

# GM TEST SERIES



# Top 50 Questions

(CA Final & Inter New Scheme)

**CA INTER- COST ACCOUNTING**

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## CA INTER NEW COURSE

### COST ACCOUNTING

### TOP 50 QUESTIONS

#### Q-1

- a) DISTINGUISH clearly between Bin cards and Stores Ledger.
- b) Some of the items of PR Company, a manufacturer of corporate office furniture, are provided below. As the company is in the process of developing a formal cost accounting system, you are required to CLASSIFY the items into three categories namely: (i) Cost tracing (ii) Cost allocation (iii) Non-manufacturing item.
- c) Carpenter wages, Depreciation – office building, Glue for assembly, Lathe department supervisor, Metal brackets for drawers, Factory washroom supplies, Lumber, Samples for trade shows, Lathe depreciation, Lathe operator wages.
- d) In Batch Costing, STATE how is Economic Batch Quantity determined?
- e) EXPLAIN what are the essential pre-requisites of Integrated accounting system?
- f) WHAT is inter-process profit? STATE its advantages and disadvantages.

**Q-2** The complete Gardener is deciding on the economic order quantity for two brands of lawn fertilizer - Super Grow and Nature's Own. The following information is collected:

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

#### Required:

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

- (ii) For the EOQ, WHAT is the sum of the total annual relevant ordering costs and total annual relevant carrying costs for Super Grow and Nature's own?
- (iii) For the EOQ, COMPUTE the number of deliveries per year for Super Grow and Nature's own.

**Q-3** The following information is extracted from the Stores Ledger:

**Material X**

Opening Stock Nil

**Purchases:**

Jan. 1 100 @ Rs 1 per unit

Jan. 20 100 @ Rs 2 per unit

**Issues:**

Jan. 22 60 for Job W 16

Jan. 23 60 for Job W 17

Complete the receipts and issues valuation by adopting the First-In-First-Out, Last-In-First-Out and the Weighted Average Method. TABULATE the values allocated to Job W 16, Job W17 and the closing stock under the methods aforesaid and discuss from different points of view which method you would prefer.

**Q-4** M/s Tanishka Materials Private Limited produces a product which names "ESS". The consumption of raw material for the production of "ESS" is 210 Kgs to 350 Kgs per week. Other information is as follows:

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

Consider 365 days a year.

**You are required to CALCULATE:**

- (a) Economic Order Quantity
- (b) Re-Order Level (ROL)
- (c) Maximum Stock Level
- (d) Minimum Stock Level
- (e) Average Stock Level
- (f) Number of Orders to be placed per year
- (g) Total Inventory Cost
- (h) If the supplier is willing to offer 1% discount on purchase of total annual quantity in two orders, whether offer is acceptable?
- (i) If the answer is no, what should be the counteroffer w.r.t. percentage of discount?

**Q-5** Wage negotiations are going on with the recognized employees' union, and the management wants you as an executive of the company to formulate an incentive scheme with a view to increase productivity.

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

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

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

**Q-6** A total of 108 labour hours have been put in a particular job card for repair work engaging a semi-skilled and skilled labour (Mr. Deep and Mr. Sam respectively).

The hours devoted by both the workers individually on daily basis for this particular job are given below:

Monday	Tuesday	Wednesday	Thursday	Friday
10.5	8.0	10.5	9.5	10.5

The skilled labour also worked on Saturday for 10 hours.

Sunday is a weekly holiday and each worker has to work for 8 hours on all week days and 5 hours on Saturdays; the workers are however paid full wages for Saturday (8 hours for 5 hours worked).

Semi-skilled and skilled worker is paid ordinary wage @ Rs 400 and Rs 600 respectively per day of 8 hours labour. Further, the workers are also paid dearness allowance @ 20%.

Extra hours worked over and above 8 hours are also paid at ordinary wage rate however, overtime premium of 100% of ordinary wage rate is paid if a worker works for more than 9 hours in a day AND 48 hours in a week.

You are required to COMPUTE the wages payable to Mr. Deep (Semi-skilled) and Mr. Sam (Skilled).

**Q-7** HR Ltd. is progressing in its legal industry. One of its trainee executives, Mr. H, in the Personnel department has calculated labour turnover rate 24.92% for the last year using Flux method.

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

Employees	At the beginning	Joined	Left	At the end
Records clerk	810	1,620	90	2,340
Human Resource Manager	?	30	90	60
Legal Secretary	?	90	--	?
Staff Attorney	?	30	30	?

Associate Attorney	?	30	--	45
Senior Staff Attorney	6	--	--	18
Senior Records clerk	12	--	--	51
Litigation attorney	?	--	--	?
Employees transferred from the Subsidiary Company				
Senior Staff Attorney	--	12	--	--
Senior Records clerk	--	39	--	--
Employees transferred to the Subsidiary Company				
Litigation attorney	--	--	90	--
Associate Attorney	--	--	15	--

At the beginning of the year there were total 1,158 employees on the payroll of the company. The opening strength of the Legal Secretary, Staff Attorney and Associate Attorney were in the ratio of 3: 3: 2.

The company has decided to abandon the post of Litigation attorney and consequently all the Litigation attorneys were transferred to the subsidiary company.

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

You are required to:

- (a) CALCULATE Labour Turnover rate using Replacement method and Separation method.
- (b) VERIFY the Labour turnover rate calculated under Flux method by Mr. H

**Q-8** Deccan Manufacturing Ltd., have three departments which are regarded as production departments. Service departments' costs are distributed to these production departments using the "Step Ladder Method" of distribution. Estimates of factory overhead costs to be incurred by each department in the forthcoming year are as follows. Data required for distribution is also shown against each department:



Department	Factory overheads (Rs)	Direct Labour hours	No. of employees	Area in Sq.m.
<b>Production:</b>				
X	1,93,000	4,000	100	3,000
Y	64,000	3,000	125	1,500
Z	83,000	4,000	85	1,500
<b>Service:</b>				
P	45,000	1,000	10	500
Q	75,000	5,000	50	1,500
R	1,05,000	6,000	40	1,000
S	30,000	3,000	50	1,000

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

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

**You are required to:**

- PREPARE a schedule showing the distribution of overhead costs of the four service departments to the three production departments; and
- CALCULATE the overhead recovery rate per direct labour hour for each of the three production departments.

**Q-9** Gemini Enterprises undertakes three different jobs A, B and C. All of them require the use of a special machine and also the use of a computer. The computer is hired and the hire charges work out to Rs 4,20,000 per annum. The expenses regarding the machine are estimated as follows:

	<b>(Rs)</b>
Rent for a quarter	17,500
Depreciation per annum	2,00,000
Indirect charges per annum	1,50,000

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

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

You are required to COMPUTE the machine hour rate:

- (a) For the firm as a whole for the month when the computer was used and when the computer was not used.
- (b) For the individual jobs A, B and C.

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

Department	Direct Materials (Rs)	Direct Wages (Rs)	Factory Overheads (Rs)	Direct Labour hours	Machine hours
<b>Budget:</b>					
<b>Machining</b>	6,50,000	80,000	3,60,000	20,000	80,000
<b>Assembly</b>	1,70,000	3,50,000	1,40,000	1,00,000	10,000
<b>Packing</b>	1,00,000	70,000	1,25,000	50,000	--
<b>Actual:</b>					



<b>Machining</b>	7,80,000	96,000	3,90,000	24,000	96,000
<b>Assembly</b>	1,36,000	2,70,000	84,000	90,000	11,000
<b>Packing</b>	1,20,000	90,000	1,35,000	60,000	--

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

**Job No. CW 7083:**

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

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

**Required:**

- (i) COMPUTE the overhead absorption rate as per the current policy of the company and determine the selling price of the Job No. CW 7083.
- (ii) Suggest any suitable alternative method(s) of absorption of the factory overheads and CALCULATE the overhead recovery rates based on the method(s) so recommended by you.
- (iii) DETERMINE the selling price of Job CW 7083 based on the overhead application rates calculated in (ii) above.
- (iv) CALCULATE the department-wise and total under or over recovery of overheads based on the company's current policy and the method(s) recommended by you.

**Q-11** 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:

	<b>Total</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Y</b>
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 (Rs 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:

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

**You are required to:**

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

**Q-12** Alpha Limited has decided to analyze the profitability of its five new customers. It buys bottled water at Rs 90 per case and sells to retail customers at a list price of Rs 108 per case. The data pertaining to five customers are:

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

**Its five activities and their cost drivers are:**

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

**Required:**

- (i) COMPUTE the customer-level operating income of each of five retail customers now being examined (A, B, C, D and E). Comment on the results.
- (ii) STATE what insights are gained by reporting both the list selling price and the actual selling price for each customer?

**Q-13** MG Ltd. manufactures three types of products namely A, B and C. The data relating to a period are as under:

Particulars	A	B	C
Machine hours per unit	10	18	14
Direct Labour hours per unit	4	12	8
Direct Material per unit (Rs)	1,350	1,200	1,800
Production (units)	3,000	5,000	20,000

Currently the company uses traditional costing method and absorbs all production overheads on the basis of machine hours. The machine hour rate of overheads is Rs 90 per hour. Direct labour hour rate is Rs 300 per hour.

The company proposes to use activity based costing system and the activity analysis is as under:

Particulars	A	B	C
Batch size (units)	150	500	1,000
Number of purchase orders per batch	3	10	8
Number of inspections per batch	5	4	3

The Total production overheads are analyzed as under:

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

**Required:**

- (i) CALCULATE the cost per unit of each product using traditional method of absorbing all production overheads on the basis of machine hours.
- (ii) CALCULATE the cost per unit of each product using activity based costing principles.

**Q-14**

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

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

**Traditional Income Statement**

(in Rs)

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

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

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

**He provides support expenses category-wise as follows:**

Support Expenses	Rs
Indirect Labour	40,00,000
Labour Incentives	32,00,000

Computer Systems	20,00,000
Machinery depreciation	16,00,000
Machine maintenance	8,00,000
Energy for machinery	4,00,000
Total	1,20,00,000

He provides following additional information for accomplishment of his interest:

Incentives to be allocated @ 40% of labour expenses (both direct and indirect)

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

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

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

Activity Cost Drivers:

Particulars	Brown	Black	Yellow	Green	Total
Sales Volume (units)	1,00,000	80,000	18,000	2,000	2,00,000
Selling Price (Rs)	150	150	155	165	
Material cost (Rs)	50	50	52	55	
Machine hours per unit (Hrs)	0.10	0.10	0.10	0.10	20,000



Production runs	100	100	76	24	300
Setup time per run (Hrs)	4	1	6	4	

**You are required to –**

- (i) CALCULATE operating income and operating income as per percentage of sales using activity-based costing system.
- (ii) STATE the reasons for different operating income under traditional income system and activity-based costing system.

**Q-15** From the following particulars, you are required to PREPARE monthly cost sheet of Aditya industries:

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

Machine hours worked- 21,600 hours

Machine hour rate - Rs 8.00 per hour

Units sold- 1,60,000

Units produced- 1,94,000

Desired profit- 15% on sales

**Q-16** The following data relates to manufacturing of a standard product during the month of February, 2022:

Stock of Raw material as on 01-02-2022	1,20,000
Work in Progress as on 01-02-2022	75,000
Purchase of Raw Material	3,00,000
Carriage Inwards	30,000
Direct Wages	1,80,000
Cost of special drawing	45,000
Hire charges paid for Plant (Direct)	36,000
Return of Raw Material	60,000
Carriage on return	9,000
Expenses for participation in Industrial exhibition	12,000
Maintenance of office building	3,000
Salary to office staff	37,500
Legal charges	3,750
Depreciation on Delivery van	9,000
Warehousing charges	2,250
Stock of Raw material as on 28-02-2022	45,000
Stock of Work in Progress as on 28-02-2022	36,000

- 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 Rs 7,500 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 8,000 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-17** CT Limited is engaged in production medical equipment. It has furnished following details related to its products produced during a month:

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

Cost of web-site (for online sale) maintenance		60,75,000
Secondary packaging cost (per unit)		225

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

You are required to PREPARE a cost sheet showing:

- (i) Prime Cost
- (ii) Gross works cost
- (iii) Factory costs
- (iv) Cost of production
- (v) Profit
- (vi) Sales

**Q-18** The following incomplete accounts are furnished to you for the month ended 31st October, 2021.

	Stores Ledger Control Account	
1.10.2021	To Balance	Rs 54,000
	Work in Process Control Account	
1.10. 2021	To Balance	Rs 6,000
	Finished Goods Control Account	
1.10. 2021	To Balance	Rs 75,000
	Factory Overheads Control Account	
Total debits for October, 2020 Rs 45,000		
	Factory Overheads Applied Account	
	Cost of Goods Sold Account	
	Creditors for Purchases Account	
1.10. 2021	By Balance	Rs 30,000

Additional information:

- (i) The factory overheads are applied by using a budgeted rate based on direct labour hours. The budget for overheads for 2021 is Rs 6,75,000 and the budget of direct labour hours is 4,50,000.
- (ii) The balance in the account of creditors for purchases on 31.10.2021 is Rs 15,000 and the payments made to creditors in October, 2021 amount to Rs 1,05,000.
- (iii) The finished goods inventory as on 31st October, 2021 is Rs 66,000.
- (iv) The cost of goods sold during the month was Rs 1,95,000.
- (v) On 31st October, 2021 there was only one unfinished job in the factory. The cost records show that Rs 3,000 (1,200 direct labour hours) of direct labour cost and Rs 6,000 of direct material cost had been charged.
- (vi) A total of 28,200 direct labour hours were worked in October, 2021. All factory workers earn same rate of pay.
- (vii) All actual factory overheads incurred in October, 2021 have been posted.

