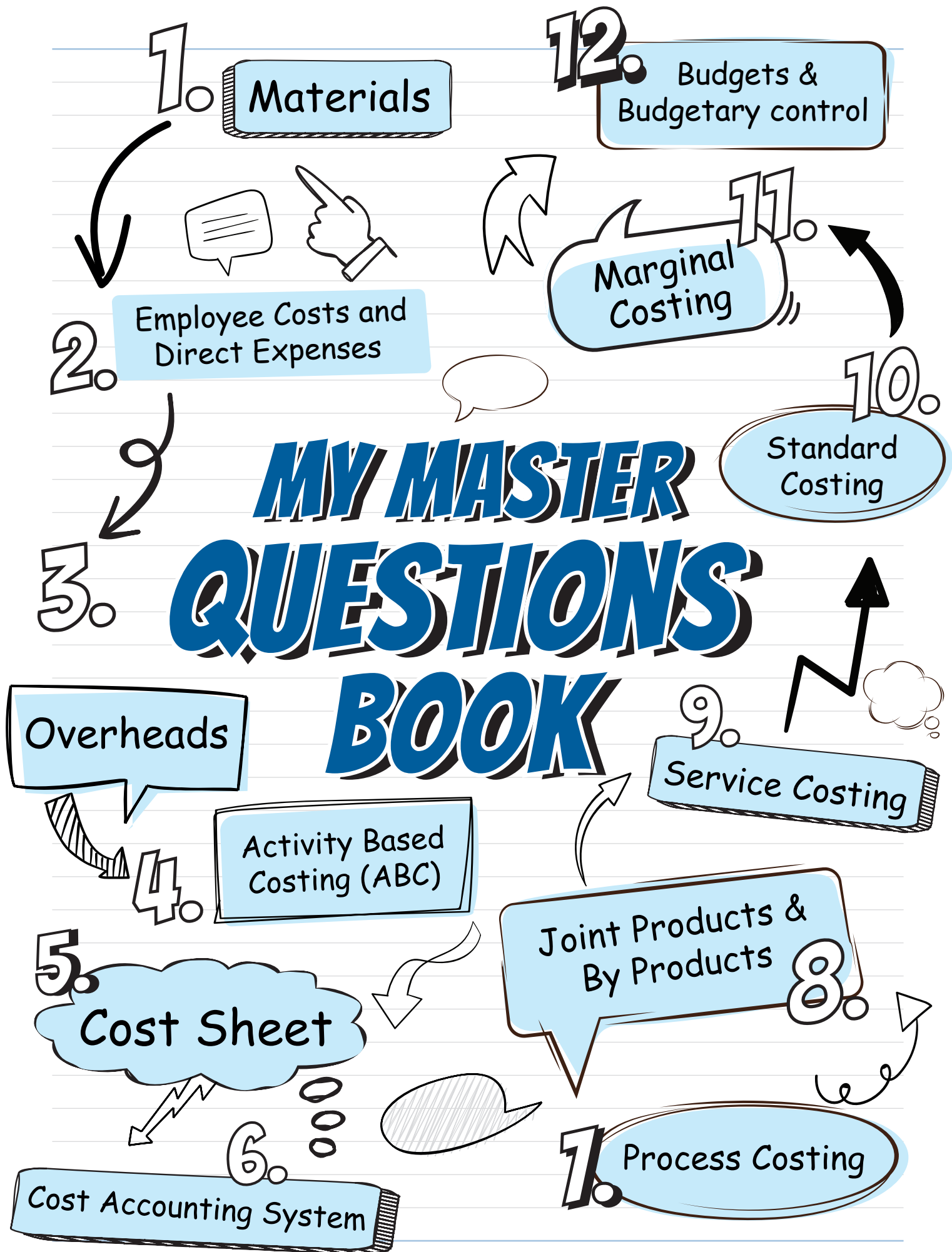




INDEX

01	INTRODUCTION TO COST & MANAGEMENT ACCOUNTING	1
----	--	---

02	MATERIALS COST	1
----	----------------	---

03	EMPLOYEE COSTS & DIRECT EXPENSES	7
----	----------------------------------	---

04	OVERHEADS	13
----	-----------	----

05	ACTIVITY BASED COSTING	19
----	------------------------	----

06	COSTSHEET	25
----	-----------	----

07	COST ACCOUNTING SYSTEMS	33
----	-------------------------	----

08

UNIT COSTING

43

09

PROCESS AND OPERATION
COSTING

47

10

JOINT PRODUCTS &
BY PRODUCTS

57

11

SERVICE COSTING

63

12

STANDARD COSTING

75

13

MARGINAL COSTING

81

14

BUDGETS AND
BUDGETARY CONTROL

87



MATERIALS COST

Q.1. NPCT Ltd. has an annual demand of an item of finished goods which is 2,50,000 units and 5 Finished goods are produced from 1 kg. of Raw Material. Purchase price of the raw material is Rs. 80 per unit.

NB

PN

The cost of placing an order is 1350 per order. The storage cost is 0.25 per unit per month. The interest cost is 9% per annum. The obsolescence cost is 0.5% per month per annum.

Find –

1. EOQ
2. Find No. of deliveries/orders
3. What would be the frequency of orders (consider 365 days in a year)
4. Find TVC
5. If the purchase price of the material goes up to 124, what would be the EOQ and the total variable cost.
6. If the current order size is 5000 units, what would be the extra cost to NPCT Ltd.
7. If the Ordering Costs are 1536 per order, what would be the differential cost to NPCT Ltd.
8. If the entire annual demand is purchased in one order and the vendor offers to sell the materials at 70, the ordering costs are NIL, should the offer be accepted
9. For this required, assume the annual carrying cost per unit is 3.6 and total carrying cost is 13,500, what would be the EOQ ?
10. For this required, assume the annual demand of raw material is 28,000 units, EOQ is 2800 units, the annual carrying costing per unit is 0.25 , what would be the ordering cost per order?
If the number orders reduce by 2 above, with this change, to what extend will the EOQ and ordering cost per order be increased.
11. For the required, assume the annual demand of raw material is 20,000 units, EOQ is 1,000 units, ordering costs per order is 100, how much would be the annual demand per unit per month.

Q.2. A Company manufactures a special product which requires a component 'Alpha'. The following particulars are collected for the year 2013:

NB

PN

- (i) Annual demand of Alpha: 8,000 unit
- (ii) Cost of placing an order: ₹200 per order
- (iii) Cost per unit of Alpha: ₹40
- (iv) Carrying cost % p.a.: 20%

The company has been offered a quantity discount of 4% on the purchase of 'Alpha', provided the order size is 4,000 components at a time.

Required:

- (i) Compute the economic order quantity.
- (ii) Advise whether the quantity discount offer can be accepted.

Q.3. PQR Ltd., manufactures a special product, 'ZED'. The following particulars were collected for the year 2005-06:

NB
PN

Monthly demand of Zed: 7,500 units

Cost of placing an order: Rs.500

Re-order period: 5 to 8 weeks

Lead time for emergency purchases : 3 weeks

Cost per unit: Rs.60

Carrying cost % p.a.: 10%

Normal usage: 750 units per week

Minimum usage: 500 units per week

Maximum usage: 1000 units per week

Required:

- (i) Re-order quantity.
- (ii) Re-order level.
- (iii) Minimum stock level.
- (iv) Maximum stock level.
- (v) Average stock level.
- (vi) Emergency Level.

Q.4. A company produces a product 'AB' by using two raw materials - 'Material Ae' and 'Material Be' in the ratio of 5:3. A sales volume of 54,000 kgs is estimated for the month of December by the managers expecting the trend will continue for entire year. The company has an opening stock of 1,000 FG and the company expects to maintain closing stock worth 2 months of average sales. A kg of raw material yields only 0.625kgs output AB.

NB
PN

Other Information are as follows

Purchase Price Rs. 150 per kg for Ae & Rs. 200 per kg for Be.

Re-order period 2 to 3 days

Carrying Cost 12%

Note: Material Ae is perishable in nature and if not used within 3.5 days of purchase it becomes obsolete.

To place an order, the company has to incur an administrative cost of Rs. 375 per order. At present, material 'Ae' is purchased in a lot of 6,000 kgs. to avail the discount on purchase of 4 % . Company works for 300 days in a year and production is carried out evenly

The maximum consumption is more than the average consumption by 40 kgs and 20kgs respectively. The opening stock of raw materials for raw material Ae is 2,000 kgs. and for Be is 1200 kgs.

Required :

1. ROQ for both the raw materials
2. Maximum Stock level for Material Ae.
3. Compute Reorder level and maximum level for both the products.
4. How much amount is saved/extra paid due to purchasing 6,000kgs for material Ae ?

Q.5. Primex Limited produces product 'P'. It uses annually 60,000 units of a material 'Rex' costing ₹10 per unit. Other relevant information are:

NB
PN

Cost of placing an order : ₹800 per order

Carrying cost : 15% per annum of average inventory

Re-order period : 10 days

Safety stock : 600 units

The company operates 300 days in a year.

You are required to calculate:

- (i) Economic Order Quantity for material 'Rex'.
- (ii) Re-order Level
- (iii) Maximum Stock Level
- (iv) Average Stock Level
- (v) For this part only : 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 2,000 units with a year of 300 working days).

Q.6. Re-order quantity of material 'X' is 5,000 kg.; Maximum level 8,000 kg.; Minimum usage 50 kg. per hour; minimum re-order period 4 days; daily working hours in the factory is 8 hours You are required to calculate the re-order level of material 'X'.

NB
PN

Q.7. A company uses four raw materials A, B, C and D for a particular product for which the following data apply :-

NB
PN

Raw Material	Usage per unit of product (Kg.)	Re-order Quantity (Kg.)	Price per Kg. (₹)	Delivery period (in weeks)			Reorder level (Kg.)	Minimum level
				Minimum	Average	Maximum		
A	12	12,000	12	2	3	4	60,000	?
B	12	8,000	22	5	6	7	70,000	?
C	6	10,000	18	3	5	7	?	25,500
D	5	9,000	20	1	2	3	?	?

Weekly production varies from 550 to 1,250 units, averaging 900 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?
- (v) Re-order level of D?
- (vi) Minimum Stock level of D?



