budget relates are being undertaken for the first time, without approval, the budget allowance is zero'.

ZBB is an activity based budgeting system where budgets are prepared for each activities rather than functional department. Justification in the form of cost benefits for the activity is required to be given. The activities are then evaluated and prioritized by the management on the basis of factors like synchronisation with organisational objectives, availability of funds, regulatory requirement etc.

ZBB is suitable for both corporate and non-corporate entities. In case of non-corporate entities like Government department, local bodies, not for profit organisations, where these entities need to justify the benefits of expenditures on social programmes like mid-day meal, installation of street lights, provision of drinking water etc.

ZBB involves the following stages:

(i) Identification and description of Decision packages
(ii) Evaluation of Decision packages
(iii) Ranking (Prioritisation) of the Decision packages
(iv) Allocation of resources

Question 14.

STATE the advantages of Zero-based budgeting.

(RTP May 2018, RTP Nov 2020)

Answer

The advantages of zero-based budgeting are as follows:

- It provides a systematic approach for the evaluation of different activiti es and rank them in order of preference for the allocation of scarce resources.
- It ensures that the various functions undertaken by the organization are critical for the achievement of its objectives and are being performed in the best possible way.
- It provides an opportunity to the management to allocate resources for various activities only after having a thorough cost-benefit-analysis. The chances of arbitrary cuts and enhancement are thus avoided.
- The areas of wasteful expenditure can be easily identified and eliminated.
- Departmental budgets are closely linked with corporation objectives.
- The technique can also be used for the introduction and implementation of the system of 'management by objective.' Thus, it cannot only be used for fulfillment of the objectives of traditional budgeting but it can also be used for a variety of other purposes.

Question 15.

Why is 'Zero Base Budgeting' (ZBB) considered superior to 'Traditional Budgeting'? Explain.

(QP May 2018)

Answer

Zero based budgeting is superior to traditional budgeting: Zero based budgeting is superior to traditional budgeting in the following manner:

- It provides a systematic approach for evaluation of different activities.
- It ensures that the function undertaken are critical for the achievement of the objectives.
- It provides an opportunity for management to allocate resources to various activi ties after a thorough – cost benefit analysis.
- It helps in the identification of wasteful expenditure and then their elimination. If facilitates the close linkage of departmental budgets with corporate objectives.
- It helps in the introduction of a system of Management by Objectives

Question 16.

What are the important points an organization should consider if it wants to adopt Performance Budgeting?

(QP Nov 2020)

Answer

For an enterprise that wants to adopt Performance Budgeting, it is thus imperative that:

- the objectives of the enterprise are spelt out in concrete terms.
- the objectives are then translated into specific functions, programmes, activities and tasks for different levels of management within the realities of fiscal constraints.
- realistic and acceptable norms, yardsticks or standards and performance indicators should be evolved and expressed in quantifiable physical units.
- a style of management based upon decentralised responsibility structure should be adopted, and
- an accounting and reporting system should be developed to facilities monitoring, analysis and review of actual performance in relation to budgets.