You are required to FIND:

- a) Materials purchased during October, 2021.
- b) Cost of goods completed in October, 2021.
- c) Overheads applied to production in October, 2021.
- d) Balance of Work-in-process Control A/c on 31st October, 2021.
- e) Direct materials consumed during October, 2021.
- f) Balance of Stores Ledger Control Account on 31st October, 2021.
- g) Over absorbed or under absorbed overheads for October, 2021.

### Q-19

Dutta Enterprises operates an Integral system of accounting. You are required to PASS the Journal Entries for the following transactions that took place for the year ended 31st March.

(Narrations are not required.)

	<b>Rs</b>
Raw materials purchased (50% on Credit)	6,00,000
Materials issued to production	4,00,000

Wages paid (50% Direct)	2,00,000
Wages charged to production	1,00,000
Factory overheads incurred	80,000
Factory overheads charged to production	1,00,000
Selling and distribution overheads incurred	40,000
Finished goods at cost	5,00,000
Sales (50% Credit)	7,50,000
Closing stock	Nil
Receipts from debtors	2,00,000
Payments to creditors	2,00,000

**Q-20** The financial books of a company reveal the following data for the financial year ending on 31<sup>st</sup> March, 2022:

	Rs
Opening Stock:	
Finished goods 875 units	1,48,750
Work-in-process	64,000
01.04.2021 to 31.3.2022	
Raw materials consumed	15,60,000
Direct Labour	9,00,000
Factory overheads	6,00,000
Goodwill written off	2,00,000
Administration overheads	5,90,000
Dividend paid	1,70,000
Bad Debts	24,000
Selling and Distribution Overheads	1,22,000
Interest received	90,000



Rent received	36,000
Sales 14,500 units	41,60,000
Closing Stock: Finished goods 375 units	82,500
Work-in-process	77,334

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 ₹ 8 per unit sold.
- Opening Stock of finished goods is valued at ₹ 208 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

**Required:**

(i) PREPARE statements for the year ended 31st March, 2022 showing –

- The profit as per financial records
- The profit as per costing records.

(ii) PRESENT a statement reconciling the profit as per costing records with the profit as per Financial Records.

**Q-21** 'Healthy Sweets' is engaged in the manufacturing of jaggery. Its process involve sugarcane crushing for juice extraction, then filtration and boiling of juice along with some chemicals and then letting it cool to cut solidified jaggery blocks.

The main process of juice extraction (Process – I) is done in conventional crusher, which is then filtered and boiled (Process – II) in iron pots. The solidified jaggery blocks are then cut, packed and dispatched. For manufacturing 10 kg of jaggery, 100 kg of sugarcane is required, which extracts only 45 litre of juice.

Following information regarding Process – I has been obtained from the manufacturing department of Healthy Sweets for the month of January:

**(Rs)**

Opening work-in process (4,500 litre)

Sugarcane	50,000
Labour	15,000
Overheads	45,000
Sugarcane introduced for juice extraction (1,00,000 kg)	5,00,000
Direct Labour	2,00,000
Overheads	6,00,000

Abnormal Loss: 1,000 kg

Degree of completion:

Sugarcane	100%
Labour and overheads	80%

Closing work-in process: 9,000 litre

Degree of completion:

Sugarcane	100%
Labour and overheads	80%

Extracted juice transferred for filtering and boiling: 39,500 litre  
(Consider mass of 1 litre of juice equivalent to 1 kg)

You are required to PREPARE using average method:

- (i) Statement of equivalent production,
- (ii) Statement of cost,
- (iii) Statement of distribution cost, and
- (iv) Process-I Account.

**Q-22** Chill Ltd. uses process costing to manufacture water density sensor for hydro sector. The following information pertains to operations for the month of February:

Particulars	Units
Beginning WIP, February 1	22,400
Started in production during February	1,40,000
Completed production during February	1,28,000
Ending work in progress, February 28	33,600

The beginning work in progress was 50% complete for material and 30% complete for conversion costs. The ending inventory was 80% complete for material and 30% complete for conversion costs.

Costs pertaining to the month of February are as follows:

Beginning inventory costs are material Rs 1,38,350, direct labour Rs 1,50,600 and factory overhead Rs 63,600

Cost incurred during February are material Rs 23,95,000, direct labour Rs 9,14,400, factory overheads Rs 19,55,800.

CALCULATE:

- (i) Using the FIFO method, the equivalent units of production for material.
- (ii) Cost per equivalent unit for conversion cost.

**Q-23** SM Pvt. Ltd. manufactures their products in three consecutive processes. The details are as below:

	Process A	Process B	Process C
Transferred to next Process	60%	50%	
Transferred to warehouse for sale	40%	50%	100%

In each process, there is a weight loss of 2% and scrap of 8% of input of each process. The realizable value of scrap of each process is as below:

Process A @ Rs 2 per ton

Process B @ Rs 4 per ton

Process C @ Rs 6 per ton.

The following particulars relate to April, 2022:

	Process A	Process B	Process C
Materials used (in Tons)	1,000	260	140
Rate per ton	Rs 20	Rs 15	Rs 10
Direct Wages	Rs 4,000	Rs 3,000	Rs 2,000
Direct Expenses	Rs 3,160	Rs 2,356	Rs 1,340

PREPARE Process Accounts – A, B and C & Calculate cost per ton at each process.

**Q-24** 'Buttery Butter' is engaged in the production of Buttermilk, Butter and Ghee. It purchases processed cream and let it through the process of churning until it separates into buttermilk and butter. For the month of January, 'Buttery Butter' purchased 50 Kilolitre processed cream @ Rs 100 per 1000 ml. Conversion cost of ₹ 1,00,000 were incurred up-to the split off point, where two saleable products were produced i.e. buttermilk and butter. Butter can be further processed into Ghee.

The January production and sales information is as follows:

Products	Production (in Kilolitre/ tonne)	Sales quantity (in Kilolitre/tonne)	Selling Price per Litre/Kg (Rs)
Buttermilk	28	28	30
Butter	20	--	--
Ghee	16	16	480

All 20 tonne of butter were further processed at an incremental cost of Rs 1,20,000 to yield 16 Kilolitre of Ghee. There was no opening or closing inventories of buttermilk, butter or ghee in January, 2020.

Required:

- (i) SHOW how joint cost would be apportioned between Buttermilk and Butter under Estimated Net Realisable Value method.
- (ii) 'Healthy Bones' offers to purchase 20 tonne of butter in February at Rs 360 per kg. In case
- (iii) 'Buttery Butter' accepts this offer, no Ghee would be produced in February. SUGGEST whether 'Buttery Butter' shall accept the offer affecting its operating income or further process butter to make Ghee itself?

**Q-25** Mili Ltd., a manufacturing company, produces two main products and a by-product out of a joint process. The ratio of output quantities to input quantities of direct material used in the joint process remains consistent on yearly basis.

Company has employed the physical volume method to allocate joint production costs to the main products. The net realizable value of the by-product is used to reduce the joint production costs before the joint costs are allocated to the main products.

During a month, company incurred joint production costs of Rs 15,00,000. The main products are not marketable at the split off point and thus have to be processed further. Details of company's operation are given in the table below.

Particulars	Product-Q	Product-R	By Product
Monthly output in Kg.	90,000	1,80,000	75,000
Selling price per kg.	Rs 50	Rs 30	Rs 5
Process costs	Rs 3,00,000	Rs 4,50,000	

FIND OUT the amount of joint product cost that Mili Ltd. would allocated to product-R by using the physical volume method to allocate joint production costs?

**Q-26** JP Ltd. uses joint production process that produces three products at the split-off point. Joint production costs during the month of July, 2022 were Rs 33,60,000. Product information for the month of July is as follows:

Particulars	Process A	Process B	Process C
Units produced	3,000	6,000	9,000
Sales Prices:			
At the split-off	Rs 200		
After further processing	Rs 300	Rs 350	Rs 100
Costs to process after split-off	Rs 6,00,000	Rs 6,00,000	Rs 6,00,000

Other information is as follows:

Product C is a by-product and the company accounts for the by-product at net realizable value as a reduction of joint cost. Further, Product B & C must be processed further before they can be sold. FIND OUT the joint cost allocated to Product A in the month of July if joint cost allocation is based on Net Realizable Value.

**Q-27** Mr. X owns a bus which runs according to the following schedule:

(i) Delhi to Chandigarh and back, the same day.

Distance covered:	250 km. one way.
Numbers 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	Rs 12,00,000
Salary of the Driver	Rs 24,000 p.m.
Salary of the Conductor	Rs 21,000 p.m.
Salary of the part-time Accountant	Rs 5,000 p.m.
Insurance of the bus	Rs 4,800 p.a.
Diesel consumption 4 km. per litre at	Rs 56 per litre
Road tax	Rs 15,915 p.a.
Lubricant oil	Rs 10 per 100 km
Permit fee	Rs 315 p.m.
Repairs and maintenance	Rs 1,000 p.m.
Depreciation of the bus	@ 20% p.a.
Seating capacity of the bus	50 persons

Passenger tax is 20% of the total takings. CALCULATE the bus fare to be charged from each passenger to earn a profit of 30% on total takings. The fares are to be indicated per passenger for the journeys:



(i) Delhi to Chandigarh (ii) Delhi to Agra and (iii) Delhi to Jaipur.

**Q-28** A company is considering three alternative proposals for conveyance facilities for its sales personnel who has to do considerable traveling, approximately 20,000 kilometres every year.

The proposals are as follows:

- (i) Purchase and maintain its own fleet of cars. The average cost of a car is Rs 6,00,000.
- (ii) Allow the Executive use his own car and reimburse expenses at the rate of Rs 10 per kilometer and also bear insurance costs.
- (iii) Hire cars from an agency at Rs 1,80,000 per year per car. The company will have to bear costs of petrol, taxes and tyres.

The following further details are available:

Petrol Rs 6 per km.	Repairs and maintenance Rs 0.20 per km.
Tyre Rs 0.12 per km.	Insurance Rs 1,200 per car per annum
Taxes Rs 800 per car per annum	Life of the car: 5 years with annual mileage of 20,000 km.

Resale value: Rs 80,000 at the end of the fifth year.

WORK OUT the relative costs of three proposals and rank them.

**Q-29** YSPP Transport Company is running local city buses. It has a fleet of 20 Buses. Each bus can carry average 40 passengers per day and cover distance of 112.50 kms per day. Due to Covid - 19 pandemic, the company is running 90% buses on average.

Below are the operations expenses worked out for the month of November, 2021:

Original cost per bus	Rs 48,00,000
Insurance for 20 buses	Rs 63,36,000 per annum
Diesel & Oil	Rs 10 per km.
Salary of drivers per bus	Rs 25,000
Salary of cleaners per bus	Rs 15,000
Tyres and tubes	Rs 12,58,040
Lubricants	Rs 10,70,000

Repairs	Rs 24,70,000
Road tax per bus	Rs 1,50,000
Administrative overhead	Rs 50,88,000 per annum

Depreciation on buses is computed @ 20% using Straight Line Method.

Passenger tax is 15% on total taking.

Based on above mentioned information, you are required to COMPUTE the fare to be charged from each passenger per kilometer assuming 25% margin on total taking (Total receipts from passengers.)

**Q-30** A customer has been ordering 90,000 special design metal columns at the rate of 18,000 columns per order during the past years. The production cost per unit comprises Rs 2,120 for material, Rs 60 for labour and Rs 20 for fixed overheads. It costs Rs 1,500 to set up for one run of 18,000 columns and inventory carrying cost is 5%.

(i) FIND the most economic production run.

(ii) CALCULATE the extra cost that company incur due to processing of 18,000 columns in a batch.

**Q-31** KJ Motors Ltd. is a manufacturer of auto components. Following are the details of expenses for the year 2020-21:

(i)	Opening Stock of Material	15,00,000
(ii)	Closing Stock of Material	20,00,000
(iii)	Purchase of Material	1,80,50,000
(iv)	Direct Labour	90,50,000
(v)	Factory Overhead	30,80,000
(vi)	Administrative Overhead	20,50,400

During the FY 2021-22, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be Rs 80,00,000 and Rs 40,50,000 respectively.