EMPLOYEE COSTS & DIRECT EXPENSES

Q.1. 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 for 10 units. 'A' takes 40 hours for 12 units while B takes 60 hours to complete 10 units of 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:

NB
PN

1. Compute the normal rate of wages
2. Compute the cost of materials cost
3. Prepare a statement comparing the factory cost of the products as made by the two workmen.
4. If the workers are paid Dearness Allowance (DA) of Rs.100 per day of 10 hours, what would be the amount of DA and thereby the total income of each worker
5. What would be their Effective Hourly Rate (EHR)
6. What would be their Labour Cost per piece (including DA) ?

Q.2. 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.

NB
PN

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

Q.3. ZED Limited is working by employing 50 skilled workers, it is considering the introduction of incentive scheme-either Halsey scheme (with 50% bonus) or Rowan scheme of wage payment for increasing the labour productivity to cope up the increasing demand for the product by 40%. It is believed that 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.

NB
PN

Because of assurance, the increase in productivity has been observed as revealed by the figures for the month of April, 2014.

Hourly rate of wages (guaranteed)	₹30
Average time for producing one unit by one worker at the previous performance (This may be taken as time allowed)	1.975 hours
Number of working days in the month	24
Number of working hours per day of each worker	8
Actual production during the month	6,120 units

Required:

- (i) Calculate the effective rate of earnings under the Halsey scheme and the Rowan scheme.
- (ii) Calculate the savings to the ZED Limited in terms of direct labour cost per piece.
- (iii) Advise ZED Limited about the selection of the scheme to fulfill their assurance.

Q.4. A worker is paid ₹10,000 per month and a dearness allowance of ₹2,000 p.m. Worker contribution to provident fund is 10% of wages 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 total cost of employees welfare activities is 6,61,500 per annum and the organisation has a total of 175 employees. 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. Normal Idle hours are 70 hours per annum. Abnormal idle hours (due to power failure) is 50 hours.

NB
PN

You are required to calculate:

1. Annual cost of each employee
2. Employee cost per hour
3. Cost of abnormal idle time, per employee

Q.5. 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 of 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?

NB
PN

Q.6. 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:

NB
PN

	A	B
Basic Wages (₹)	10,000	16,000
Dearness Allowance	50%	50%
Contribution to provident Fund (on basic wages)	8%	8%
Contribution to Employee's State Insurance (on basic wages)	2%	2%
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.7. Human Resources Department of A Ltd. computed labour turnover by replacement method at 3% for the quarter ended June 2015. During the quarter, fresh recruitment of 40 workers was made. The number of workers at the beginning and end of the quarter was 990 and 1,010 respectively. You are required to calculate :

NB
PN

1. Average no. of employees
2. Labour turnover rates using replacement, separation, flux methods
3. Equivalent Employee Turnover rates for the year

Q.8. Super Ltd, a manufacturing company is facing the problem of high labour turnover in the factory. Before analysing the causes and taking remedial steps, the management of the company wants to ascertain the profit lost for the year 2022-23 on account of labour turnover. For this purpose, it has given you the following information:

NB
PN

- (i) Sales for the last year 2022-23 was ₹2,1680,000 and P/V ratio was 15%.
- (ii) The total number of actual hours worked by the direct labour force was 5,00,000 hours. The actual direct labour hours included 60,000 hours attributable to training new recruits, out of which 40% of the hours were unproductive.
- (iii) Due to delays by the Personnel Department in filling vacancies on account of labour turnover, 95,000 potential productive hours (excluding unproductive training hours) were lost.
- (iv) 1,500 units of the output produced during training period were defective. Cost of rectification of defective units was ₹40 per unit.
- (v) Settlement cost of the workers leaving the organization was ₹2,37,880.
- (vi) Recruitment and Selection cost was ₹1,40,000.
- (vii) Cost of Training and Induction was ₹1,61,950.

Assuming that the potential production lost as a consequence of labour turnover could have been sold at prevailing prices, find the profit lost for the year 2022-23 on account of labour turnover.

Q.9. Worker took 60 hours to complete a job in a factory. The normal rate of wages is ₹80 per hour. The worker is entitled to receive bonus according to the Halsey Premium Plan. Factory overhead is recovered on the job at ₹60 per man hour actually worked. The factory cost of the job is ₹37,280 and material cost of the job is ₹28,400.

NB

PN

Required:

- (i) Calculate the standard time for completing the Mob and efective hourly rate under the Halsey Premium plan.
- (ii) Calculate the efective rate of earnings per hour if wages would have been paid under the Rowan Plan.

4

OVERHEADS

Q.1. Pretz Ltd. is a manufacturing company having two production departments, 'A' & 'B' and two service departments 'X' & 'Y'. The following is the budget for March, 2022:

NB
PN

Particulars	Total (₹)	A (₹)	B (₹)	X (₹)	Y (₹)
Direct material		2,00,000	4,00,000	4,00,000	2,00,000
Direct wages		10,00,000	4,00,000	2,00,000	4,00,000
Factory rent	9,00,000				
Power (Machine)	5,10,000				
Depreciation	2,00,000				
General Lighting	3,00,000				
Perquisites	4,00,000				

Additional information:

Area (Sq. ft.)	500	250	250	500
Capital value of assets (₹ lakhs)	40	80	20	20
Light Points	10	20	10	10
Machine hours	1,000	2,000	1,000	1,000
Horse power of machines	50	40	15	25

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

Particulars	A	B	X	Y
Service Dept. 'X' (%)	55	25	-	20
Service Dept. 'Y' (%)	60	35	5	-

You are required to:

- PREPARE a statement showing distribution of overheads to various departments.
- PREPARE a statement showing re-distribution of service departments expenses to production departments using-
 - Simultaneous equation method
 - Trial and error method
 - Repeated Distribution Method.

Q.2. The following particulars refer to process used in the treatment of material subsequently, incorporated in a component forming part of an electrical appliance:

NB

PN

- (i) The original cost of the machine used (Purchased in June 2023) 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 paise 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 ₹ 1,800.
- (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 ₹ 3,000.

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

Q.3. A machine shop cost centre contains three machines of equal capacities. To operate these three machines nine operators are required i.e. three operators on each machine. Operators are paid ₹20 per hour. The factory works for fortyeight hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the forty eight hours. In additions they are paid a bonus of 10 per cent of productive time. Costs are reported for this company on the basis of thirteen four-weekly period. The company for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centre are available:

NB

PN

- Depreciation 10% per annum on original cost of the machine. Original cost of the each machine is ₹52,000.
- Maintenance and repairs per week per machine is ₹60.
- Consumable stores per week per machine are ₹75.
- Power : 20 units per hour per machine at the rate of 80 paise per unit.
- Apportionment to the cost centre : Rent per annum ₹5,400, Heat and Light per annum ₹9,720, foreman's salary per annum ₹12,960 and other miscellaneous expenditure per annum ₹18,000.

Required:

- (i) Calculate the cost of running one machine for a fourweek period.
- (ii) Calculate machine hour rate.

Q.4. USP Ltd. is the manufacturer of 'double grip motorcycle tyres'. In the manufacturing process, it undertakes three different jobs namely, Vulcanising, Brushing and Striping. All of these jobs require the use of a special machine and also the aid of a robot when necessary. The robot is hired from outside and the hire charges paid for every six months is ₹ 2,70,000. An estimate of overhead expenses relating to the special machine is given below:

NB
PN

- Rent for a quarter is ₹ 18,000.
- The cost of the special machine is ₹ 19,20,000 and depreciation is charged @10% per annum on straight line basis.
- Other indirect expenses are recovered at 20% of direct wages.

The factory manager has informed that in the coming year, the total direct wages will be ₹ 12,00,000 which will be incurred evenly throughout the year.

During the first month of operation, the following details are available from the job book:

Number of hours the special machine was used

Jobs	Without the aid of the robot	With the of the robot
Vulcanising	500	400
Brushing	1000	400
Striping	-	1200

You are required to :

- Compute the Machine Hour Rate for the company as a whole for a month (A) when the robot is used and (B) when the robot is not used.
- Compute the Machine Hour Rate for the individual jobs i.e. Vulcanising, Brushing and Striping.

Q.5. The cost variance report was being discussed at a review meeting where in Cost Accountant of the company reported under-absorption of production overheads. The following information was available from the cost records of the company at the end of financial year 2023-24:

NB
PN

- Actual production overheads incurred were ₹ 4,50,000 which included ₹ 42,000 on account of 'written off obsolete stores.
- 18,000 units were produced during the year out of which 10,000 units were sold and 8,000 units of finished goods were in stock.
- There were also 5,000 units in progress which may be reckoned as 40% complete.
- The actual machine hours worked during the period were 43,000.

ABC Ltd. absorbs the production overheads at a predetermined rate of ₹ 8 per machine hour.

On investigation, it has been found that 20% of the under-absorption of production overheads was due to defective planning and the rest was attributable to normal increase in costs of indirect materials and indirect labour.

You are required to:

- (i) Calculate the amount of under-absorption of production overheads during the year 2023-24; and
- (ii) Show the treatment of under-absorption of production overheads in cost accounts.

Q.6.

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 hours. The budgeted production overheads of the factory are ₹10,08,000 and budgeted machine hours are 96,000.

For a period of first six months of the financial year 20132014, following information were extracted from the books:

Actual Production Overheads : 6,79,000

Amount included in the production overheads:

Paid as per court's order	: 45,000
Expenses of previous year booked in the current year	: 10,000
Paid to workers for strike period under an award	: 42,000
Obsolete stores written off	: 18,000

Production and sales data of the concern for the first six months are as under:

Production:

Finished goods	: 22,000 units
Work-in-progress (50% complete in every respect)	: 16,000 units

Sale:

Finished goods	: 18,000 units
----------------	----------------

The actual machine hours worked during the period were 48,000 hours. It is revealed from the analysis of information that $\frac{1}{4}$ of the 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 under absorption of production overheads for the period,
- (ii) to show the accounting treatment of under-absorption of production overheads, and
- (iii) to apportion the unabsorbed overheads over the items.

Q.7. A manufacturing company having strength of 50 workers planned for 300 working days of 8 hours each. Based on earlier year's trend, it is estimated that average absenteeism per worker would be 10 days in addition to eligibility of 20 days annual leave. The budgeted overheads amounted to ₹ 15,12,000.

NB

PN

During the year, factory worked for 2 extra days to meet the production targets. The actual average absenteeism per worker was 8 days. Out of 50 workers, 20 took the annual leave of 20 days and the remaining took 15 days leave. 450 hours were lost due to machine breakdown. Overtime worked on production during the year amounted to 650 hours. Actual overheads amounted to ₹ 15,92,600.