The company charges factory overhead as a percentage of direct labour and administrative overheads as a percentage of factory cost based on previous year's cost.

Cost of delivery of the components at customer's premises is estimated at Rs 9, 50,000.

You are required to:

- (i) CALCULATE the overhead recovery rates based on actual costs for 2020-21.
- (ii) PREPARE a job cost sheet for the order received and the price to be quoted if the desired profit is 25% on sales.

**Q-32** PS Ltd. manufactures articles in predetermined lots simultaneously. The following costs have been incurred for Batch No. 'PS143' in the month of March, 2022:

Units produced 1,000 units  
Direct materials cost Rs 2, 00,000  
Direct Labour -  
Department A 800 labour hours @ Rs 100 per hour  
Department B 1,400 labour hours @ Rs 120 per hour  
Factory overheads are absorbed on labour hour basis and the rates are:  
Department A @ Rs 140 per hour  
Department B @ Rs 80 per hour

Administrative overheads are absorbed at 10% of selling price.

The firm expects 25% gross profit (sales value minus factory cost) for determining the selling price.

You are required to CALCULATE the selling price per unit of Batch No. 'PS143'.

**Q-33** In a factory following the job Costing Method, an abstract from the work-in-progress as on 30<sup>th</sup> September was prepared as under.

Job No.	Materials Rs	Direct hrs.	Labour Rs	Factory Overheads applied Rs
115	1325	400 hrs.	800	640
118	810	250 hrs.	500	400
120	765	300 hrs.	475	380

	2,900		1,775	1,420
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**Materials used in October were as follows:**

Materials Requisition No.	Job No.	Cost
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720
		3,535

**A summary for labour hours deployed during October is as under:**

Job No.	Number of Hours	
	Shop A	Shop B
115	25	25
118	90	30
120	75	10
121	65	--
124	25	10
	275	75
Indirect Labour: Waiting of material	20	10
Machine breakdown	10	5
Idle time	5	6
Overtime premium	6	5
	316	101

A shop credit slip was issued in October, that material issued under Requisition No. 54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under Requisition No. 55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is Rs 3 per hour while at shop B, it is Rs 2 per hour. The factory overhead is applied at the same rate as in September. Job 115, 118 and 120 were completed in October.

You are asked to COMPUTE the factory cost of the completed jobs. It is the practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis. DETERMINE the invoice price of these three jobs?

**Q-34** AKP Builders Ltd. commenced a contract on April 1, 2020. The total contract was for Rs 5,00,000. Actual expenditure for the period April 1, 2020 to March 31, 2021 and estimated expenditure for April 1, 2021 to December 31, 2021 are given below:

Particulars	2020-21 (actual)	2021-22 (9 months) (estimated)
Materials issued	90,000	85,750
Wages: Paid	75,000	87,325
Outstanding at the end	6,250	8,300
Plant	25,000	-
Sundry expenses: Paid	7,250	6,875
Prepared at the end	625	-
Establishment charges	14,625	-

A part of the material was unsuitable and was sold for Rs 18,125 (cost being Rs 15,000) and a part of plant was scrapped and disposed- off for Rs 2,875. The value of plant at site on 31 March, 2021 was Rs 7,750 and the value of material at site was Rs 4,250. Cash received on account to date was Rs 1,75,000, representing 80% of the work certified. The cost of work uncertified was valued at Rs 27,375.

The contractor estimated further expenditure that would be incurred in completion of the contract:

- The contract would be completed by 31st December, 2020.

- A further sum of Rs 31,250 would have to be spent on the plant and the residual value of the plant on the completion of the contract would be Rs 3,750.
- Establishment charges would cost the same amount per month as in the previous year.
- Rs 10,800 would be sufficient to provide for contingencies.

Required:

PREPARE a Contract Account for the year ended 31st March, 2021, and CALCULATE estimated total profit on this contract.

**Q-35** A contractor prepares his accounts for the year ending 31st March each year. He commenced a contract on 1st July, 2021.

The following information relates to the contract as on 31st March, 2022:

	(Rs)
Material issued	12,55,000
Wages	28,28,000
Salary to Foreman	4,06,500

A machine costing Rs 13,00,000 has been on the site for 4.8 months, its working life is estimated at 7 years and its final scrap value at Rs 75,000.

A supervisor, who is paid Rs 40,000 p.m., has devoted one-half of his time to this contract.

All other expenses and administration charges amount to Rs 6,82,500.

Material in hand at site costs Rs 1,77,000 on 31st March, 2022.

The contract price is Rs 1,00,00,000. On 31st March, 2022 2/3rd of the contract was completed.

The architect issued certificates covering 50% of the contract price, and the contractor had been paid Rs 37,50,000 on account.

PREPARE Contract A/c and show the notional profit or loss as on 31st March, 2022.

**Q-36**

TQM Ltd. has furnished the following information for the month ending 30th June:

	Master Budget	Actual	Variance
Units produced and sold	80,000	72,000	



Sales (Rs)	3,20,000	2,80,000	40,000(A)
Direct material (Rs)	80,000	73,600	6,400(F)
Direct wages (Rs)	1,20,000	1,04,800	15,200(F)
Variable overheads (Rs)	40,000	37,600	2,400(F)
Fixed overhead (Rs)	40,000	39,200	800(F)
Total Cost	2,80,000	2,55,200	

The Standard costs of the products are as follows:

	Per unit Rs
Direct materials (1 kg. at the rate of Rs1 per kg.)	1.00
Direct wages (1 hour at the rate of Rs 1.50)	1.50
Variable overheads (1 hour at the rate of Rs 0.50)	0.50

Actual results for the month showed that 78,400 kg. of material were used and 70,400 labour hours were recorded.

Required:

- (i) PREPARE Flexible budget for the month and compare with actual results.
- (ii) CALCULATE Material, Labour, Sales Price, Variable Overhead and Fixed Overhead Expenditure variances and Sales Volume (Profit) variance.

**Q-37** The following data relates to the manufacturing project received for the budgeted output of 19,600 units. You are required to CALCULATE the selling price per unit covering a profit of 25% on the selling price.

Direct materials: 40 sq. m. per unit @ Rs 10.60 per sq. m.

Direct wages: Bonding department 48 hours per unit @ Rs 25 per hour

Finishing department 30 hours per unit @ Rs 19 per hour

Budgeted costs and hours per annum-

Variable overhead:

	Rs	Total hours
Bonding department	15,00,000	10,00,000

Finishing department	6,00,000	6,00,000
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Fixed overhead –

	Rs
Production	15,68,000
Selling and distribution	7,84,000
Administration (General)	3,92,000

### Q-38

Following information is available for DK and Co.:

Standard working hours 9 hours per day of 5 days per week

Maximum capacity 50 employees

Actual working 40 employees

Actual hours expected to be worked per four week 7,200 hours

Std. hours expected to be earned per four weeks 9,000 hours

Actual hours worked in the four- week period 6,750 hours

Standard hours earned in the four- week period 7,875 hours.

The related period is of 4 weeks. In this period there was a one special day holiday due to national event.

You are required to CALCULATE the following ratios:

- i) Efficiency Ratio
- ii) Activity Ratio
- iii) Calendar Ratio
- iv) Standard Capacity Usage Ratio
- v) Actual Capacity Usage Ratio
- vi) Actual Usage of Budgeted Capacity Ratio

**Q-39** The following information is available from the cost records of Novell & Co. for the month of March 2021:

Materials purchased	20,000 units @ Rs 88,000
Materials consumed	19,000 units
Actual wages paid for 4,950 hrs.	Rs 24,750
Units produced	1,800 units
Standard rates and pieces are:	
Direct material	Rs 4 per unit
Standard output	10 number for one unit
Direct labour rate	Rs 4.00 per hour
Standard requirement	2.5 hours per unit

You are required to CALCULATE relevant material and labour variance for the month.

**Q-40** A company has a normal capacity of 120 machines, working 8 hours per day for 25 days in a month. The fixed overheads are budgeted at Rs 1,44,000 per month. The standard time required to manufacture one unit of product is 4 hours.

In the month of April, the company worked 24 days of 840 machine hours per day and produced 5,305 units of output. The actual fixed overheads were Rs 1,42,000.

CALCULATE:

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

**Q-41** Paras Synthetics uses Standard costing system in manufacturing of its product 'Star 95 Mask'. The details are as follows;

Direct Material 0.50 Meter @ Rs 60 per meter	Rs 30
Direct Labour 1 hour @ Rs 20 per hour	Rs 20
Variable overhead 1 hour @ Rs 10 per hour	<u>Rs 10</u>
Total	<u>Rs 60</u>

During the month of August, 10,000 units of 'Star 95 Mask' were manufactured.

Details are as follows:

Direct material consumed 5700 meters @ Rs 58 per meter

Direct labour Hours ? @ ? Rs 2,24,400

Variable overhead incurred Rs 1,12,200

Variable overhead efficiency variance is Rs 2,000 A. Variable overheads are based on Direct Labour Hours.

You are required to calculate the missing data and all the relevant Variances.

**Q-42** 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 Rs 12.40, Rs 12.00 and Rs 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 Rs 480 (F).

You are required to COMPUTE:

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

**Q-43** A company has three factories situated in north, east and south with its Head office in Mumbai. The management has received the following summary report on the operations of each factory for a period:

(Rs in '000)

	Sales		Profit	
	Actual	Over/ (Under) Budget	Actual	Over/ (Under) Budget
North	1,100	(400)	135	(180)
East	1,450	150	210	90
South	1,200	(200)	330	(110)

CALCULATE for each factory and for the company as a whole for the period:

- (i) The fixed costs. (ii) Break-even sales.

**Q-44** XYZ Ltd. has a production capacity of 2,00,000 units per year. Normal capacity utilisation is reckoned as 90%. Standard variable production costs are ₹ 11 per unit. The fixed costs are Rs 3,60,000 per year. Variable selling costs are Rs 3 per unit and fixed selling costs are Rs 2,70,000 per year. The unit selling price is Rs 20.

In the year just ended on 31st March, the production was 1,60,000 units and sales were 1,50,000 units. The closing inventory on 31st March was 20,000 units. The actual variable production costs for the year were Rs 35,000 higher than the standard.

- (i) CALCULATE the profit for the year  
(a) by absorption costing method and  
(b) by marginal costing method.

- (ii) EXPLAIN the difference in the profits..

**Q-45** 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 Rs 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 indifference 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 buildup as whatever is produced is sold.

Required

FIND OUT the values F1 and F2 and units contributions of X and Y.

**Q-46** A Limited manufactures three different products and the following information has been collected from the books of accounts:

	Products		
	S	T	U

Sales Mix	20%	35%	40%
Selling Price	Rs 600	Rs 800	Rs 400
Variable Cost	Rs 300	Rs 400	Rs 240
Total Fixed Costs	Rs 36,00,000		
Total Sales	1,20,00,000		

The company has currently under discussion, a proposal to discontinue the manufacture of Product U and replace it with Product M, when the following results are anticipated:

	Products		
	S	T	U
Sales Mix	40%	35%	25%
Selling Price	Rs 600	Rs 800	Rs 600
Variable Cost	Rs 300	Rs 400	Rs 300
Total Fixed Costs	Rs 36,00,000		
Total Sales	1,28,00,000		

Required:

- (i) COMPUTE the PV ratio, total contribution, profit and Break-even sales for the existing product mix.
- (ii) COMPUTE the PV ratio, total contribution, profit and Break-even sales for the proposed product mix

**Q-47** The lab corner of Newlife Hospital Trust operates two types of specialist MRI scanning machine – MR10 and MR59. Following details are estimated for the next period:

Machine	MR 10	MR 59
Running hours	1,100	2,000
	Rs	Rs
Variable running costs excluding special technology	68,750	1,60,000
Fixed Costs	50,000	2,43,750

A brain scan is normally carried out on machine type MR10. This task uses special technology costing Rs 100 each and takes four hours of machine time. Because of the nature of the process, around 10% of the scans produce blurred and therefore useless results.

Required:

- (i) CALCULATE the total cost of a satisfactory brain scan on machine type MR10.
- (ii) Brain scans can also be done on machine type MR59 and would take only 1.8 hours per scan with a reduced reject rate of 6%. However, the cost of the special technology would be Rs 137.50 per scan. ADVISE which type should be used, assuming sufficient capacity is available on both types of machines. Consider fixed costs will remain unchanged.

**Q-48** (a) Health Wealth Hospital is interested in estimating the cost for each patient stay. The hospital offers general health care facility i.e. only basic services.

You are required to:

- (i) CLASSIFY each of the following costs as either direct or indirect with respect to each patient.
- (ii) CLASSIFY each of the following costs as either fixed or variable with respect to hospital costs per day.

	Direct	Indirect	Fixed	Variable
Electronic monitoring	_____	_____	_____	_____
Meals for patients	_____	_____	_____	_____
Nurses' salaries	_____	_____	_____	_____
Parking maintenance	_____	_____	_____	_____
Security	_____	_____	_____	_____

(b) Differentiate between Cost Control and Cost Reduction.

(c) Though Cost Accounting and Management Accounting is used synonymously but there are a few differences. Elaborate those differences.

(d) What are cost units? Write the cost unit basis against each of the following Industry/Product-Automobile, Steel, Cement, Chemicals, Power and Transport.



**Q-49** SKY Company Ltd., not registered under GST, purchased material 'RPP' from a company, registered under GST. The following information is available for one lot of 5,000 units of material purchased:

Listed price of one lot	Rs 7,50,000
Trade discount	@ 10% on Listed price.
CGST and SGST (Credit Not available)	12% (6% CGST + 6% SGST)
Road Tax paid	Rs 15,000
Freight and Insurance	Rs 51,000
Detention charges	Rs 15,000
Commission and brokerage on purchases	Rs 30,000
Amount deposited for returnable containers	Rs 90,000
Amount of refund on returning the container	Rs 60,000
Other Expenses	@ 2% of total cost
20% of material shortage is due to normal reasons.	

You are required to CALCULATE cost per unit of material purchased to SKY Company Ltd.

**Q-50** A machine shop has 8 identical Drilling machines manned by 6 operators. The machine cannot be worked without an operator wholly engaged on it. The original cost of all these machines works out to Rs 8 lakhs. These particulars are furnished for a 6 months period:

Normal available hours per month	208
Absenteeism (without pay) hours	18
Leave (with pay) hours	20
Normal idle time unavoidable-hours	10
Average rate of wages per worker for 8 hours a day	Rs 800
Production bonus estimated	15% on wages
Value of power consumed	Rs 80,500
Supervision and indirect labour	Rs 33,000
Lighting and electricity	Rs 12,000

These particulars are for a year

Repairs and maintenance including consumables - 3% of value of machines

Insurance - Rs 40,000

Depreciation – 10% of original cost.

Other sundry work expenses - Rs 12,000

General management expenses allocated - Rs 54,530.

You are required to COMPUTE a comprehensive machine hour rate for the machine shop.



## SUGGESTED ANSWERS

A-1

(a)

Bin Card	Stores Ledger
It is maintained by the storekeeper in the store.	It is maintained in cost accounting department.
It contains only quantitative details of material received, issued and returned to stores.	It contains information both in quantity and value.
Entries are made when transaction takes place.	It is always posted after the transaction
Each transaction is individually posted.	Transactions may be summarized and then posted.
Inter-department transfers do not appear in Bin Card.	Material transfers from one job to another job are recorded for costing purposes.

(b)

Item	Cost Tracing	Cost Allocation	Non-manufacturing
Carpenter wages	√		
Depreciation – office building			√
Glue for assembly		√	
Lathe department supervisor		√	
Metal brackets for drawers	√		
Factory washroom supplies		√	
Lumber	√		
Samples for trade shows			√

Lathe depreciation		√	
Lathe operator wages		√	

**(c) The economic batch size or Economic Batch Quantity** may be determined by calculating the total cost for a series of possible batch sizes and checking which batch size gives the minimum cost.

The objective here being to determine the production lot (Batch size) that optimizes on both set up and inventory holding costs formula. The mathematical formula usually used for its determination is as follows:

$$EBQ = \sqrt{\frac{2DS}{C}}$$

Where,

D = Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production

**(d) Essential pre-requisites for Integrated Accounts:** The essential pre-requisites for integrated accounts include the following steps-

1. The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate up to the stage of prime cost or factory cost while other prefers full integration of the entire accounting records.
2. A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
3. An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.
4. Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

**(e) Inter-Process Profit:** To control cost and to measure performance, different processes within an organization are designated as separate profit centres. In this type of organizational structure, the output of one process is transferred to the next process not at cost but at market value or cost plus a percentage of profit. The difference between cost and the transfer price is known as inter - process profits.

The advantages and disadvantages of using inter-process profit, in the case of process type industries are as follows:

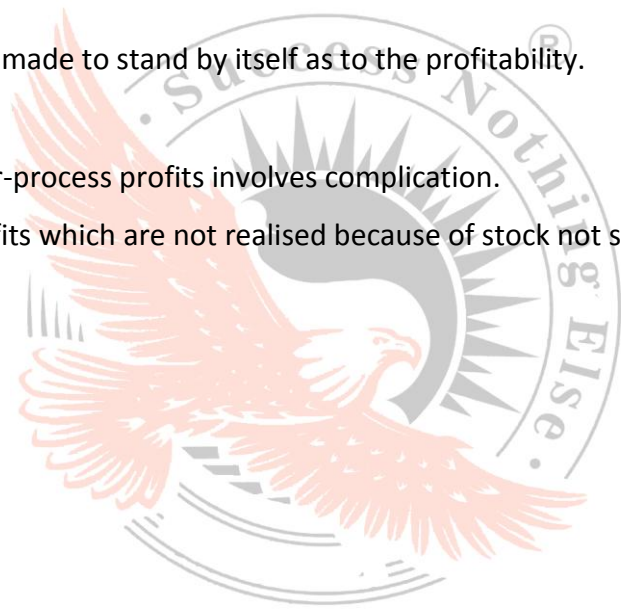
**Advantages:**

2. Comparison between the cost of output and its market price at the stage of completion is facilitated.
3. Each process is made to stand by itself as to the profitability.

**Disadvantages:**

1. The use of inter-process profits involves complication.

The system shows profits which are not realised because of stock not sold out.



**A-2**

$$EOQ = \sqrt{\frac{2AO}{C}}$$

Where,

A = Annual Demand

O = Ordering cost per order

C = Inventory carrying cost per unit per annum

**(i) Calculation of EOQ**

Super Grow	Nature's Own
$EOQ = \sqrt{\frac{2 \times 2,000 \times 1,200}{480}}$ $= \sqrt{10,000} \text{ or } 100 \text{ bags}$	$EOQ = \sqrt{\frac{2 \times 1,280 \times 1,400}{560}}$ $= \sqrt{6,400} \text{ or } 80 \text{ bags}$

(ii) Total annual relevant cost = Total annual relevant ordering costs + Total annual relevant carrying cost

	Super Grow	Nature's Own
Number of Orders =	= 2,000/ 100	= 1,280/80
Annual Requirement ÷ EOQ	= 20 orders	= 16 orders
Ordering Cost	20 × 1200 = Rs 24,000	16 × 14,00 = Rs 22,400
Carrying Cost	$\frac{1}{2} \times 100 \times 480 = \text{Rs } 24,000$	$\frac{1}{2} \times 80 \times 560 = \text{Rs } 22,400$
Total of Ordering and Carrying Cost	= Rs 24,000 + Rs 24,000 = 48,000	Rs 22,4000 + Rs 22,400 = Rs 44,800

(iii) Number of deliveries for Super Grow and Nature's own fertilizer per year =

$$\frac{\text{Annual Demand for fertilizer bags}}{\text{EOQ}}$$

Super Grow	Nature's Own
$= \frac{2,000 \text{ bags}}{100 \text{ bags}} = 20 \text{ order}$	$= \frac{2,000 \text{ bags}}{100 \text{ bags}} = 16 \text{ orders}$

**A-3** From the point of view of cost of material charged to each job, it is minimum under FIFO and maximum under LIFO (Refer to Tables). During the period of rising prices, the use of FIFO give rise to high profits and that of LIFO low profits. In the case of weighted average, there is no significant adverse or favourable effect on the cost of material as well as on profits.

From the point of view of valuation of closing stock, it is apparent from the above statement, that it is maximum under FIFO, moderate under weighted average and minimum under LIFO.

It is clear from the tables that the use of weighted average evens out the fluctuations in the prices. Under this method, the cost of materials issued to the jobs and the cost of material in hands reflects greater uniformity than under FIFO and LIFO. Thus, from different points of view, weighted average method is preferred over LIFO and FIFO.

#### Statement of receipts and issues by adopting First-in-First-Out Method

Date	Particulars	RECEIPTS			ISSUE			BALANCE		
		Units No.	Rate	Value	Units No.	Rate	Value	Units No.	Rate	Value
Jan. 1	Purchase	100	1	100	--	--	--	100	1	100
Jan. 20	Purchase	100	2	200	--	--	--	100	1	100
								100	2	200
Jan. 22	Issue to Job W 16	--	--	--	60	1	60	40	1	40
								100	2	200
Jan. 23	Issue to Job W 17	--	--	--	40	1	40	80	2	160
					20	2	40			

**Statement of receipts and issues by adopting Last-in-First-Out Method**

Date	Particulars	RECEIPTS			ISSUE			BALANCE		
		Units No.	Rate	Value	Units No.	Rate	Value	Units No.	Rate	Value
Jan. 1	Purchase	100	1	100	--	--	--	100	1	100
Jan. 20	Purchase	100	2	200	--	--	--	100	1	100
								100	2	200
Jan. 22	Issue to Job W 16	--	--	--	60	2	120	100	1	100
								40	2	80
Jan. 23	Issue to Job W 17	--	--	--	40	2	80	80	1	80
					20	1	20			

**Statement of Receipt and issues by adopting Weighted Average Method**

Date	Particulars	RECEIPTS			ISSUE			BALANCE		
		Units No.	Rate	Value	Units No.	Rate	Value	Units No.	Rate	Value



Jan. 1	Purchase	100	1	100	--	--	--	100	1	100
Jan. 20	Purchase	100	2	200	--	--	--	200	1.50	300
Jan. 22	Issue to Job W 16	--	--	--	60	1.50	90	140	1.50	210
Jan. 23	Issue to Job W 17	--	--	--	60	1.50	90	80	1.50	120

**Statement of Material Values allocated to Job W 16, Job 17 and Closing Stock, under aforesaid methods**

	FIFO	LIFO	Weighted Average
Material for Job W 16	60	120	90
Material for Job W 17	80	100	90
Closing Stock	160	80	120
	300	300	300

**A-4** As procurement time is given in days, consumption should also be calculated in days:

Maximum Consumption per Day:  $350/7 = 50$  Kgs.

Minimum Consumption per Day:  $210/7 = 30$  Kgs.

Average consumption per Day:  $(50+30)/2 = 40$  Kgs.

**(a) Calculation of Economic Order Quantity (EOQ)**

Annual consumption of Raw Materials (A): 40 Kgs x 365 days = 14,600 Kgs

Storage or Carrying Cost per unit per annum (C): (Rs 100 x 1% x 12 months) + Rs 2 = Rs 14

Ordering Cost (O): Rs 200 per Order

$$EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 14,600 \times 200}{14}} = 646 \text{ units}$$

**(b) Re-Order Level (ROL)** = (Maximum consumption Rate x Maximum Procurement Time)

$$= 50 \text{ kgs per day} \times 9 \text{ days}$$

$$= 450 \text{ kgs}$$

**(c) Maximum Stock Level** = Recorder Level + Recorder Quantity – (Minimum Consumption Rate x Minimum Procurement Time)

$$= 450 \text{ kgs} + 646 \text{ kgs} - (30 \text{ kgs} \times 5 \text{ days})$$

$$= 946 \text{ kgs.}$$

**(d) Minimum Stock Level** = Recorder Level – (Average consumption Rate × Average Procurement Time)

$$= 450 \text{ kgs} - (40 \text{ kgs} \times 7 \text{ days})$$

$$= 170 \text{ kgs}$$

**(e) Average Stock Level** = Maximum Stock Level + Minimum Stock Level/2

$$= \frac{946 \text{ kgs} + 170 \text{ kgs}}{2}$$

$$= 558 \text{ kgs}$$

**(f) Number of Orders to be placed per year**

$$= \text{Annual Consumption of Raw Materials} / \text{EOQ}$$

$$= 14600 \text{ kgs} / 646 \text{ kgs}$$

$$= 22.60 \text{ Orders or } 23 \text{ Orders}$$

**(g) Total Inventory Cost**

Cost of Materials (A x Purchase Price) (14600 kgs x Rs 100)	= Rs 14,60,000
Total Ordering Cost (No. of Orders x O) (23 Orders x 200)	= Rs 4,600
Total Carrying Cost (EOQ / 2 x C) (646 kgs / 2 x Rs 14)	= Rs 4,522
<b>Total Inventory Cost</b>	<b>Rs 14,69,122</b>

**(h) If the supplier is willing to offer 1% discount on purchase of total annual quantity in two orders:**

Offer Price	= Rs 100 x 99%	= Rs 99
Revised Carrying Cost	= (Rs 99 x 1% x 12 months) + Rs 2	= Rs 13.88
Revised Order Quantity	= 14600 kgs / 2 Orders	= 7300 kgs

**Total Inventory Cost at Offer Price**

Cost of Materials (A x Purchase Price) (14600 kgs x Rs 99)	= Rs 14,45,400
Total Ordering Cost (No. of Orders x O) (2 Orders x 200)	= Rs 400
Total Carrying Cost (EOQ / 2 x C) (7300 kgs / 2 x Rs 13.88)	= Rs 50,662
<b>Total Inventory Cost</b>	<b>Rs 14,96,462</b>

**Advice:** As total inventory cost at offer price is Rs 27,340 (14,96,462 – 14,69,122) higher, offer should not be accepted.