You are required to:

- (i) Calculate overhead absorption rate based on direct labour hours.
- (ii) Determine the under or over absorption of overheads during the year.



ACTIVITY BASED COSTING

- Q.1.** BABYSOFT is a global brand created by bio-organic Ltd. The company manufactures three range of beauty soaps i.e. BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond. The budgeted costs and production for the month of December, 2019 are as follows:

NB
PN

	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

(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.)

Particulars	GOLD	Pearl	Diamond
Direct Labour	Rs. 20	Rs. 18	Rs. 14
Machine hours per unit	4	3	2

The four products are similar and are usually produced in production runs of 48 units per batch and are sold in batches of 24 units. Currently, the production overheads are absorbed using machine hour rate. The production overheads incurred by the company for the period December, 2020 are as follows:

Machine department costs	INR
Rent, depreciation and supervision	2,52,000
Set-up Costs	80,000
Store receiving costs	60,000
Inspection	40,000
Material handling and dispatch	10,368

During the period December, 2020, the following cost drivers are to be used for allocation of overheads cost:

Cost	Cost driver
Set-up Costs	Number of production runs (batches)
Stores receiving	Requisition raised
Inspection	Number of production runs (batches)
Material Handling and Dispatch	Weight of Material

It is also determined that:

1. Machine department costs should be apportioned among set-up, stores receiving and inspection activities in proportion of 4: 3: 2.
2. The number of requisitions raised on stores is 50 for each product.

Required:

- (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? (Calculate over/under absorption for each of the products)
- (iv) Determine the selling price per unit as per both absorption costing and ABC considering profit margin of 25% on cost.

Q.2. Equate bank offers 3 products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity-based costing methods.

NB
PN

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:		
(a) Machine Maintenance	5,20,000	All fixed, no change.
(b) Rents	2,60,000	Fully fixed, no change.
(c) Currency Replenishment Cost	1,30,000	Expected to double during budget period.
	9,10,000	
Computer Processing	6,50,000	Half this amount is fixed, and no change is expected. The variable portion is expected to increase to three times the current level.
Issuing Statements	23,40,000	Presently, 3.90 lakh statements are made. In the budget period, 6.5 lakh statements are expected. For every single increase of statement, one rupee is the budgeted increase.
Computer Inquiries	2,60,000	Estimated to increase by 80% during the budget period.

The activity drivers and their budgeted quantifies are given below:

Activity Drivers	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,95,000	---	65,000
No. of Computer Processing Transactions	19,50,000	2,60,000	3,90,000
No. of Statements to be issued	4,55,000	65,000	1,30,000
Telephone Minutes	4,68,000	2,34,000	2,34,000

The bank budgets a volume of 76,180 deposit accounts, 16,900 loan accounts, and 18,200 Credit Card Accounts.

Required:

- CALCULATE the budgeted rate for each activity.
- PREPARE the budgeted cost statement activity wise.
- COMPUTE the budgeted product cost per account for each product using (i) and (ii) above.

Q.18. Star Limited manufacture three products using the same production methods. A conventional product costing system is being used currently. Details of the three products for a typical period are:

NB
PN

Product	Labour Hrs. per unit	Machine Hrs. per unit	Materials per Unit ¹	Volume in Units
AX	1.00	2.00	35	7,500
BX	0.90	1.50	25	12,500
CX	1.50	2.50	45	25,000

Direct Labour costs ₹ 20 per hour and production overheads are absorbed on a machine hour basis. The overhead absorption rate for the period is ₹ 30 per machine hour.

Management is considering using Activity Based Costing system to ascertain the cost of the products. Further analysis shows that the total production overheads can be divided as follows:

Particulars	%
Cost relating to set-ups	40
Cost relating to machinery	10
Cost relating to material handling	30
Costs relating to inspection	20
Total production overhead	100

The following activity volumes are associated with the product line for the period as a whole. Total activities for the period:

Product	No. of set-ups	No. of movements of Materials	No. of inspections
AX	350	200	200
BX	450	280	400
CX	740	675	900
Total	1,540	1,155	1,500

Required:

- (i) Calculate the cost per unit for each product using the conventional method.
- (ii) Calculate the cost per unit for each product using activity based costing method.

¹ Material cost per unit

NB
PN

6

COST SHEET

Q.1. 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:

NB
PN

- i. Direct Material Rs. 40 per unit
- ii. Direct Labour Rs. 30 per unit (subject to a minimum of Rs. 48,000 p.m.)
- iii. Factory Overheads:
 - (a) Fixed Rs. 3,60,000 per annum
 - (b) Variable Rs. 10 per unit
 - (c) Semi-variable Rs. 1,08,000 per annum up to 50% capacity and additional Rs. 46,800 for every 20% increase in capacity or any part thereof.
- iv. Administrative Overheads Rs. 5, 18,400 per annum (fixed)
- v. Selling overheads are incurred at Rs. 8 per unit.
- vi. Each unit of raw material yields scrap which is sold at the rate of Rs. 5 per unit.

Company has planned that the factory will operate at 50% capacity for first 3 months, 75% capacity for further 6 months and for balance 3 months, factory will operate at full capacity.

The selling price in the for the first 9 months is 120 per unit.

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 Rs. 8,76,600.
- iii. Given the above scenario, advise whether company should accept an offer to sell each Toy at:
 - i. (a) 130 per Toy
 - ii. (b) 129 per Toy

Q.2. Xim Ltd. manufactures two types of boxes 'Super' and 'Normal'. The cost data for the year ended 31st March, 2021 is as follows:

NB
PN

	₹
Direct Materials	12,00,000
Direct Wages	6,72,000
Production Overhead	2,88,000
Total	21,60,000

There was no work-in-progress at the beginning or at the end of year. It is further ascertained that:

1. Direct materials cost per unit in 'Super' was twice as much of direct material in 'Normal'.
2. 2% cash discount was received for payment made within 30 days to the creditors of Direct materials.
3. Direct wages per unit for 'Normal' were 60% of those of 'Super'.
4. Production overhead per unit was at same rate for both the types of boxes.
5. Administration overhead was 200% of direct labour for each type.
6. Selling cost was ₹ 1 per 'Super' type.
7. Production and sales during the year were as follows:

Production		Sales	
Type	No. of units	Type	No. of units
Super	60,000	Super	54,000
Normal	1,80,000		

8. Selling price was ₹ 30 per unit for 'Super'.
9. Company was also involved in a copyright infringement case related to the manufacturing process of 'Super' production. As per the verdict, it had to pay penalty of ₹ 50,000.

PREPARE Cost Sheet of Xim Ltd. for 'Super' showing:

- (i) Cost per unit and Total Cost
- (ii) Profit per unit and Total Profit

Q. 3 The following data relates to manufacturing of a standard product during the month of March, 2021:

NB
PN

Particulars	Amount (₹)
Stock of Raw material as on 01-03-2021	80,000
Work in Progress as on 01-03-2021	50,000
Purchase of Raw material	2,00,000
Carriage Inwards	20,000
Direct Wages	1,20,000
Cost of special drawing	30,000
Hire charges paid for Plant	24,000
Return of Raw Material	40,000
Carriage on return	6,000
Expenses for participation in Industrial exhibition	8,000

Legal charges	2,500
Salary to office staff	25,000
Maintenance of office building	2,000
Depreciation on Delivery van	6,000
Warehousing charges	1,500
Stock of Raw material as on 31-03-2021	30,000
Stock of Work in Progress as on 31-03-2021	24,000

- Store overheads on materials are 10% of material consumed
- Factory overheads are 20% of the Prime cost.
- 10% of the output was rejected and a sum of ₹ 5,000 was realized on sale of scrap.
- 10% of the finished product was found to be defective and the defective products were rectified at an additional expenditure which is equivalent to 20% of proportionate direct wages.
- The total output was 8000 units during the month.

You are required to prepare a Cost Sheet for the above period showing the:

- Cost of Raw Material consumed.
- Prime Cost
- Work Cost
- Cost of Production
- Cost of Sales

Q.4. XYZ a manufacturing firm, has revealed following information for September, 2019:

NB
PN

	1st September (₹)	30th September (₹)
Raw Materials	2,42,000	2,92,000
Works-in-progress	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 ₹ 61 per 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 1/2 of the cost of material consumed.

Selling price of the output is ₹ 110 per unit.

You are required to :

- Calculate the Value of material purchased
- Prepare cost sheet showing the profit earned by the firm.

Q.5. Impact Ltd. provides you the following details of its expenditures for the year ended 31st March, 2021:

NB
PN

S. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Raw materials purchased		5,00,00,000
(ii)	GST paid under Composition scheme		10,00,000
(iii)	Freight inwards		5,20,600
(iv)	Trade discounts received		10,00,000
(v)	Wages paid to factory workers		15,20,000
(vi)	Contribution made towards employees' PF & ESIS		1,90,000
(vii)	Production bonus paid to factory workers		1,50,000
(viii)	Fee for technical assistance		1,12,000
(ix)	Amount paid for power & fuel		2,62,000
(x)	Job charges paid to job workers		4,50,000
(xi)	Stores and spares consumed		1,10,000
(xii)	Depreciation on:		
	Factory building	64,000	
	Office building	46,000	
	Plant & Machinery	86,000	1,96,000
(xiii)	Salary paid to supervisors		1,20,000
(xiv)	Repairs & Maintenance paid for:		
	Plant & Machinery	58,000	
	Sales office building	50,000	
	Vehicles used by directors	20,600	1,28,600

(xv)	Insurance premium paid for:		
	Plant & Machinery	31,200	
	Factory building	28,100	59,300
(xvi)	Expenses paid for quality control check activities		25,000
(xvii)	Research & development cost paid for improvement in production process		48,200
(xviii)	Expenses paid for administration of factory work		1,38,000
(xix)	Salary paid to functional managers:		
	Production control	4,80,000	
	Finance & Accounts	9,60,000	
	Sales & Marketing	12,00,000	26,40,000
(xx)	Salary paid to General Manager		13,20,000
(xxi)	Packing cost paid for:		
	Primary packing necessary to maintain quality	1,06,000	
	For re-distribution of finished goods	1,12,000	2,18,000
(xxii)	Interest and finance charges paid (for usage of non- equity fund)		
3,50,000			
(xxiii)	Fee paid to auditors		1,80,000
(xxiv)	Fee paid to legal advisors		1,20,000
(xxv)	Fee paid to independent directors		2,40,000
(xxvi)	Payment for maintenance of website for online sales		1,80,000
(xxvii)	Performance bonus paid to sales staffs		2,40,000
(xxviii)	Value of stock as on 1st April, 2020:		
	Raw materials	9,00,000	
	Work-in-process	4,00,000	
	Finished goods	7,00,000	20,00,000
(xxix)	Value of stock as on 31st March, 2021:		
	Raw materials	5,60,000	
	Work-in-process	2,50,000	
	Finished goods	11,90,000	20,00,000

Amount realized by selling of waste generated during manufacturing process –
₹ 66,000/-

From the above data, you are required to PREPARE Statement of cost of Impact Ltd. for the year ended 31st March, 2021, showing

- (i) Prime cost,
- (ii) Factory cost,
- (iii) Cost of Production,
- (iv) Cost of goods sold and
- (v) Cost of sales.