**(i) Counter-offer:**

Let Discount Rate	= z%
Counter-offer Price	= Rs 100 – z% = Rs 100 – Z
Revised Carrying Cost	= [(Rs 100 – z) x 1% x 12 months] + Rs 2 = Rs 12 – 0.12z + Rs 2
	= Rs 14 – 0.12z

**Total Inventory Cost at Counter-Offer Price**

Cost of Materials (A x Purchase Price) [14600 kgs x (Rs 100 – z)]	= Rs 14,60,000 – 14,600z
Total Ordering Cost (No. of Orders x O) (2 Orders x 200)	= Rs 400
Total Carrying Cost (EOQ / 2 x C) [7300 kgs / 2 x (Rs 14 – 0.12z)]	= Rs 51,100 – 438z
<b>Total Inventory Cost</b>	<b>Rs 15,11,500 – 15038z</b>

Rs 14,69,122 = Rs 15,11,500 – 15038z

Or 15038z = 42,378

Or z = 2.82

Therefore, discount should be at least 2.82% in offer price.

**A-5 Calculation of earnings under different wages schemes:**

**(i) Day wages**

Worker	Day wages (Rs)	Actual Output (Units)	Labour Cost per 100 pieces (Rs)
--------	----------------	-----------------------	---------------------------------

A	600	180	333.33
B	600	120	500.00
C	600	100	600.00
Total	1,800	400	

Average labour cost to produce 100 pieces:

= Total wages paid/Total output x 100

= Rs 1,800/400 units x 100 = Rs 450

**(ii) Piece rate**

Worker	Actual Output (Units)	Piece rate (Rs)	Wages earned (Rs)	Labour cost per 100 pieces (Rs)
A	180	7.50	1,350	750.00
B	120	7.50	900	750.00
C	100	7.50	750	750.00
Total	400		3,000	

Average cost of labour for the company to produce 100 pieces:

= Rs 3,000/ 400 units x 100 = Rs 750

**(iii) Halsey Scheme**

Worker	Actual Output (Units)	Std. time (Hrs.)	Actual time (Hrs.)	Time saved (Hrs.)	Bonus hours (50% of time saved)	Rate per hour (Rs)	Total wages (Rs)	Labour cost per 100 pieces (Rs)
	A	B	C	D = B – C	E	F	G = F x (C + E)	H = G/A*100
A	180	18	8	10	5	75	975	541.67
B	120	12	8	4	2	75	750	625.00

C	100	10	8	2	1	75	675	675.00
Total	400						2,400	

Average cost of labour for the company to produce 100 pieces = Rs 2,400/400 units x 100 = 600

**(iv) Rowan Scheme:**

Worker	Actual Output (Units)	Std. time (Hrs.)	Actual time (Hrs.)	Time saved (Hrs.)	Bonus hours*	Rate per hour (Rs)	Total wages including bonus (Rs)	Labour cost per 100 pieces (Rs)
	A	B	C	D = B - C	E	F	G = F x (C + E)	H = G/A*100
A	180	18	8	10	4.44	75	933	518.33
B	120	12	8	4	2.67	75	800	666.67
C	100	10	8	2	1.60	75	720	720.00
Total	400						2,453	

\*Bonus hours = Time Saved/Std. Time x Actual time

Average cost of labour for the company to produce 100 pieces = Rs 2,453/400 units x 100 = Rs 613.25

A-6

**Calculation of total normal hours to be paid for Mr. Deep (Semi-skilled):**

Day	Normal hours	Extra hours	Overtime hours	Equivalent normal hours for overtime worked	Total normal hours

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D = C x 2</b>	<b>E = A + B + D</b>
Monday	8	1	1 ½	3	12
Tuesday	8	--	--	--	8
Wednesday	8	1	1 ½	3	12
Thursday	8	1	½	1	10
Friday	8	1	1 ½	3	12
Saturday	--	--	--	--	--
<b>Total</b>	<b>40</b>	<b>4</b>	<b>5</b>	<b>10</b>	<b>54</b>

**Calculation of total normal hours to be paid for Mr. Sam (Skilled):**

<b>Day</b>	<b>Normal hours</b>	<b>Extra hours</b>	<b>Overtime hours</b>	<b>Equivalent normal hours for overtime worked</b>	<b>Total normal hours</b>
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D = C x 2</b>	<b>E = A + B + D</b>
Monday	8	1	1 ½	3	12
Tuesday	8	--	--	--	8
Wednesday	8	1	1 ½	3	12
Thursday	8	1	½	1	10
Friday	8	1	1 ½	3	12
Saturday	--	3* + 1	1**	2	11
<b>Total</b>	<b>40</b>	<b>8</b>	<b>6</b>	<b>12</b>	<b>65</b>

\*Mr. Sam will be paid for equivalent 8 normal working hours at ordinary wage rate, though 5 hours of working is required on Saturday. Further, extra 9th hour worked will also be paid at ordinary wage rate.

\*\* Overtime of 1 hour worked over and above 9 hours will be paid at overtime rate.

**Wages payable:**

	Mr. Deep	Mr. Sam
Basic Wages per hour (Rs 400/8, Rs 600/8) (Rs)	50	75
Dearness allowance per hour (@ 20%) (Rs)	10	15
Hourly rate (Rs)	60	90
Total equivalent normal hours	54	65
<b>Total Wages payable (Rs)</b>	<b>3,240</b>	<b>5,850</b>

A-7

**Working Notes:**

**(i) Calculation of no. of employees at the beginning and end of the year**

	At the Beginning of the Year	At the end of the year
Records clerk	810	2,340
Human Resource Manager [Left – 90 + Closing – 60 – Joined- 30]	120	60
Legal Secretary*	45	135
Staff Attorney*	45	45
Associate Attorney*	30	45
Senior Staff Attorney	6	18
Senior Records clerk	12	51
Litigation attorney	90	0
<b>Total</b>	<b>1,158</b>	<b>2,694</b>

(\*) At the beginning of the year:

Strength of Legal Secretary, Staff Attorney and Associate Attorney =

[1158 – {810 + 120 + 6 + 12 + 90} employees] or [1158 – 1038 = 120 employees]

[{Legal Secretary –  $120 \times \frac{3}{8} = 45$ , Staff Attorney –  $120 \times \frac{3}{8} = 45$  & Associate Attorney –  $120 \times \frac{2}{8} = 30$ } employees]

**At the end of the year:**



[Legal Secretary -(Opening 45 + 90 Joining) = 135; Staff Attorney - (Opening 45 + 30 Joined – 30 Left) = 45]

**(ii) No. of Employees Separated, Replaced and newly recruited during the year**

Particulars	Separations	New Recruitment	Replacement	Total Joining
Records clerk	90	1,530	90	1,620
Human Resource Manager	90	--	30	30
Legal Secretary	--	90	--	90
Staff Attorney	30	--	30	30
Associate Attorney	15	15	15 (R)	30
Senior Staff Attorney	--	12	--	12
Senior Records clerk	--	39	--	39
Litigation attorney	90	--	--	--
<b>Total</b>	<b>315</b>	<b>1,686</b>	<b>165</b>	<b>1,851</b>

(Since, HR Ltd. and its subsidiary are maintaining separate Personnel Department, so transfer-in and transfer-out are treated as recruitment and separation respectively.)

**(a) Calculation of Labour Turnover rate:**

$$\begin{aligned} \text{Replacement Method} &= \frac{\text{No.of employees replaced during the year}}{\text{Average no.of employees on roll}} \times 100 \\ &= \frac{165}{(1,158 + 2,694)/2} \times 100 = 165/1,926 \times 100 = 8.57\% \end{aligned}$$

$$\begin{aligned} \text{Separation Method} &= \frac{\text{No.of employees Separated during the year}}{\text{Average no.of employees on roll}} \times 100 \\ &= 315/1,926 \times 100 = 16.36\% \end{aligned}$$

**(b) Labour Turnover rate under Flux Method:**

$$= \frac{\text{No. of employees (Joined + Separated) during the year}}{\text{Average no. of employees on roll}} \times 10$$

$$= \frac{\text{No. of employees (replaced + New recruited + Separated) during the year}}{\text{Average no. of employees on roll}}$$

$$= \frac{1,851 + 315}{1,926} \times 100 = 112.46\%$$

Labour Turnover rate calculated by Mr. H is incorrect as it seems he has not taken the no. of new recruitment while calculating the labour turnover rate under Flux method.

**A-8**

**(a) Deccan Manufacturing Limited**

**Schedule Showing the Distribution of Overhead Costs among Departments**

	Production			Service			
	X	Y	Z	P	Q	R	S
Overhead cost	1,93,000	64,000	83,000	45,000	75,000	1,05,000	30,000
Distribution of Dept. P (100:125:85:50:40:50)	10,000	12,500	8,500	-45,000	5,000	4,000	5,000
Distribution of Dept. Q (4:3:4:-:-:6:3)	16,000	12,000	16,000	-	-80,000	-24,000	12,000
Distribution of Dept. R (6:3:3:-:-:2)	57,000	28,500	28,500	-	-	-1,33,000	19,000
Distribution of Depts. S (4:3:4:-:-:-)	24,000	18,000	24,000	-	-	-	66,000
Total	3,00,000	1,35,000	1,60,000				

**(b) Calculation of overhead recovery rate**

	Dept.- X	Dept. – Y	Dept. – Z
Total apportioned overheads	Rs 3,00,000	Rs 1,35,000	Rs 1,60,000
Direct labour hours	4,000	3,000	4,000
Overhead recovery rate per labour hour	Rs 75	Rs 45	Rs 40

**A-9**

**Working notes:**

(i) Total machine hours used (600 + 900 + 400 + 600 + 1,000)	3,500
(ii) Total machine hours without the use of computers (600 + 900)	1,500
(iii) Total machine hours with the use of computer (400 + 600 + 1,000)	2,000
(iv) Total overheads of the machine per month	
Rent (Rs17,500 ÷ 3 months)	5,833.33
Depreciation (Rs 2,00,000 ÷ 12 months)	16,666.67
Indirect Charges (Rs 1,50,000 ÷ 12 months)	<u>12,500.00</u>
Total	<u>35,000.00</u>
(v) Computer hire charges for a month = Rs 35,000 (Rs 4,20,000 ÷ 12 months)	
(vi) Overheads for using machines without computer = Rs 35,000/3,500 hrs. × 1,500 hrs. = Rs 15,000	
(vii) Overheads for using machines with computer = Rs 35,000/3,500 hrs × 2,000 hrs. + Rs 35,000 = Rs 55,000	

**a. Computation of machine hour rate for the firm as a whole for a month.**

(i) When the Computer was used: Rs 55,000/2,000 hours = Rs 27.50 per hour

(ii) When the computer was not used: Rs 15,000/1,500 hrs = Rs 10 per hour

**b. Computation of Machine hour rate for the individual job**

	Rate per	Job
--	----------	-----

	hour	A		B		C	
	Rs	Hrs.	Rs	Hrs.	Rs	Hrs.	Rs
<b>Overheads</b>							
Without Computer	10.0	600	6,000	900	9,000	-	-
With Computer	27.5	400	11,000	600	16,500	1,000	27,500
Total		1,000	17,000	1,500	25,500	1,000	27,500
<b>Machine hour rate</b>			<b>17</b>		<b>17</b>		<b>27.5</b>

**A-10 (i) Computation of overhead absorption rate (as per the current policy of the company)**

Department	Budgeted factory overheads	Budgeted direct wages
	Rs	Rs
Machining	3,60,000	80,000
Assembly	1,40,000	3,50,000
Packing	1,25,000	70,000
Total	6,25,000	5,00,000

Overheads absorption rate = Budgeted factory overheads/Budgeted direct wages x 100  
= Rs 6,25,000/ Rs 5,00,000 × 100 = 125% of Direct wages

**Selling Price of the Job No CW-7083**

	<b>(Rs)</b>
Direct materials (Rs 1,200 + Rs 600 + Rs 300)	2,100.00
Direct wages (Rs 240 + Rs 360 + Rs 60)	660.00
Overheads (125% × Rs 660)	<u>825.00</u>
Total factory cost	3,585.00
Add: Mark-up (30% × Rs 3,585)	<u>1,075.50</u>
Selling price	<u>4,660.50</u>

**(ii) Methods available for absorbing factory overheads and their overhead recovery rates in different departments**

**(1) Machining Department**

In the machining department, the use of machine time is the predominant factor of production. Hence machine hour rate should be used to recover overheads in this department. The overhead recovery rate based on machine hours has been calculated as under:

$$\begin{aligned}\text{Machine hour rate} &= \text{Budgeted factory overheads/Budgeted machine hours} \\ &= \text{Rs } 3,60,000/80,000 \text{ hours} \\ &= \text{Rs } 4.50 \text{ per hour}\end{aligned}$$

**(2) Assembly Department**

In this department direct labour hours is the main factor of production. Hence direct labour hour rate method should be used to recover overheads in this department. The overheads recovery rate in this case is:

$$\begin{aligned}\text{Direct labour hour rate} &= \text{Budgeted factory overheads/ Budgeted direct labour hours} \\ &= \text{Rs } 1,40,000/1,00,000 \text{ hours} \\ &= \text{Rs } 1.40 \text{ per hour}\end{aligned}$$

**(3) Packing Department**

Labour is the most important factor of production in this department. Hence direct labour hour rate method should be used to recover overheads in this department.

The overhead recovery rate in this case comes to:

Budgeted factory overhead

$$\begin{aligned}\text{Direct labour hour rate} &= \text{Budgeted factory overheads/Direct labour hours} \\ &= \text{Rs } 1,25,000/50,000 \text{ hours} \\ &= \text{Rs } 2.50 \text{ per hour}\end{aligned}$$

**(iii) Selling Price of Job CW – 7083 [based on the overhead application rates calculated in (ii) above]**

	<b>(Rs)</b>
Direct materials	2,100.00
Direct wages	660.00
Overheads (Refer to Working note)	<u>1,078.00</u>
Factory cost	3,838.00
Add: Mark up (30% of Rs 3,838)	<u>1,151.40</u>
Selling price	<u>4,989.40</u>

**Working note:**

**Overhead Summary Statement**

Dept.	Basis	Hours	Rate	Overheads
Machining	Machine hour	180	4.50	810
Assembly	Direct labour hour	120	1.40	168
Packing	Direct labour hour	40	2.50	100
			Total	1,078

**(iv) Department-wise statement of total under or over recovery of overheads**

(a) Under current policy

**Departments**

	Machining	Assembly	Packing	Total
Direct wages (Actual)	96,000	2,70,000	90,000	
overhead recovered @ 125% of direct wages : (A)	1,20,000	3,37,500	1,12,500	5,70,000
Actual overhead: (B)	3,90,000	84,000	1,35,000	6,09,000
(under)/ over recovery of overheads: (A- B)	(2,70,000)	2,53,500	(22,500)	(39,000)

(b) As per methods suggested

**Basis of overhead recovery**

	Machine Hours	Direct Labour Hours	Direct Labour Hours	Total (Rs)

Hours worked	96,000	90,000	60,000	
Rate/hour (Rs)	4.50	1.40	2.50	
Overhead recovered (Rs): (A)	4,32,000	1,26,000	1,50,000	7,08,000
Actual overheads (Rs): (B)	3,90,000	84,000	1,35,000	6,09,000
(Under)/Over recovery: (A – B)	42,000	42,000	15,000	99,000

#### A-11 (a) Primary Distribution of Overheads

	Basis	Total	A	B	X	Y
Direct materials	Direct	6,00,000	--	-- <sup>®</sup>	4,00,000	2,00,000
Direct wages	Direct	6,00,000	--	--	2,00,000	4,00,000
Factory rent *(2:1:1:2)	Area	9,00,000	3,00,000	1,50,000	1,50,000	3,00,000
Power (Machine) (10:16:3:5*)	H.P. x Machine Hrs.	5,10,000	1,50,000	2,40,000	45,000	75,000
Depreciation (2:4:1:1)	Capital value	2,00,000	50,000	1,00,000	25,000	25,000
General Lighting (1:2:1:1)	Light Points	3,00,000	60,000	1,20,000	60,000	60,000
Perquisites (5:2:1:2)	Direct Wages	4,00,000	2,00,000	80,000	40,000	80,000
		<b>35,10,000</b>	<b>7,60,000</b>	<b>6,90,000</b>	<b>9,20,000</b>	<b>11,40,000</b>

\*{(1000 × 50) : (2000 × 40) : (1000 × 15) : (1000 × 25)}

(50000 : 80000 : 15000 : 25000)

(10 : 16 : 3 : 5)

**(b) (i) Redistribution of Service Department's expenses using 'Simultaneous equation method'**



$$X = 9,20,000 + 0.05 Y$$

$$Y = 11,40,000 + 0.20 X$$

Substituting the value of X,

$$Y = 11,40,000 + 0.20 (9,20,000 + 0.05 Y)$$

$$= 13,24,000 + 0.01 Y$$

$$Y - 0.01Y = 13,24,000$$

$$Y = 13,24,000/0.99$$

$$Y = \text{Rs } 13,37,374$$

The total expense of **Y** is Rs **13,37,374** and that of **X** is Rs **9,86,869** i.e., Rs 9,20,000 + (0.05 × Rs 13,37,374).

#### Distribution of Service departments' overheads to Production departments

	Production Departments	
	A	B
Overhead as per primary distribution	7,60,000	6,90,000
Dept – X (55% and 25% of Rs 9,86,869)	5,42,778	2,46,717
Dept – Y (60% and 35% of Rs 13,37,374)	8,02,424	4,68,081
	<b>21,05,202</b>	<b>14,04,798</b>

#### (ii) Redistribution of Service Department's expenses using 'Trial and Error Method':

	Services Departments	
	X	Y
Overheads as per primary distribution	9,20,000	11,40,000
(i) Apportionment of Dept.-X expenses to Dept.- Y (20% of Rs 9,20,000)	---	1,84,000
(ii) Apportionment of Dept-Y expenses to Dept- X (5% of Rs 13,24,000)	66,200	---
(i) Apportionment of Dept- X expenses to Dept- Y (20% of Rs 66,200)	---	13,240

(ii) Apportionment of Dept-Y expense to Dept-X (5% of Rs 13,240)	662	---
(i) Apportionment of Dept- X expenses to Dept- Y (20% of Rs 662)		132
(ii) Apportionment of Dept-Y expense to Dept-X (5% of Rs 132)	7	
<b>Total</b>	<b>9,86,869</b>	<b>13,37,372</b>

### Distribution of Service departments' overheads to Production departments

	Production Departments	
	A	B
Overhead as per primary distribution	7,60,000	6,90,000
Dept – X (55% and 25% of Rs 9,86,869)	5,42,778	2,46,717
Dept – Y (60% and 35% of Rs 13,37,372)	8,02,423	4,68,080
	<b>21,05,201</b>	<b>14,04,797</b>

### (iii) Redistribution of Service Department's expenses using repeated distribution method.

	A	B	X	Y
Overhead as per primary distribution	7,60,000	6,90,000	9,20,000	11,40,000
Dept. X overhead apportioned in the ratio (55:25:---:20)	5,06,000	2,30,000	(9,20,000)	1,84,000
Dept. Y overhead apportioned in the ratio (60:35:5:---)	7,94,400	4,63,400	66,200	(13,24,000)
Dept. X overhead apportioned in the ratio (55:25:---:20)	36,410	16,550	(66,200)	13,240
Dept. Y overhead apportioned in the ratio (60:35:5:---)	7,944	4,634	662	(13,240)
Dept. X overhead apportioned in the	364	166	(662)	132

ratio (55:25:---:20)				
Dept. Y overhead apportioned in the ratio (60:35:5: —)	79	46	7	(132)
Dept. X overhead apportioned in the ratio (55:25:—:20)	4	3	(7)	--
	<b>21,05,201</b>	<b>14,04,799</b>	--	--

## A-12

### Working note:

Computation of revenues (at listed price), discount, cost of goods sold and customer level operating activities costs:

	Customers				
	A	B	C	D	E
Cases sold: (a)	4,680	19,688	1,36,800	71,550	8,775
Revenues (at listed price) (Rs): (b) {(a) × Rs 108}	5,05,440	21,26,304	1,47,74,400	77,27,400	9,47,700
Discount (Rs): (c) {(a) × Discount per case}	-	35,438 (19,688 cases × Rs 1.80)	12,31,200 (1,36,800 cases × Rs 9)	2,57,580 (71,550 cases × Rs 3.60)	94,770 (8,775 cases × Rs 10.80)
Cost of goods sold (Rs): (d) {(a) × Rs 90}	4,21,200	17,71,920	1,23,12,000	64,39,500	7,89,750

### Customer level operating activities costs

Order taking costs (Rs): (No. of purchase × Rs 750)	11,250	18,750	22,500	18,750	22,500
Customer visits costs (Rs) (No. of customer visits × Rs 600)	1,200	1,800	3,600	1,200	1,800
Delivery vehicles travel costs (Rs) (Rs 5.75 per km)	1,150 (5.75 × 10)	1,035 (5.75 × 30 ×	1,725 (5.75 × 60 ×	2,300 (5.75 × 40 ×	3,450 (5.75 × 20 ×

(Kms travelled by delivery vehicles x Rs 5.75 per km.)	x 20)	6)	5)	10)	30)
Product handling costs (Rs) {(a) x Rs 3.75}	17,550	73,830	5,13,000	2,68,313	32,906
Cost of expediting deliveries(Rs) {No. of expedited deliveries x Rs 2,250}	-	-	-	-	2,250
Total cost of customer level operating activities (Rs)	31,150	95,415	5,40,,825	2,90,563	62,906

**(i) Computation of Customer level operating income**

	Customers				
	A	B	C	D	E
Revenues (At list price) (Refer to working note)	5,05,440	21,26,304	1,47,74,400	77,27,400	9,47,700
Less: Discount (Refer to working note)	-	35,438	12,31,200	2,57,580	94,770
Revenue (At actual price)	5,05,440	20,90,866	1,35,43,200	74,69,820	8,52,930
Less: Cost of goods sold (Refer to working note)	4,21,200	17,71,920	1,23,12,000	64,39,500	7,89,750
Gross margin	84,240	3,18,946	12,31,200	10,30,320	63,180
Less: Customer level operating activities costs (Refer to working note)	31,150	95,415	5,40,825	2,90,563	62,906
Customer level operating income	53,090	2,23,531	6,90,375	7,39,757	274

**Comment on the results:**

Customer D is the most profitable customer. D's profits are even higher than C (whose revenue is the highest) despite having only 52.30% of the unit volume of customer C. The main reason is

that C receives a discount of Rs 9 per case while customer D receives only a Rs 3.60 discount per case.

Customer E is the least profitable. The profits of E is even less than A (whose revenue is least) Customer E received a discount of Rs 10.80 per case, makes more frequent orders, requires more customer visits and requires more delivery kms in comparison with customer A.

**(ii) Insight gained by reporting both the list selling price and the actual selling price for each customer:**

Separate reporting of both-the listed and actual selling prices enables Alpha Ltd. to examine which customer has received what discount per case, whether the discount received has any relationship with the sales volume. The data given below provides us with the following information;

Sales volume	Discount per case (Rs)
C (1,36,800 cases)	9.00
D (71,550 cases)	3.60
B (19,688 cases)	1.80
E (8,775 cases)	10.80
A (4,680 cases)	0

The above data clearly shows that the discount given to customers per case has a direct relationship with sales volume, except in the case of customer E. The reasons for Rs 10.80 discount per case for customer E should be explored.