COST ACCOUNTING SYSTEMS

Q.1. On 31st March, 20X3 the following balances were extracted from the books of the Supreme Manufacturing Company:

Cost Accounting Systems

NB
PN

	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 20X3:

	(₹)
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 & Administration 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:

- Cost Ledger Control A/c
- Stores Ledger Control A/c
- Work-in-Process Control A/c
- Finished Goods Stock Control A/c
- Factory Overhead Control A/c
- Costing Profit and Loss A/c
- 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:

NB
PN

	(₹)	(₹)
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 and Distribution Overhead Control A/c	6,250	
Cost Ledger Control A/c		3,13,150
	3,13,150	3,13,150

The following are the transactions for the quarter ended 30th September 20X2:

	(₹)
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 realization	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 separate cost accounting and financial accounting systems. The following is the list of opening balances as on 1.04.2013 in the Cost Ledger.

NB
PN

	Debit (₹)	Credit (₹)
Stores Ledger Control Account	53,375	--
WIP Control Account	1,04,595	--
Finished Goods Control Account	30,780	--
General Ledger Adjustment Account	--	1,88,750

Transactions for the quarter ended 30.06.2013 are as under:

	(₹)
Materials purchased	26,700
Materials issued to production	40,000
Materials issued to factory for repairs	900
Factory wages paid (including indirect wages ₹23,000)	77,500
Production overheads incurred	95,200
Production overheads under-absorbed and written-off	3,200
Sales	2,56,000

The Company's gross profit is 25% on Cost of Sales. At the end of the quarter, WIP stocks increased by ₹7,500.

Prepare the relevant Control Accounts, Costing Profit & Loss Account and General Ledger Adjustment Account to record the above transactions for the quarter ended 30.06.2013.

- Q.4.** a) 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 in respect of January, 20X3:

NB
PN

- (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	Finished Goods Control A/c	1,51,000

Payables (Creditors) A/c

	(₹)		(₹)
To Balance b/d	19,200	Balance b/d	16,400

Manufacturing Overheads Control A/c

	(₹)		(₹)
To Cost Ledger Control A/c (Amount spent)	29,600		

Finished Goods Control A/c

	(₹)		(₹)
To Balance b/d	24,000	By Balance b/d	30,000

(ii) Additional Information:

- (1) The cash-book showed that ₹89,200 have been paid to creditors for raw-material.
- (2) Ending inventory of work-in-process included material ₹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.

Q.5. R Limited showed a net loss of ₹35,400 as per their cost accounts for the year ended 31st March, 2014. However, the financial accounts disclosed a net profit of ₹67,800 for the same period. The following information were revealed as a result of scrutiny of the figures of cost accounts and financial accounts:

NB
PN

	(₹)
(i) Administrative overhead under recovered	25,500
(ii) Factory overhead over recovered	1,35,000
(iii) Depreciation under charged in Cost Accounts	26,000
(iv) Dividend received	20,000
(v) Loss due to obsolescence charged in Financial Accounts	16,800
(vi) Income tax provided	43,600
(vii) Bank interest credited in Financial Accounts	13,600
(viii) Value of opening stock:	
In Cost Accounts	1,65,000

	In Financial Accounts	1,45,000
(ix)	Value of closing stock:	
	In Cost Accounts	1,25,500
	In Financial Accounts	1,32,000
(x)	Goodwill written-off in Financial Accounts	25,000
	Notional rent of own premises charged in Cost Accounts	₹60,000
	Provision for doubtful debts in Financial Accounts	₹15,000

Prepare a reconciliation statement by taking costing net loss as base.

Q.6. The financial books of a company reveal the following data for the year ended 31st March, 2014:

NB		(₹)
PN	Opening Stock:	
	Finished goods 875 units	74,375
	Work-in-process	32,000
	01.04.2013 to 31.3.2014	
	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:

- 1) Prepare statements for the year ended 31st March, 2014 show
 - the profit as per financial records
 - the profit as per costing records.
- 2) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

Q.7. Following information have been extracted from the cost records of XYZ Pvt. Ltd. Stores:

NB		(₹)
PN	Stores:	
	Opening Balance	54,000
	Purchases	2,88,000
	Transfer from Work-in-Progress	1,44,000
	Issues to Work-in-Progress	2,88,000
	Issues for Repairs	36,000
	Deficiencies found in Stock taking	10,800
	Work-in-Progress	
	Opening Balance	1,08,000
	Direct Wages applied	1,08,000
	Overheads Applied	4,32,000
	Closing Balance	72,000
	Entire production is sold at a profit of 15% on cost of WIP	
	Wages Paid	1,26,000
	Overheads incurred	4,50,000

Draw the Stores Ledger Control Account, Work-in-Progress Control Account, Overheads Control Account and Costing Profit and Loss Account.

Q.8. BPR Limited keeps books on integrated accounting system. The following balances appear in the books as on April 1, 2013.

NB
PN

	DR. (₹)	CR. (₹)
Stores Control A/c	40,950	–
Work-in-progress A/c	38,675	–
Finished Goods A/c	52,325	–
Bank A/c	–	22,750
Trade Payables A/c	–	18,200
Non-Current Assets A/c	1,47,875	–
Trade Receivables A/c	27,300	–
Share Capital A/c	–	1,82,000
Provision for Depreciation A/c	–	11,375
Provision for Doubtful Debts A/c	–	3,725
Factory Overheads Outstanding A/c	–	6,250
Pre-Paid Administration Overheads A/c	9,975	–
Profit & Loss A/c*	–	72,800
(*Reserve & Surplus)		
	3,17,100	3,17,100

The transactions for the year ended March 31, 2014, were as given below:

NB
PN

	DR. (₹)	CR. (₹)
Direct Wages	1,97,925	–
Indirect Wages	11,375	2,09,300
Purchase of materials (on credit)		2,27,500
Materials issued to production		2,50,250
Material issued for repairs		4,550
Goods finished during the year (at cost)		4,89,125
Credit Sales		6,82,500
Cost of Goods sold		5,00,500
Production overheads absorbed		1,09,200
Production overheads paid during the year		91,000
Production overheads outstanding at the end of year		7,775
Administration overheads paid during the year		27,300
Selling overheads incurred		31,850

Payment to Trade Payables		2,29,775
Payment received from Trade Receivables		6,59,750
Depreciation of Machinery		14,789
Administration overheads outstanding at the end of year		2,225
Provision for doubtful debts at the end of the year		4,590

Required:

Write up accounts in the integrated ledger of BPR Limited and prepare a Trial balance.



UNIT AND BATCH COSTING

Q.1. A factory incurred the following expenditure during the year 2013.

NB		(₹)	(₹)
PN	Direct material consumed		12,00,000
	Manufacturing Wages		7,00,000
	Manufacturing overhead:		
	Fixed	3,60,000	
	Variable	2,50,000	6,10,000
			25,10,000

In the year 2014, following changes are expected in production and cost of production.

Production will increase due to recruitment of 60% more workers in the factory. Overall efficiency will decline by 10% on account of recruitment of new workers. There will be an increase of 20% in Fixed overhead and 60% in Variable overhead. The cost of direct material will be decreased by 6%.

The company desire to earn a profit of 10% on selling price. Ascertain the cost of production and selling price.

Q.2. 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

NB	Week Number	Units Manufactured	Direct Material (₹)	Direct Wages (₹)	Factory Overheads (₹)
PN	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.3. 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 per labour hour. The selling price contracted for is ₹ 8 per piece. From the following data present the cost and profit per piece of each batch order and overall position of the order for 1,200 pieces.

NB
PN

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:

The other details are:	The other details are:	The other details are:
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.4. 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.

NB

PN

Required:

- What would be the optimum run size for bearing manufacture?
- Assuming that the company has a policy of manufacturing 6,000 bearings per run, how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?
- What is the minimum inventory holding cost?

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.

NB

PN

Required:

- What would be the optimum run size for piston manufacturing?
- Assuming that the company has a policy of manufacturing 40,000 pistons per run, how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?



PROCESS AND OPERATION COSTING

- Q.1.** 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 31.3.2014 are as follows:

NB		Process A	Process B
PN	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:

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.

Indirect expenses for the year was ₹ 4,48,080.

It is assumed that Process-A and Process-B are not responsibility center.

Required:

- Prepare Process-A and Process-B Account.
- Prepare Profit & Loss Account showing the net profit I net loss for the year.

- Q.2.** MP Ltd. produces a Product-X, which passes through three processes, I, II and III. In Process-III a by-product arises, which after further processing at a cost of Rs. 85 per unit, product Z is produced. The information related for the month of September 2020 is as follows:

NB		Process-I	Process-II	Process-III
PN	Normal loss	5%	10%	5%
	Materials introduced (7,000 units)	1,40,000	-	-
	Materials added	62,000	1,36,000	84,200
	Direct wages	42,000	54,000	48,000
	Direct expenses	14,000	16,000	14,000

Production overhead for the month is Rs. 2,88,000, which is absorbed as a percentage of direct wages.

The scraps are sold at Rs. 10 per unit

Product-Z can be sold at Rs. 135 per unit with a selling cost of Rs. 15 per unit No. of units produced:

Process-I- 6,600; Process-II- 5,200, Process-III- 4,800 and Product-Z- 600 There is no stock at the beginning and end of the month.

You are required to PREPARE accounts for:

- Process-I, II and III
- By-product-Z

- Q.3.** A Manufacturing unit manufactures a product 'XYZ' which passes through three distinct Processes - X, Y and Z. The following data is given:

NB		Process X	Process Y	Process Z
PN	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:

- 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.
- Prepare Process accounts for all the three processes X, Y and Z.