**A-13**

**(i) Statement Showing “Cost per unit – Traditional Method”**

Particulars of Costs	A	B	C
Direct Materials	1,350	1,200	1,800
Direct Labour [(4, 12, 8 hours) x Rs 300]	1,200	3,600	2,400
Production Overheads [(10, 18, 14 hours) x Rs 90]	900	1,620	1,260

<b>Cost per unit</b>	<b>3,450</b>	<b>6,420</b>	<b>5,460</b>
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**(ii) Statement Showing “Cost per unit – Activity Based Costing”**

<b>Products</b>	<b>A</b>	<b>B</b>	<b>C</b>
<b>Production (units)</b>	<b>3,000</b>	<b>5,000</b>	<b>20,000</b>
	<b>Rs</b>	<b>Rs</b>	<b>Rs</b>
Direct Materials (1350, 1200, 1800)	40,50,000	60,00,000	3,60,00,000
Direct Labour (1200, 3600, 2400)	36,00,000	1,80,00,000	4,80,00,000
Machine Related Costs @ Rs 27 per hour (30,000, 90,000, 2,80,000)	8,10,000	24,30,000	75,60,000
Setup Costs @ Rs 1,44,000 per setup (20, 10, 20)	28,80,000	14,40,000	28,80,000
Inspection Costs @ Rs 72,000 per inspection (100, 40, 60)	72,00,000	28,80,000	43,20,000
Purchase Related Costs @ Rs 11,250 per purchase (60, 100, 160)	6,75,000	11,25,000	18,00,000
<b>Total Costs</b>	<b>1,92,15,000</b>	<b>3,18,75,000</b>	<b>10,05,60,000</b>
<b>Cost per unit (Total Cost ÷ Units)</b>	<b>6,405</b>	<b>6,375</b>	<b>5,028</b>

**Working Notes:**

**1. Number of Batches, Purchase Orders, and Inspections –**

	<b>Particulars</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Total</b>
<b>A</b>	Production (units)	3,000	5,000	20,000	
<b>B</b>	Batch Size (units)	150	500	1,000	
<b>C</b>	Number of Batches [A. ÷ B.]	20	10	20	50
<b>D</b>	Number of Purchases Order per batch	3	10	8	
<b>E</b>	Total Purchase Orders [C. x D.]	60	100	160	320

<b>F</b>	Number of Inspections per batch	5	4	3	
<b>G</b>	Total Inspections [C. x F.]	100	40	60	200

## 2. Total Machine Hours –

	Particulars	A	B	C
A	Machine Hours per unit	10	18	14
B	Production (units)	3,000	5,000	20,000
C	Total Machine Hours [A. x B.]	30,000	90,000	2,80,000

Total Machine Hours = 4,00,000

Total Production Overheads-

= 4,00,000 hrs. x Rs 90 = Rs 3,60,00,000

## 3. Cost Driver Rates –

Cost Pool	%	Overheads (Rs)	Cost Driver Basis	Cost Driver (units)	Cost Driver Rate (Rs)
Setup	20%	72,00,000	Number of batches	50	1,44,000 per Setup
Inspection	40%	1,44,00,000	Number of inspections	200	72,000 per Inspection
Purchases	10%	36,00,000	Number of purchases	320	11,250 per Purchase
Machine Operation	30%	1,08,00,000	Machine Hours	4,00,000	27 per Machine Hour

**A- 14**

**(i) Calculation of operating income using Activity Based Costing**



### Calculation of Cost -Driver Rate

Activity	Overhead cost	Allocation	Overheads Cost	Cost-driver level	Cost driver rate
	Rs		Rs		Rs
Indirect Labour + 40% for incentives	56,00,000	50%	28,00,000	300 Production runs	9,333.33
		40%	22,40,000	1052* Setup hours	2,129.28
		10%	5,60,000	4 Number of parts	1,40,000
Computer Systems	20,00,000	80%	16,00,000	300 Production runs	5,333.33
		20%	4,00,000	4 Number of parts	1,00,000
Machinery depreciation	16,00,000	100%	16,00,000	20,000 Machine hours	80
Machine Maintenance	8,00,000	100%	8,00,000	20,000 Machine hours	40
Energy for Machinery	4,00,000	100%	4,00,000	20,000 Machine hours	20

$$\begin{aligned}
 & * (100 \times 4) + (100 \times 1) + (76 \times 6) + (24 \times 4) \\
 & = (400 + 100 + 456 + 96) \\
 & = 1052 \text{ setup hours}
 \end{aligned}$$

### Activity Based Costing

	Brown	Black	Red	Green	Total
Quantity (units)	1,00,000	80,000	18,000	2,000	2,00,000
	Rs	Rs	Rs	Rs	Rs

Sales	1,50,00,000	1,20,00,000	27,90,000	3,30,000	3,01,20,000
Less: Material Costs	50,00,000	40,00,000	9,36,000	1,10,000	1,00,46,000
Less: Direct labour	20,00,000	16,00,000	3,60,000	40,000	40,00,000
Less: 40% incentives on direct labour	8,00,000	6,40,000	1,44,000	16,000	16,00,000
<b>(A)</b>	<b>72,00,000</b>	<b>57,60,000</b>	<b>13,50,000</b>	<b>1,64,000</b>	<b>1,44,74,000</b>
<b>Overheads</b>					
Indirect labour + incentives					
- 50% based on Production runs	9,33,333 (9,333.33 x 100)	9,33,333 (9,333.33 x 100)	7,09,334 (9,333.33 x 76)	2,24,000 (9,333.33 x 24)	28,00,000
- 40% based on Setup hours	8,51,711 (2,129.28 x 400)	2,12,928 (2,129.28 x 100)	9,70,951 (2,129.28 x 456)	2,04,410 (2,129.28 x 96)	22,40,000
- 10% based on number of parts	1,40,000 (1,40,000 x1)	1,40,000	1,40,000	1,40,000	5,60,000
Computer Systems					
- 80% based on Production runs	5,33,333 (5,333.33 x 100)	5,33,333 (5,333.33 x 100)	4,05,334 (5,333.33 x 76)	1,28,000 (5,333.33 x 24)	16,00,000
- 20% based on number of parts	1,00,000 (1,00,000 x1)	1,00,000	1,00,000	1,00,000	4,00,000
Machinery depreciation	8,00,000 (80 x 0.1 x 1,00,000)	6,40,000 (80 x 0.1 x 80,000)	1,44,000 (80 x 0.1 x 18,000)	16,000 (80 x 0.1 x 2,000)	16,00,000
Machine Maintenance	4,00,000 (40 x 0.1 x 1,00,000)	3,20,000 (40 x 0.1 x 80,000)	72,000 (40 x 0.1 x 18,000)	8,000 (40 x 0.1 x 2,000)	8,00,000

Energy for Machinery	2,00,000 (20 x 0.1 x 1,00,000)	1,60,000 (20 x 0.1 x 80,000)	36,000 (20 x 0.1 x 18,000)	4,000 (20 x 0.1 x 2,000)	4,00,000
<b>Total Overheads (B)</b>	<b>39,58,377</b>	<b>30,39,594</b>	<b>25,77,619</b>	<b>8,24,410</b>	<b>1,04,00,000</b>
<b>Operating Income (A-B)</b>	<b>32,41,623</b>	<b>27,20,406</b>	<b>(12,27,619)</b>	<b>(6,60,410)</b>	<b>40,74,000</b>
<b>Return on Sales (%)</b>	<b>21.61</b>	<b>22.67</b>	<b>(44.00)</b>	<b>(200.12)</b>	<b>13.53</b>

(ii) The difference in the operating income under the two systems is due to the differences in the overheads borne by each of the products. The Activity Based Costs appear to be more accurate.

#### A-15

#### Cost sheet of Aditya Industries for month of.....

Units produced – 1,94,000

Units sold – 1,60,000

Particulars	Amount (Rs)	Cost per unit (Rs)
Raw materials purchased	1,44,00,000	
Add: Opening value of raw materials	12,00,000	
Less: Closing value of raw materials	(14,00,000)	
Materials consumed	1,42,00,000	73.19
Wages paid to production workers	36,64,000	18.89
Expenses paid for utilities	1,45,600	0.75
<b>Prime Cost</b>	<b>1,80,09,600</b>	<b>92.83</b>
Factory overheads (Rs 8 × 21,600 hours)	1,72,800	
Add: Opening value of W-I-P	18,00,000	

Less: Closing value of W-I-P	(16,04,000)	
<b>Cost of Production</b>	<b>1,83,78,400</b>	<b>94.73</b>
Add: Value of opening finished stock	9,60,000	
Less: Value of closing finished stock (Rs 94.73 × 44,000)	(41,68,120)	
<b>Cost of Goods Sold</b>	<b>1,51,70,280</b>	<b>94.81</b>
Office and administration expenses paid	26,52,000	16.58
Travelling allowance paid to office staffs	1,21,000	0.75
Selling expenses	6,46,000	4.04
<b>Cost of Sales</b>	<b>1,85,89,280</b>	<b>116.18</b>
Add: Profit	32,80,461	20.50
	2,18,69,741	136.68

A-16

**Statement of Cost for the month of February, 2022**

Particulars	Amount (Rs)	Amount (Rs)
<b>(i) Cost of material Consumed:</b>		
Raw materials purchased (Rs 3,00,000 - Rs 60,000)	2,40,000	
Carriage inwards	30,000	
Add: Opening stock of raw materials	1,20,000	
Less: Closing stock of raw materials	(45,000)	3,45,000
Direct Wages		1,80,000
Direct expenses:		
Cost of special drawing	45,000	
Hire charges paid for Plant (Direct)	36,000	81,000
<b>(ii) Prime Cost</b>		<b>6,06,000</b>
Carriage on return	9,000	
Store overheads (10% of material consumed)	34,500	

Factory overheads (20% of Prime cost)	1,21,200	
Additional expenditure for rectification of defective products (refer working note)	3,240	1,67,940
Gross Factory cost		7,73,940
Add: Opening value of W-I-P		75,000
Less: Closing value of W-I-P		(36,000)
<b>(iii) Works/ Factory Cost</b>		<b>8,12,940</b>
Less: Realisable value on sale of scrap		(7,500)
<b>(iv) Cost of Production</b>		<b>8,05,440</b>
Add: Opening stock of finished goods		--
Less: Closing stock of finished goods		--
<b>Cost of Goods Sold</b>		<b>8,05,440</b>
Administrative overheads:		
Maintenance of office building	3,000	
Salary paid to Office staff	37,500	
Legal Charges	3,750	44,250
Selling overheads:		
Expenses for participation in Industrial exhibition	12,000	12,000
Distribution overheads:		
Depreciation on delivery van	9,000	
Warehousing charges	2,250	11,250
<b>(v) Cost of Sales</b>		<b>8,72,940</b>

**Working Notes:**

**1. Number of Rectified units**

Total Output	8,000 units
Less: Rejected 10%	<u>800 units</u>
Finished product	<u>7,200 units</u>

**Rectified units (10% of finished product) 720 units**

**2. Proportionate additional expenditure on 720 units**

= 20% of proportionate direct wages  
 =  $0.20 \times (\text{Rs } 1,80,000/8,000) \times 720$   
 = Rs 3,240

A-17

### Cost Sheet

Particulars	Units	Amount
<b>Material</b>		
Opening stock	1,000	90,00,000
Add: Purchases	49,000	44,10,00,000
less: Closing stock	(1,750)	(1,57,50,000)
	48,250	43,42,50,000
<b>Less: Normal wastage of material realized @ Rs 5,400 per unit</b>	(250)	<b>(13,50,000)</b>
Material consumed		43,29,00,000
Direct employee's wages and allowances		6,88,50,000
Direct expenses – Royalty paid for production		3,64,50,000
<b>Prime cost</b>	48,000	<b>53,82,00,000</b>
Factory overheads – Consumable stores, depreciation etc.		3,42,00,000
<b>Gross Works Cost</b>	48,000	<b>57,24,00,000</b>
Add: Opening WIP	2,000	1,75,50,000
Less: Closing WIP	(1,000)	(94,50,000)
<b>Factory/Works Cost</b>	49,000	<b>58,05,00,000</b>
Administration Overheads related to production		3,15,00,000
R&D expenses and Quality control cost		2,10,60,000
<b>Add: Primary packaging cost @ Rs 1,440 per unit</b>		<b>7,05,60,000</b>
<b>Cost of production</b>	49,000	<b>70,36,20,000</b>
Selling expenses		4,84,30,800

Cost of maintaining website for online sale		60,75,000
<b>Secondary packaging cost @ Rs 225 per unit</b>	49,000	<b>1,10,25,000</b>
<b>Cost of sales</b>		<b>76,91,50,800</b>
<b>Add: Profit @ 20% on sales of 25% of cost</b>		<b>19,22,87,700</b>
<b>Sales value</b>		<b>96,14,38,500</b>

**A-18**

**Working Notes:**

**(i) Overhead recovery rate per direct labour hour:**

Budgeted factory overheads : Rs 6,75,000  
 Budgeted direct labour hours : 4,50,000  
 Overhead recovery rate : = Budgeted factory overheads/Budgeted direct labour hours  
 : = Rs 6,75,000/4,50,000 hours  
 = Rs 1.50 per direct labour

**(ii) Direct wage rate per hour :**

Direct labour cost of WIP : Rs 3,000  
 (on 31st October 2021)  
 Direct labour hours of WIP : 1,200 hours  
 Direct wage rate per hour : = Direct labour cost on WIP/Direct labour hours on WIP  
 = Rs 3,000/1,200 hours  
 = Rs 2.50

**(iii) Total direct wages charged to production:**

Total direct labour hours spent on production × Direct wage rate per hour  
 = 28,200 hours × Rs 2.50 = Rs 70,500



**(a) Material purchased during October, 2021**

	<b>Rs</b>
Payment made to creditors	1,05,000
Add: Closing balance in the account of creditors for purchase	15,000
Less: Opening balance	(30,000)
<b>Material Purchased</b>	<b>90,000</b>

**(b) Cost of finished goods in October, 2021**

	<b>Rs</b>
Cost of goods sold during the month	1,95,000
Add: Closing finished goods inventory	66,000
Less: Opening finished goods inventory	(75,000)
<b>Cost of goods completed during the month</b>	<b>1,86,000</b>