- Q.4.** ABC Ltd. produces an item which is completed in three processes – X, Y and Z. The following information is furnished for process X for the month of March, 2018:

NB	Opening work-in-progress (5,000 units)	
PN	Materials	₹ 35,000
	Labour	₹ 13,000
	Overheads	₹ 25,000
	Units introduced into process X (55,000 units):	
	Materials	₹ 20,20,000
	Labour	₹ 8,00,000
	Overheads	₹ 13,30,000
	Units scrapped : 5,000 units	
	Degree of completion:	
	Materials	100%
	Labour and Overheads	60%

Closing work-in-progress (5,000 units):	
Degree of completion :	
Material	100%
Labour and Overheads	60%

Units finished and transferred to Process Y : 50,000 units

Normal loss : 5% of total input (including opening works-in-progress)

Scrapped units fetch ₹ 20 per unit.

Presuming that average method of inventory is used, prepare

- Statement of Equivalent production
- Statement of Cost for each element
- Statement of distribution of cost
- Abnormal loss account

Q.5. ABC Limited manufactures a product 'ZX' by using the process namely RT. For the month of May, 2014, the following data are available:

NB PN	Process RT	
	Material introduced (units)	16,000
	Transfer to next process (units)	14,400
	Work-in-progress:	
	At the beginning of the month (units) (80% complete)	4,000
	At the end of the month (units) (66.66%)	3,000
	Cost records:	
	WIP at the beginning of the month	
	Material	₹ 30,000
	Conversion cost	₹ 29,200
	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:

- Statement of equivalent production (Average cost method)
- Statement of cost and distribution of cost
- Process accounts.

Q.6. The following details are available of Process X for August 2013:

NB	(1)	Opening work-in-progress	8,000 units
PN		Degree of completion and cost:	
		Material (100%)	₹ 63,900
		Labour (60%)	₹ 10,800
		Overheads (60%)	₹ 5,400
	(2)	Input 1,82,000 units at	₹ 7,56,900
	(3)	Labour paid	₹ 3,28,000
	(4)	Over heads incurred	₹ 1,64,000
	(5)	Units scrapped	14,000
		Degree of completion:	
		Material	100%
		Labour and overhead	80%
	(6)	Closing work-in-process	18000 units
		Degree of completion:	
		Material	100%
		Labour and overhead	70%
	(7)	1,58,000 units were completed and transferred to next process.	
	(8)	Normal loss is 8% of total input including opening work-in-process	
	(9)	Scrap value is ₹ 8 per unit to be adjusted in direct material cost	

You are required to compute, assuming that average method of inventory is used:
 Equivalent production, and
 Cost per unit.

Q.7. Following information is available regarding Process A for the month of October 2013:

NB	Production Record:	
PN	(i)	Opening work-in progress
		(Material: 100% complete, 25% complete for labour & overheads)
	(ii)	Units Introduced
	(iii)	Units Completed
	(iv)	Units in-process on 31.10.2013
		(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:

- Statement of Equivalent Production
- Statement showing Cost for each element
- Statement of apportionment of Cost
- Process- A Account

Q.8. The following data are available in respect of Process-I for July 2017:

- | | |
|----|---|
| NB | i) Opening stock of work in process: 600 units at a total cost of ₹ 84,000. |
| PN | ii) Degree of completion of opening work in process: |
- Material 100%
 - Labour 60%
 - Overheads 60%
- Input of materials at a total cost of ₹ 11,04,000 for 9,200 units.
 - Direct wages incurred ₹ 3,72,000 Overheads ₹ 1,72,600.
 - Units scrapped 200 units. The stage of completion of these units was:
 - Materials 100%
 - Labour 80%
 - Overheads 80%
 - Closing work in process; 700 units. The stage of completion of these units was:
 - Material 100%
 - Labour 70%
 - Overheads 70%
 - 8,900 units were completed and transferred to the next process.
 - Normal loss is 4% of the total input (opening stock plus units put in)
 - Scrap value is ₹ 120 per unit.

- vii) 8,900 units were completed and transferred to the next process.
- viii) Normal loss is 4% of the total input (opening stock plus units put in)
- ix) Scrap value is ₹ 120 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 (or gain), closing work in process and the units transferred to the next process using the FIFO method.

Q.9. 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 2014:

NB
PN

	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.10. SM Pvt. Ltd. manufactures their products in three consecutive processes. The details are as below:

	Process X	Process Y	Process Z
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 4% of input of each process. The realizable value of scrap of each process is as below:

Process X @ ₹ 3 per ton

Process Y @ ₹ 5 per ton

Process Z @ ₹ 7 per ton.

The following particulars relate to January 2023:

	Process X	Process Y	Process Z
Materials used (in Tons)	1,500	454	189
Rate per ton	₹ 21.5	₹ 14	₹ 12
Direct Wages	₹ 5,000	₹ 3,260	₹ 2,540
Direct Expenses	₹ 3,820	₹ 2,775	₹ 1,900

PREPARE Process Accounts- X, Y and Z & calculate cost per ton at each process.

- Q.11.** 'Dairy Wala Private limited' is engaged in the production of flavoured milk. Its process involve filtration and boiling of milk after that some sugar, flavour, colour is added and then letting it cool to fill the product into clean and sterile bottles. For Producing 10 litre of flavour milk, 100 litre of Raw milk is required, which extracts only 45 litres of standardized milk.

Following information regarding Process – I has been obtained from the manufacturing department of Dairy Wala Private limited for the month of December 2022:

Items	(₹)
Opening work-in process (13,500 litre)	
Milk	1,50,000
Labour	45,000
Overheads	1,35,000
Milk introduced for filtration and boiling (3,00,000 litre)	15,00,000
Direct Labour	6,00,000
Overheads	18,00,000
Abnormal Loss:	3,000 litres
Degree of completion:	
Milk	100%
Labour and overheads	80%
Closing work-in process: 27,000 litres	
Degree of completion:	
Milk	100%
Labour and overheads	80%
Milk transferred for Packing: 1,18,500 litres	

You are required to PREPARE using average method:

- Statement of equivalent production,
- Statement of cost,
- Statement of distribution cost, and
- Process-I Account.

Q.12. The following information is furnished by ABC Company for Process - II of its manufacturing activity for the month of April 2023:

NB

(i) Opening Work-in-Progress – Nil

(ii) Units transferred from Process I – 55,000 units at ₹ 3,27,800

PN

(iii) Expenditure debited to Process – II:

Consumables ₹ 1,57,200

Labour ₹ 1,04,000

Overhead ₹ 52,000

(iv) Units transferred to Process III – 51,000 units

(v) Closing WIP – 2,000 units (Degree of completion):

Consumables 80%

Labour 60%

Overhead 60%

(vi) Units scrapped - 2,000 units, scrapped units were sold at ₹ 5 per unit

(vii) Normal loss – 4% of units introduced

You are required to:

(i) Prepare a Statement of Equivalent Production.

(ii) Determine the cost per unit

(iii) Determine the value of Work-in-Process and units transferred to Process – III

10

**JOINT
PRODUCTS
& BY
PRODUCTS**

- Q.1.** A Company produces two joint products P and Q in 70 : 30 ratio from basic raw materials in department A. The input output ratio of department A is 100 : 85. Product P can be sold at the split of stage or can be processed further at department B and sold as product AR. The input output ratio is 100 : 90 of department B. The department B is created to process product A only and to make it product AR.

NB

PN

The selling prices per kg. are as under: Product P ₹ 85 Product Q ₹ 290 Product AR ₹ 115

The production will be taken up in the next month. Raw materials 8,00,000 Kgs. Purchase price ₹ 80 per Kg.

	Dept. A ₹ Lacs	Dept. B ₹ Lacs
Direct Materials	35.00	5.00
Direct Labour	30.00	9.00
Variable overheads	45.00	18.00
Fixed overheads	40.00	32.00
Total	150.00	64.00
Selling Expenses:		
Product P	24.60	
Product Q	21.60	
Product AR	16.80	

Required:

- Prepare a statement showing the apportionment of joint costs.
- State whether it is advisable to produce product AR or not.

- Q.2.** 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 kgs 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.

NB

PN

In department II 1/6 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 and further processing cost (with material cost) is ₹1,50,000.

The details of sales during the year:

	Product X	Product Y
Quantity sold (kgs)	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:

- Prepare a statement showing the apportionment of joint cost to X and Y in proportion of sales value at split off point.
- Prepare a statement showing the cost per kg of each product indicating joint cost, processing cost and total cost separately.
- Prepare a statement showing the product wise profit for the year.
- 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.3. Pokemon Chocolates manufactures and distributes chocolate products. It purchases Cocoa beans and processes them into two intermediate products:

NB
PN

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 milk- chocolate liquor base yields 340 pounds of milk chocolate. Production and sales data for October, 2004 are:

Cocoa beans processed	7,500 pounds
Costs of processing Cocoa beans to split off point (including purchase of beans)	₹ 7,12,500

	Production	Sales	Selling price
Chocolate powder	3,000 pounds	3,000 pounds	₹ 190 per pound
Milk chocolate	5,100	5,100	₹ 237.50 per pound

The October, 2004 separable costs of processing chocolate-powder liquor into chocolate powder are ₹ 3,02,812.50. The October 2004 separable costs of processing milk-chocolate liquor base into milk-chocolate are ₹ 6,23,437.50.

Pokemon fully processes both of its intermediate products into chocolate powder or milk- chocolate. There is an active market for these intermediate products. In October, 2004, 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)?
- 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.4. A Company manufactures one main product (M1) and two by-products B1 and B2. For the month of January 2013, following details are available:

Total Cost up to separation Point ₹ 2,12,400

	M1	B1	B2
Cost after separation	-	₹ 35,000	₹ 24,000
No. of units produced	4,000	1,800	3,000
Selling price per unit	₹ 100	₹ 40	₹ 30
Estimated net profit as percentage to sales Value	-	20%	30%
Estimated selling expenses as percentage to sales value	20%	15%	15%

There are no beginning or closing inventories. Prepare statement showing:

- i) Allocation of joint cost; and
- ii) Product-wise and overall profitability of the company for January 2013.

Q.5.

NB

PN

ABC Company produces a Product 'X' that passes through three processes: R, S and T. Three types of raw materials, viz., J, K, and L are used in the ratio of 40:40:20 in process R. The output of each process is transferred to next process. Process loss is 10% of total input in each process. At the stage of output in process T, a by-product 'Z' is emerging and the ratio of the main product 'X' to the by-product 'Z' is 80:20. The selling price of product 'X' is ₹60 per kg.

The company produced 14,580 kgs of product 'X'

Material price : Material J @ ₹ 15 per kg; Material K @ ₹ 9 per kg.

Material L@ ₹ 7 per kg Process costs are as follows:

Process	Variable cost per kg (₹)	Fixed cost of Input (₹)
R	5.00	42,000
S	4.50	5,000
T	3.40	4,800

The by-product 'Z' cannot be processed further and can be sold at ₹ 30 per kg at the splitoff stage. There is no realizable value of process losses at any stage.

Required:

Present a statement showing the apportionment of joint costs on the basis of the sales

value of product 'X' and by-product 'Z' at the split- off point and the profitability of product X' and by-product 'Z'.

Q.6.

NB

PN

XYZ Limited manufactures three joint products A, B and C from a joint process. Product B is sold at split off point whereas product A and C are sold after further processing. 10% of the quantity of product A is lost in further processing. Data regarding these products for the year ending 31st March,2023 are as follows:

	A	B	C
Number of units produced and sold	3,60,000	2,10,000	4,50,000
Selling price per unit at split off point	-	₹ 6	-
Selling price per unit after further processing	₹ 9.50	-	₹ 12
Further processing costs	₹8,60,000	-	₹10,40,000

The joint production cost upto the split off point at which A, B and C become separable products is ₹ 57,26,000.

Required:

- Prepare a statement showing apportionment of joint cost to the products using Net realizable value method.
- Assume XYZ Limited has received an offer from D Limited to purchase product 'A' at the split off point at ₹ 7 per unit and another company PQR Limited has offered to purchase product 'C' at split off point at 9 per unit.

Advise whether these offers should be accepted or not?

Q.7.

NB

PN

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 ₹ 5 for X; ₹ 4 for Y; and ₹ 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 ₹ 13.75 ₹ 8.75 and ₹ 7.50 and ₹ 1.00 respectively – all per unit quantity sold.

During a period, the joint input cost including the material cost was ₹ 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.



SERVICE COSTING

Q.1. The following information relates to a bus operator:

NB PN		Amount (₹)
	Cost of the bus	18,00,000
	Insurance Charges	3% p. a
	Manager-cum-accountant's salary	8,000p.m.
	Annual Tax	50,000
	Garage Rent	2,500p.m.
	Annual repair & maintenance	1,50,000
	Expected life of the bus	15 years
	Scrap value at the end of 15years	1,20,000
	Driver's salary	15,000p.m.
	Conductor's salary	12,000p.m.
	Stationery	500p.m.
	Engine oil, lubricants (for 1200km.)	2,500
	Diesel and oil (for 10km.)	52
	Commission to driver and conductor (shared equally)	10% of collections
	Route distance	20 km long

The bus will make 3 round trips for carrying on the average 40 passengers in each trip. Assume 15% profit on collections. The bus will work on the average 25 days in a month. Calculate fare for passenger-km

Q.2. Mr. X owns a bus which runs according to the following schedule:

NB PN	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	₹ 24,000p.m.
	Salary of the Conductor	₹ 21,000p.m.
	Salary of the part-time Accountant	₹ 5,000p.m.
	Insurance of the bus	₹ 4,800p.a.
	Diesel consumption 4 km. per litre at	₹ 56 per litre
	Road tax	₹ 15,915p.a.
	Lubricant oil	₹ 10 per 100km
	Permit fee	₹ 315p.m
	Repairs and maintenance	₹ 1,000p.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.3. A transport company has 20 vehicles, which capacities are as follows:

NB	No. of Vehicles	Capacity per vehicle
PN	5	9 tonne
	6	12 tonne
	7	15 tonne
	2	20 tonne

The company provides the goods transport service between stations 'A' to station 'B'. Distance between these stations is 200 kilometres. Each vehicle makes one round trip per day an average. Vehicles are loaded with an average of 90 percent of capacity at the time of departure from station 'A' to station 'B' and at the time of return back loaded with 70 percent of capacity. 10 percent of vehicles are laid up for repairs every day. The following information are related to the month of October, 2013

Salary of Transport Manager	₹ 30,000
Salary of 30 drivers	₹ 4,000 each driver
Wages of 25 Helpers	₹ 2,000 each helper
Wages of 20 Labourers	₹ 1,500 each labourer
Consumable stores	₹ 45,000
Insurance (Annual)	₹ 24,000
Road Licence (Annual)	₹ 60,000
Cost of Diesel per litre	₹ 35
Kilometres run per litre each vehicle	5 km.
Lubricant, Oil etc.	₹ 23,500
Cost of replacement of Tyres, Tubes, other parts etc.	₹ 1,25,000
Garage rent (Annual)	₹ 90,000
Transport Technical Service Charges	₹ 10,000
Electricity and Gas charges	₹ 5,000
Depreciation of vehicles	₹ 2,00,000

There is a workshop attached to transport department which repairs these vehicles and other vehicles also. 40 percent of transport manager's salary is debited to the workshop. The transport department is charged ₹ 28,000 for the service rendered by the workshop during October, 2013. During the month of October, 2013 operation was 25 days.

You are required:

- Calculate per ton-km operating cost.
- Find out the freight to be charged per ton-km, if the company earned a profit of 25 per cent on freight.

- Q.4.** 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.

NB

PN

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:

	Amount (₹)
Driver's salary	4,500 per month per driver
Cleaner's salary	3,500 per month
(one cleaner employed for all the five buses)	
(Salary payable for all 12 months)	
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 4km. 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 arrange upto 4km.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:

- Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.
- Work out the average cost per student per month in respect of-
 - students coming from a distance of upto 4 km. from the school and
 - students coming from a distance beyond 4 km. from the school.

Q.5. Following are the information given by owner of M/s. Moonlight Co. running a hotel at Manali. You are requested to advise him regarding the rent to be charged from his customer per day so that he is able to earn 20% profit on cost other than interest.

NB

PN

- (i) Staff salaries ₹ 4,00,000.
- (ii) The Room Attendant's salary is ₹ 10 per day. The salary is paid on daily basis and the services of room attendant are needed only when the room is occupied. There is one room attendant for one room.
- (iii) Lighting, Heating and Power:
 - (a) The normal lighting expenses for a room if it is occupied for the whole month is ₹ 250.
 - (b) Power is used only in winter and normal charge per month if occupied for a room is ₹ 100.
- (iv) Repairs to Building ₹ 50,000 per annum.
- (v) Linen ect. ₹ 24,000 per annum.
- (vi) Sundries ₹ 70,770 per annum.
- (vii) Interior decoration and furnishing ₹ 50,000 per annum.
- (viii) Cost of Building ₹ 20,00,000, rate of depreciation 5%.
- (ix) Other Equipments ₹ 5,00,000, rate of depreciation 10%.
- (x) Interest @ 5% may be charged on its investment of ₹ 25,00,000 in the building and equipment.
- (xi) There are 200 rooms in the hotel and 90% of the rooms are normally occupied in summer and 40% of the rooms are occupied in winter. You may assume that period of summer and winter is six months each. Normal days in a month may be assumed to be 30.

Q.6. A hotel having 20 single rooms is having 80% occupancy in normal season (8 months) and 50% in off- season (4 months) in a year (take 30 days month).

NB

PN

Annual fixed expenses	Amount in ₹
Salary of the staff (excluding room attendant)	15,00,000
Repair & maintenance	12,60,000
Depreciation on building & furniture	12,40,000
Other fixed expenses like dusting, sweeping etc.	13,25,000
	53,25,000
Variable expenses (per guest per day)	
Linen, laundry & security support	80.00
Electricity & other facilities	120.00
Misc. expenses like attendant etc.	300.00
	500.00

Management wishes to make a margin of 25% of total cost.

Required

- (a) CALCULATE the Tariff per room per day.
- (b) CALCULATE the break-even occupancy in normal season (in percentage also) assuming there is 50% occupancy in off-season.

Q.7. Sanziet Life care Ltd. Operates in life insurance business. Last year it has 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:

NB	Policy development cost	₹ 11,25,000
	Cost of marketing of the policy	₹ 45,20,000
PN	Sales support expenses	₹ 11,45,000
	Policy issuance cost	₹ 10,05,900
	Policy serving 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
 - (d) Support functions.
- (ii) CALCULATE cost per policy.
- (iii) CALCULATE cost per rupee of insured value.

- Q.8.** BK Infra Ltd. built and operates a 110 k.m. long highway on the basis of Built-Operate-Transfer (BOT) model for a period of 25 year. A traffic assessment has been carried out to estimate the traffic flow per day. The details are as below:

NB PN	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 (Rs. 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) CALCULATE 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.9. RST Toll Plaza Limited built an 80-kilometre-long highway between two cities and operates a toll plaza to collect tolls from passing vehicles using the highway. The company has estimated that 50,000 light weight, 12,000 medium weight and 10,000 heavy weight vehicles will be using the highway in one month in outward journey and the same number for return journey.

NB

PN

As per government notification, vehicles used for medical emergencies, Members of Parliament, and essential services are exempt from toll charges. It is estimated that 10% of light weight vehicles will pass the highway for such use.

It is the policy of the company that if vehicles return within 24 hours of their outward journey, the toll fare will be reduced by 25 percent automatically. It is estimated that 30% of chargeable light weight vehicles return within the specified time frame.

The toll charges for medium weight vehicles is to be fixed as 2.5 times of the light weight vehicles and that of heavy weight vehicles as 2 times of the medium weight vehicles.

The toll and maintenance cost for a month is ₹ 59,09,090, The company requires a profit of 10% over the total cost to cover interest and other costs.

Required:

- (i) Calculate the toll rate for each type of vehicle if concession facilities are not available on the return journey.
- (ii) Calculate the toll rate that will be charged from light weight vehicles if a return journeyconcession facility is available, assuming that the revenue earned from light weight vehicles calculated in option (i) remains the same.

Q.10. ABC Health care runs an Intensive Medical Care Unit. For this purpose, it has hired a building at a rent of ₹ 50,000 per month with the agreement to bear the repairs and maintenance charges also.

NB

PN

The unit consists of 100 beds and 5 more beds can comfortably be accommodated when the situation demands. Though the unit is open for patients all the 365 days in a year, scrutiny of accounts for the year 2020 reveals that only for 120 days in the year, the unit had the full capacity of 100 patients per day and for another 80 days, it had, on an average only 40 beds occupied per day. But, there were occasions when the beds were full, extra beds were hired at a charge of ₹ 50 per bed per day. This did not come to more than 5 beds above the normal capacity on any one day. The total hire charges for the extra beds incurred for the whole year amounted to ₹ 20,000.

The unit engaged expert doctors from outside to attend on the patients and the fees were paid on the basis of the number of patients attended and time spent by them which on an average worked out to ₹ 30,000 per month in the year 2020. The permanent staff expenses and other expenses of the unit were as follows:

	₹
2 Supervisors each at a per month salary of	5,000
4 Nurses each at a per month salary of	3,000
2 Ward boys each at a per month salary of	1,500
Other Expenses for the year were as under:	
Repairs and Maintenance	28,000
Food supplied to patients	4,40,000
Caretaker and Other services for patients	1,25,000
Laundry charges for bed linen	1,40,000
Medicines supplied	2,80,000
Cost of Oxygen etc. other than directly borne for treatment of patients	75,000
General Administration Charges allocated to the unit	71,000

Required:

- What is the profit per patient day made by the unit in the year 2020, if the unit recovered an overall amount of ₹ 200 per day on an average from each patient.
- The unit wants to work on a budget for the year 2021, but the number of patients requiring medical care is a very uncertain factor. Assuming that same revenue and expenses prevail in the year 2021 in the first instance, work out the number of patient days required by the unit to break even.

Q.11. ABC Bank is having a branch which is engaged in processing of 'Vehicle Loan' and 'Education Loan' applications in addition to other services to customers. 30% of the overhead costs for the branch are estimated to be applicable to the processing of 'Vehicle Loan' applications and 'Education Loan' applications each.

NB

PN

Branch is having four employees at a monthly salary of ₹ 50,000 each, exclusively for processing of Vehicle Loan applications and two employees at a monthly salary of ₹ 70,000 each, exclusively for processing of Education Loan applications.

In addition to above, following expense are incurred by the Branch:

- Branch Manager who supervises all the activities of branch, is paid at ₹ 90,000 per month.
- Legal charges, Printing & stationery and Advertising Expenses are incurred at ₹ 30,000, ₹ 12,000 and ₹ 18,000 respectively for a month.
- Other expenses are ₹ 10,000 per month.

You are required to:

- Compute the cost of processing a Vehicle Loan application on the assumption that 496 Vehicle Loan applications are processed each month.
- Find out the number of Education Loan Applications processed, if the total processing cost per Education Loan Application is same as in the Vehicle Loan Application as computed in (i) above.

Q. 12. A LMV Pvt. Ltd, operates cab/ car rental service in Delhi/NCR. It provides its service to the offices of Noida, Gurugram and Faridabad. At present it operates CNG fuelled cars but it is also considering to upgrade these into Electric vehicle (EV). The following details related with the owning of CNG & EV propelled cars are as tabulated below:

NB

PN

Particulars	CNG Car	EV Car
Car purchase price (₹)	9,20,000	15,20,000
Govt. subsidy on purchase of car (₹)	--	1,50,000
Life of the car	15 years	10 years
Residual value (₹)	95,000	1,70,000
Mileage	20 km/kg	240 km per charge
Electricity consumption per full charge	--	30 Kwh
CNG cost per Kg (₹)	60	--
Power cost per Kwh (₹)	--	7.60
Annual Maintenance cost (₹)	8,000	5,200
Annual insurance cost (₹)	7,600	14,600
Tyre replacement cost in every 5 - year (₹)	16,000	16,000
Battery replacement cost in every 8- year (₹)	12,000	5,40,000

Apart from the above, the following are the additional information:

Particulars

Average distance covered by a car in a month	1,500 km
Driver's salary (₹)	20,000 p.m
Garage rent per car (₹)	4,500 p.m
Share of Office & Administration cost per car (₹)	1,500 p.m

You have been approached by the management of A LMV Pvt. Ltd. for consultation on the two options of operating the cab service.

CALCULATE the operating cost of vehicle per month per car for both CNG & EV options.

12

**STANDARD
COSTING**

- Q.1.** XYZ Limited produces an article and uses a mixture of material X and Y. The standard quantity and price of materials for one unit of output is as under :

NB	Material	Quantity	Price (₹)
PN	X	2000 kg	1.00 per kg
	Y	800 kg	1.50 per kg

During a period, 1500 units were produced. The actual consumption of materials and prices are given below :

Material	Quantity	Price (₹)
X	31,00,000 kg	1.10 per kg
Y	12,50,000 kg	1.60 per kg

Calculate :

- (i) All variances

- Q.2.** 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.

- (i) Calculate all material variances.
(ii) If the loss is 10% of output, what will be the standard.

- Q.3.** 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, 2012, 60 batches were prepared to produce an output of 5,600 kg. of NXE. The standard and actual particulars for April, 2012, are as follows:

NB	Raw Materials	Standard Mix (%)	Price per kg. (₹)	Actual Mix (%)	Price per kg (₹)
PN	A	50	20	60	21
	B	30	10	20	8
	C	20	5	20	6

Calculate all variances.

- Q.4.** The standard labour employment and the actual labour engaged in a week for a job are as under

NB		Skilled workers	Semi-skilled	Unskilled
PN	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:

- Labour Cost Variance
- Labour Rate Variance
- Labour Efficiency Variance
- Labour Mix Variance
- Labour Yield Variance

- Q.5.** 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:

- Labour Cost Variance
- Labour Rate Variance
- Labour Efficiency Variance
- Labour Idle time Variance

- Q.6.** The standard labour employment and the actual labour engaged in a 40 hours week for a job are as under:

NB	Standard			Actual	
PN	Category of workers	No. of workers	Wage Rate per hour (₹)	No. of workers	Wage Rate per hour (₹)
	Skilled	65	45	50	50
	Semi-skilled	20	30	30	35
	Unskilled	15	15	20	10

Standard output: 2000 units;
 Actual output: 1800 units
 Abnormal Idle time 2 hours in the week
 Calculate:

- i) Labour Cost Variance
- ii) Labour Efficiency Variance
- iii) Labour Idle Time Variance

Q.7.

The standard output of a Product 'D' is 50 units per hour in manufacturing department of a Company employing 100 workers. In a 40 hours week, the department produced 1,920 units of product 'D' despite 5% of the time paid was lost due to an abnormal reason. The hourly wage rates actually paid were ₹ 12.40, ₹ 12.00 and ₹ 11.40 respectively to Group 'A' consisting 10 workers, Group 'B' consisting 30 workers and Group 'C' consisting 60 workers. The standard wage rate per labour is same for all the workers. Labour Efficiency Variance is given ₹ 480 (F).

NB

PN

You are required to COMPUTE:

- (i) Total Labour Cost Variance.
- (ii) Total Labour Rate Variance.
- (iii) Total Labour Gang Variance.
- (iv) Total Labour Yield Variance, and
- (v) Total Labour Idle Time Variance.

Q.8. XYZ Ltd. has furnished you the following information for the month of August, 2012:

NB

PN

	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.9.

A company has a normal capacity of 120 machines, working 8 hours per day of 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, 2012, 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.

Compute:

- i) Expense variance
- ii) Volume variance
- iii) Total fixed overheads variance.

Q.10. SARA Ltd. has furnished the following standard cost data per' unit of production:

NB
PN

Material 15 kg @ ₹ 15 per kg.

Labour 6 hours @ ₹ 5 per hour

Variable overhead 6 hours @ ₹ 12 per hour.

Fixed overhead ₹ 4,50,000 per month (Based on a normal volume of 30,000 labour hours.)

The actual cost data for the month of August 2023 are as follows:

Material used 65,000 kg at a cost of ₹ 9,85,000.

Labour paid ₹ 1,40,000 for 31,500 hours worked.

Variable overheads ₹ 3,60,200

Fixed overheads ₹ 4,70,000

Actual production 4,800 units.

CALCULATE:

- (i) Material Cost Variance.
- (ii) Labour Cost Variance.
- (iii) Fixed Overhead Cost Variance.
- (iv) Variable Overhead Cost Variance.

Q.11. Following data is extracted from the books of RAMZY Ltd. for the month of March:

(i) Estimation-

NB
PN

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	1320	?	--
Material-B	990	50	49,500
			--

Normal loss was expected to be 5% of total input materials.

(ii) Actuals-

2,500 kg of output produced.

Particulars	Quantity (kg.)	Price (₹)	Amount (₹)
Material-A	1500	?	--
Material-B	?	53	--
			98,000

(iii) Other Information-

Material Cost Variance = ₹ 5,500 (F)

Material Price Variance = ₹ 300 (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.

13

**MARGINAL
COSTING**

Q.1 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 break even sales level quantity and cash break even sales level quantity.
- Estimate the P/V ratio.
- Estimate the number of units that must be sold to earn an income (EBIT) of ₹ 2,50,000.
- Estimate the sales level achieve an after-tax income (PAT) of ₹ 2,50,000. Assume 40% corporate income tax rate.

Q.2 SHA Limited provides the following trading results:

NB PN	Year	Sale	Profit
	2012-13	₹ 25,00,000	10% of Sale
	2013-14	₹ 20,00,000	8% of Sale

- You are required to calculate:
Fixed Cost
- Break Even Point
- Amount of profit, if sale is ₹ 30,00,000
- Sale, when desired profit is ₹ 4,75,000
- Margin of Safety at a profit of ₹ 2,70,000
- If In the year 2013-14, there is a loss of 2% of sale, what will be the PV ratio.

Q.3 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 rupees as well as in units.

Q.4 When volume is 4,000 units; average cost is ₹ 3.75 per unit. When volume is 5,000 units, average cost is ₹ 3.50 per unit. The Break-Even point is 6,000 units.

Calculate: (i) Variable Cost per unit (ii) Fixed Cost and (iii) Profit Volume Ratio.

Q.5 The ratio at variable cost to sales is 60%. The break-even point occurs at 80% of the capacity sales.

- Find the capacity sales when fixed costs are 1,60,000
- Compute profit at 80% of the capacity sales.
- Find profit if sales is 5,70,000 and fixed cost remain same as above.
- Find sales, if desired profit 44,000 and fixed cost is 1,42,000
- Find total variable cost, Current profit, new marginal of safety if sales increase by 7 ½ %

Q.6 A company produces single product which sells for ₹ 20 per unit. Variable cost is ₹ 15 per unit and Fixed overhead for the year is ₹ 6,30,000. The number of units sold are 2,00,000

NB

Required:

PN

1. Calculate sales value needed to earn a profit of 10% on sales.
2. Calculate sales price per unit to bring BEP down to 1,20,000 units.
3. Calculate margin of safety sales if profit is ₹ 60,000.
4. Calculate selling price per unit to earn a profit of 10% on sales value, BEP and Margin of Safety.
5. If the selling price is reduced by the company by 10%, demand is expected to increase by 5000 units, then what will be its impact on Profit, BEP and Margin of Safety?
6. Profit earned for the year
7. Units to be sold to earn a target net profit of ₹ 11,00,000 for a year.
8. Number of units to be sold to earn a net income of 25% on cost.
9. Selling price per unit if break-even Point is to be brought down by 4,000 units.
10. Find Profit and BES

Q.7 The following information was obtained from the records of a manufacturing unit:

NB

PN

	₹	₹
Sales 80,000 units @ ₹ 25		20,00,000
Material consumed	8,00,000	
Variable Overheads	2,00,000	
Labour Charges	4,00,000	
Fixed Overheads	3,60,000	17,60,000
Net Profit		2,40,000

Calculate:

- (i) The number of units by selling which the company will neither lose or nor gain anything.
- (ii) The sales needed to earn a profit of 20% on sales.
- (iii) The extra units which should be sold to obtain the present profit if it is proposed to reduce the selling price by 20% and 25% .
- (iv) The selling price to be fixed to bring down its Break –even Point to 10,000 units under present conditions.
- (v) Calculate the break-even point in Rupee sales as also in number of bottles for the Indian subsidiary on the assumption that the sale price is ₹ 14 per bottle. Find Margin Of Safety.
- (vi) Profit with 10% increase in selling price and drop in sales volume by 10%.
- (vii) Profit with 10% increase in selling price and drop in sales volume by 10%.
- (viii) Volume to be achieved to earn target profit at the revised selling price as calculated in above, if a reduction of 10% in the variable costs and ₹ 170 lakhs in the fixed cost is envisaged.

Q.8 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.9 Marlboro Ltd. Has factories for producing cigarettes of identical quality. The figures of F/Y 2011 – 12 are as follows:

	Factory - A	Factory - B
Selling price per packet (₹)	75	75
Variable cost per packet (₹)	60	65
Fixed cost (₹)	3,10,000	2,15,000
Sales (units)	35,000	40,000
Production capacity (units)	40,000	45,000

Fixed cost includes depreciation on plant and machinery in factory A and factory B ₹ 40,000 and ₹ 38,000 respectively. You are required to calculate:

- Break – even Point in sales and units for each factory separately.
- Cash BEP in units for each factory separately.
- BEP in units for company as a whole. Current product mix of factory A and factory B is 1:2.
- For this required, assume that the sales mix is not given, what would be the combined break- even point ?

Q.10 A company, with 90% Capacity utilization, is manufacturing a product and makes a sale of ₹ 9, 45, 000 at ₹ 30 per unit. The cost data is as under :

Materials	₹ 9.00 per unit
Labour	₹ 7.00 per unit
Semi variable cost	
(including variable cost of ₹ 4.25 per unit)	₹ 2,10,000

Fixed cost is ₹ 94,500 upto 90 % level of output (capacity). Beyond this, an additional amount of ₹ 15,000 will be incurred.

You are required to calculate :

- Level of output at break – even point
- Number of units to be sold to earn a net income of 10% of sales
- Level of output needed to earn a profit of ₹ 1,41,375

- Q.11** 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.

NB

PN

Required

Find out the values F1 and F2 and units contributions of X and Y.

- Q.12** 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 :			

NB

PN

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:

- Identify the best possible product mix of Moon Ltd.
- Calculate the total contribution from the best possible product mix.

Q.13 A company makes 1,500 units of a product for which the profitability statement is given below:

NB		(₹)
PN	Sales	1,20,000
	Direct Materials	30,000
	Direct Labour	35,000
	Variable Overheads	15,000
	Fixed Cost	16,800
	Profit	22,200

After the first 500 units of production, the company has to pay a premium of ₹ 5 per unit towards overtime labour. The premium so paid has been included in the direct labour cost of ₹ 35,000 given above.

Q.14 R Ltd. produces and sells 60,000 units of product 'AN', at its Noida Plant. The selling price of the product is ₹ 15 per unit. The variable cost is 80% of selling price per unit. Fixed cost during this period is ₹ 4,20,000. The company is continuously suffering losses, and management plans to shut down the Noida Plant.

NB	
PN	The fixed cost is expected to be reduced by ₹ 2,50,000.
	Additional costs of plant shut down are expected at ₹ 25,000.

You are required to comment on:

- Whether the Noida plant be shut down?
- Find the shut-down point in units.

Q.15 The M-Tech Manufacturing Company is presently evaluating two possible processes for the manufacture of a toy. The following information is available:

NB	Particulars	Process A (₹)	Process B (₹)
PN	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:

- Identify the process which gives more profit.
- 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?

14

**BUDGETS
AND
BUDGETARY
CONTROL**

- Q.1.** RST, Limited is presently operating at 50% capacity and producing 30000 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

NB		(₹)
PN	Direct Material	25 per unit
	Direct Wages	25 per unit
	Variable Overheads	15 per unit
	Direct Expenses	20 per unit
	Factory Expenses (25% fixed)	10 per unit
	Selling and Distribution Exp. (80% variable)	5 per unit
	Office and Administrative Exp. (100% fixed)	75 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 find out the profits at respective levels.

- Q.2.** 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 20X3-20X4. The cost details are as follows:

NB		55% (₹)	65% (₹)	75% (₹)
PN	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 sale

The following increases in costs are expected during the year

Profit is estimated @ 20% on sale

The following increases in costs are expected during the year

Direct material	8%
Direct labour	5%
Variable factory overheads	5%
Variable selling overheads	8%
Fixed factory overheads	10%
Fixed selling overheads	15%

Prepare flexible budget for the period 20X3-20X4 at 85% level of capacity. Also ascertain profit and contribution.

Q.3. A single product company estimated its sales for the next year quarter-wise as under:

NB	Quarter	
PN	I	Sales (Units)
		30,000
	II	37,500
	III	41,250
	IV	45,000

The opening stock of finished goods is 10,000 units and the company expect 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 material % to total annual requirement in quantity	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:

- Production budget (in units).
- Raw material consumption budget (in quantity).
- Raw material purchase budget (in quantity and value).
- Priced stores ledger card of the raw material using First in First out method

- Q.4.** Aditya Ltd. manufactures two products K and H. The sales director has anticipated to sale 8,000 units of Product K and 4,200 units of Product H. The Standard cost data for the products for next year are as follows:

	Product - K Per unit	Product- H Per unit
NB		
PN		
Direct materials:		
-Material X @ ₹ 15 per kg.	12 kg.	15 kg.
-Material Y@ ₹ 16 per kg.	15 kg.	6 kg.
-Material Z @ ₹ 5 per ltr.	8 ltr.	14 ltr.
Direct wages:		
-Unskilled @ ₹ 40 per hour	12 hours	10 hours
-Skilled @ ₹ 75 per hour	8 hours	5 hours

Budgeted stocks for next year are as follows:

		Product- K (Units)	Product- H (Units)
1st April, 2016		800	1,600
31st March, 2017		1,000	2,100
	Material-X (kg)	Material-Y (kg)	Material-Z (ltr)
1st April, 2016	25,000	30,000	14,000
31st March, 2017	30,000	18,000	7,500

- Q.5.** 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 of the next month's budget:

	Product-A	Product-B
NB		
PN		
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 labour 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	4000 units
Product-B	200 units
Material-X	1,000 kgs.
Material-Y	500 kgs.

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-B	6 days consumption

Required:

Calculate the Material Purchas Budget and the Wages Budget for the direct workers, showing the quantities and values, for the next month.

- Q.6.** Blueberry Ltd. Is producing two products namely I – Phone and Tablet PC. Each unit of I –phone and Tablet PC takes 12 hours and 14 hours respectively for production. During the F/Y 2011 – 12 Blueberry produced 15,000 units of I – Phone and 10,000 units of Tablet PC. Budgeted machine hours were 3,10,000 hours. Actual hours were 3,00,000. You are required to compute various control ratios.

NB

PN

- Q.7.** PQR Limited manufactures three products - Product X, Product Y and Product Z. The output for the current year is 2,50,000 units of Product X, 2,80,000 units of Product Y and 3,20,000 units of Product Z respectively.

NB

PN

Selling price of Product X is 1.25 times of Product Z whereas Product Y can be sold at double the price at which product Z can be sold. Product Z can be sold at a profit of 20% on its marginal cost.

Other information are as follows:

	Product X	Product Y	Product Z
Direct Material Cost (Per unit)	₹ 20	₹ 20	₹ 20
Direct Wages Cost (per unit)	₹ 16	₹ 24	₹ 16

Raw material used for manufacturing all the three products is the same. Direct Wages are paid @ ₹ 4 per labour hour, Total overhead cost of the company is ₹ 52,80,000 for the year, out of which ₹ 1 per labour hour is variable and the rest is fixed.

In the next year it is expected that sales of product X and product Z will increase by 12% and 15% respectively and sale of product Y will decline by 5%. The total overhead cost of the company for the next year is estimated at ₹ 55,08,000. The variable cost of ₹ 1 per labour hour remains unchanged.

It is anticipated that all other costs will remain same for the next year and there is opening and closing stock. Selling Price per unit of each product will remain unchanged in the next year.

Required:

Prepare a budget showing the current position and the position for the next year clearly indicating the total product-wise contribution and profit for the company as a whole.

Q.8. 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.

NB

PN

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.

Q.9. Raja Ltd manufactures and sells a single product and has estimated sales revenue of ₹ 302.4 lakh during the year based on 20% profit on selling price. Each unit of product requires 6 kg of material A and 3 kg of material B and processing time of 4 hours in machine shop and 2 hours in assembly shop. Factory overheads are absorbed at a blanket rate of 20% of direct labour. Variable selling & distribution overheads are ₹ 60 per unit sold and fixed selling & distribution overheads are estimated to be ₹ 69,12,000.

The other relevant details are as under:

Purchase Price: Material A ₹ 160 per kg
 Materials B ₹ 100 per kg

Labour Rate: Machine Shop ₹ 140 per hour
 Assembly Shop ₹ 70 per hour

	Finished Stock	Material A	Material B
Opening Stock	2,500 units	7,500 kg	4,000 kg
Closing Stock	3,000 units	8,000 kg	5,500 kg

Required

- (i) CALCULATE number of units of product proposed to be sold and selling price per unit,
- (ii) PREPARE Production Budget in units and
- (iii) PREPARE Material Purchase Budget in units.