**(c) Overhead applied to production in October, 2021**

= 28,200 hours × Rs 1.50 = Rs 42,300

**(d) Balance of Work-in-Process on 31st October, 2021**

	<b>Rs</b>
Direct material cost	6,000
Direct labour cost	3,000
Overheads (Rs 1.50 × 1,200 hours)	1,800
	<b>10,800</b>

**(e) Direct material consumed during October, 2021 = Rs 78,000**

(Refer to following Accounts)

**Work in Process Control A/c**

	Rs		Rs
To Balance b/d	6,000	By Finished goods control A/c [Refer (b) above]	1,86,000
To Wages Control A/c [Refer working note (iii)]	70,500	By Balance c/d [Refer (d) above]	10,800
To Factory OH Control A/c [Refer (c) above]	42,300		
To Material consumed (Balancing fig.)	78,000		
	1,96,800		1,96,800

**(f) Balance of Stores Control Account on 31st October, 2021 = Rs 66,000**

(Refer to following Accounts)

**Stores Ledger Control Account**

	Rs		Rs
To Balance b/d	54,000	By Work-in-process control A/c [Refer (e) above]	78,000
To Payables (Creditors) A/c [Refer (a) above]	90,000	By Balance c/d (Balancing fig.)	66,000
	1,44,000		1,44,000

**(g) Over-absorbed or under-absorbed overheads for October, 2021:** Balance in Factory Overhead Account below showing that Rs 2,700 is under-absorbed

**Factory Overhead Account**

	Rs		Rs
To Bank A/c	45,000	By Work-in-process Control A/c (Factory OH applied)	42,300

		By Costing P/L A/c (Under absorbed)	2,700
	45,000		45,000

**A-19** Journal Entries are as follows:

		Dr.	Cr.
Stores Ledger Control A/c	Dr.	6,00,000	
To Payables (Creditors) A/c			3,00,000
To Cash or Bank			3,00,000
Work-in-Process Control A/c	Dr.	4,00,000	
To Stores Ledger Control A/c			4,00,000
Wages Control A/c	Dr.	2,00,000	
To Bank A/c			2,00,000
Factory Overhead Control A/c	Dr.	1,00,000	
To Wages Control A/c			1,00,000
Work-in-Process Control A/c	Dr.	1,00,000	
To Wages Control A/c			1,00,000
Factory Overhead Control A/c	Dr.	80,000	
To Bank A/c			80,000
Work-in-Process Control A/c	Dr.	1,00,000	
To Factory Overhead Control A/c			1,00,000
Selling and Dist. Overhead Control A/c	Dr.	40,000	
To Bank A/c			40,000
Finished Goods Control A/c	Dr.	5,00,000	
To Work-in-Process Control A/c			5,00,000
Cost of Sales A/c	Dr.	5,40,000	
To Finished Goods Control A/c			5,00,000
To Selling and Distribution Control A/c			40,000
Receivables (Debtors) A/c	Dr.	3,75,000	

Bank or Cash A/c		3,75,000	
To Sales A/c			7,50,000
Bank A/c	Dr.	2,00,000	
To Receivables (Debtors) A/c			2,00,000
Payables (Creditors) A/c	Dr.	2,00,000	
To Bank A/c			2,00,000

**A-20 (i)**

**Statement of Profit as per financial records  
(for the year ended March 31, 2022)**

	Rs		Rs
To Opening Stock:		By Sales	41,60,000
Finished Goods	1,48,750	By Closing stock:	
Work-in-process	64,000	Finished Goods	82,500
To Raw materials consumed	15,60,000	Work-in-Process	77,334
To Direct labour	9,00,000	By Rent received	36,000
To Factory overheads	6,00,000	By Interest received	90,000
To Goodwill written off	2,00,000		
To Administration overheads	5,90,000		
To Selling & Distribution overheads	1,22,000		
To Dividend paid	1,70,000		
To Bad debts	24,000		
<b>To Profit</b>	<b>67,084</b>		
	44,45,834		44,45,834

**Statement of Profit as per costing records**  
**(for the year ended March 31, 2022)**

	Rs	Rs
Sales revenue (14,500 units) (A)		41,60,000
Cost of Sales:		
Opening stock (875 units x Rs 208)	1,82,000	
Add: Cost of production of 14,000 units (Refer to working Note 1 & 2)	35,84,000	
Less: Closing stock (Rs 35,84,000 × 375 units)/14,000 units	(96,000)	
Production cost of goods sold (14,500 units)	36,70,000	
Selling & Distribution overheads (14,500 units x Rs 8)	1,16,000	
Cost of Sales: (B)		37,86,000
<b>Profit: {(A) – (B)}</b>		<b>3,74,000</b>

(ii)

**Statement of Reconciliation**

**(Reconciling the profit as per costing records with the profit as per financial records)**

	Rs	Rs
Profit as per Cost Accounts		3,74,000
Add: Admin. Overheads over absorbed (Rs 5,97,333 – Rs 5,90,000)	7,333	
Opening stock overvalued (Rs 1,82,000 - Rs 1,48,750)	33,250	
Interest received	90,000	
Rent received	36,000	1,66,583
		5,40,583
Less: Factory overheads under recovery (Rs 6,00,000 - Rs 5,40,000)	60,000	
Selling & Distribution overheads under recovery	6,000	

(Rs 1,22,000 - Rs 1,16,000)		
Closing stock overvalued (Rs 96,000 - Rs 82,500)	13,500	
Goodwill written off	2,00,000	
Dividend	1,70,000	
Bad debts	24,000	4,73,500
Profit as per financial accounts		<b>67,083</b>

**Working Notes:**

**1. Number of units produced**

**Units**

Sales	14,500
Add: Closing stock	<u>375</u>
Total	14,875
Less: Opening stock	<u>875</u>
Number of units produced	<u>14,000</u>

**2. Cost Sheet**

	Rs	Rs
Raw Materials consumed		15,60,000
Direct labour		9,00,000
Prime cost		24,60,000
Factory overheads (60% of direct wages)		5,40,000
Factory cost		30,00,000
Add: Opening work-in-process		64,000
Less: Closing work-in-process		77,334
Factory cost of goods produced		29,86,666
Administration overheads (20% of factory cost)		5,97,333
Cost of production of 14,000 units		<b>35,83,999</b>

Cost of production per unit: = Total Cost of Production/No. of units produced

= Rs 35,83,999/14,000 units

= Rs 256

A-21

(i)

**Statement of equivalent production**

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Sugarcane		Labour & O.H.	
				%	Units	%	Units
Opening WIP	4,500	Completed and transferred to Process - II	39,500	100	39,500	100	39,500
Units introduced	1,00,000	Normal Loss (55%* of 1,00,000)	55,000	--	--	--	--
		Abnormal loss	1,000	100	1,000	80	800
		Closing WIP	9,000	100	9,000	80	7200
	1,04,500		1,04,500		47,500		47,500

\* 100 kg of sugarcane extracts only 45 litre of juice.

Thus, normal loss = 100 – 45 = 55%

**(ii) Statement showing cost for each element**

Particulars	Sugarcane	Labour	Overhead	Total
	Rs	Rs	Rs	Rs
Cost of opening work-in-process	50,000	15,000	45,000	1,10,000
Cost incurred during the month	5,00,000	2,00,000	6,00,000	13,00,000
Total cost: (A)	5,50,000	2,15,000	6,45,000	14,10,000
Equivalent units: (B)	49,500	47,500	47,500	
Cost per equivalent unit: (C) = (A ÷ B)	11.111	4.526	13.579	29.216

**(iii) Statement of Distribution of cost**



	Amount (Rs)	Amount (Rs)
1. Value of units completed and transferred (39,500 units × Rs 29.216)		11,54,032
2. Value of Abnormal Loss:		
- Sugarcane (1,000 units × Rs 11.111)	11,111	
- Labour (800 units × Rs 4.526)	3,621	
- Overheads (800 units × Rs 13.579)	10,863	25,595
3. Value of Closing W-I-P:		
- Sugarcane (9,000 units × Rs 11.111)	99,999	
- Labour (7,200 units × Rs 4.526)	32,587	
- Overheads (7,200 units × Rs 13.579)	97,769	2,30,355

**(iv) Process-I A/c**

Particulars	Units	Rs	Particulars	Units	Rs
To Opening W.I.P:			By Normal Loss	55,000	--
- Sugarcane	4,500	50,000	By Abnormal loss [Rs 25,595 + Rs 18 (difference due to approximation)]	1,000	25,613
- Labour	--	15,000	By Process-II A/c	39,500	11,54,032
- Overheads	--	45,000	By Closing WIP	9,000	2,30,355
To Sugarcane introduced	1,00,000	5,00,000			
To Direct Labour		2,00,000			
To Overheads		6,00,000			
	104,500	14,10,000		104,500	14,10,000

**A-22**

**(i) Calculation of equivalent units of production:**

Input Details	Units	Output Particulars	Units	Material		Conversion cost	
				%	Units	%	Units
Beginning WIP	22,400	From beginning WIP	22,400	50	11,200	70	15,680
Unit Introduced	1,40,000	Completed output	1,06,400	100	1,06,400	100	1,06,400
		Closing W-I-P	33,600	80	26,880	30	10,080
<b>Total</b>	<b>1,62,400</b>	<b>Total</b>	<b>1,62,400</b>		<b>1,44,480</b>		<b>1,32,160</b>

**(ii) Calculation of cost per equivalent unit for conversion costs**

<b>Particular</b>	
Direct labour	Rs 9,14,400
factory overhead	Rs 19,55,800
<b>Total</b>	<b>Rs 28,70,200</b>
Equivalent units	1,32,160 units
Cost per equivalent unit	Rs 21.72

**A-23**

**Process A Account**

Particulars	Tones	Amount	Particulars	Tones	Amount
To Materials	1,000	20,000	By Weight Loss	20	--
To Wages		4,000	By Scrap	80	160
To Direct Expenses		3,160	By Process B	540	16,200
			By Warehouse	360	10,800
<b>Total</b>	<b>1,000</b>	<b>27,160</b>	<b>Total</b>	<b>1,000</b>	<b>27,160</b>

$$\text{Cost per Tonne} = \frac{27,160 - 160}{1,000 - 20 - 80}$$

$$= 27,000/900$$

$$= \text{Rs } 30 \text{ per ton}$$

#### Process B Account

Particulars	Tones	Amount	Particulars	Tones	Amount
To Process A	540	16,200	By Weight Loss	16	--
To Materials	260	3,900	By Scrap	64	256
To Wages		3,000	By Process C	360	12,600
To Direct Expenses		2,356	By Warehouse <sup>®</sup>	360	12,600
<b>Total</b>	<b>800</b>	<b>25,456</b>	<b>Total</b>	<b>800</b>	<b>25,456</b>

$$\text{Cost per Tonne} = \frac{25,456 - 256}{800 - 16 - 64}$$

$$= 25,200/720$$

$$= \text{Rs } 35 \text{ per ton}$$

#### Process C Account

Particulars	Tones	Amount	Particulars	Tones	Amount
To Process B	360	12,600	By Weight Loss	10	--
To Materials	140	1,400	By Scrap	40	240
To Wages		2,000	By Warehouse	450	17,100
To Direct Expenses		1,340			
<b>Total</b>		<b>17,340</b>	<b>Total</b>	<b>500</b>	<b>17,340</b>

$$\text{Cost per Tonne} = \frac{17,340 - 240}{500 - 10 - 40}$$

$$= 17,100/450$$

$$= \text{Rs } 38 \text{ per ton}$$

**A-24****(i) Estimated Net Realisable Value Method:**

	<b>Buttermilk Amount (Rs)</b>	<b>Butter Amount (Rs)</b>
Sales Value	8,40,000 (Rs 30 × 28 × 1000)	76,80,000 (480 × 16 × 1000)
Less: Post split-off cost (Further processing cost)	-	(1,20,000)
Net Realisable value	8,40,000	75,60,000
Apportionment of Joint Cost of Rs 51,00,000* in ratio of 1:9	5,10,000	45,90,000

\* [(Rs 100 × 50 × 1000) + Rs 1,00,000] = Rs 51,00,000

**(ii) Incremental revenue from further processing of Butter into Ghee**

(Rs 480 × 16 × 1000 - Rs 360 × 20 × 1000)

Rs 4,80,000

Less: Incremental cost of further processing of Butter into Ghee

Rs 1,20,000

Incremental operating income from further processing

Rs 3,60,000

The operating income of 'Buttery Butter' will be reduced by Rs 3,60,000 in February if it sells 20 tonne of Butter to 'Healthy Bones', instead of further processing of Butter into Ghee for sale.

Thus, 'Buttery Butter' is advised not to accept the offer and further process butter to make Ghee itself.

**A-25****Calculation of Net joint costs to be allocated:**

<b>Particulars</b>	<b>Amount</b>
Joint Costs	15,00,000
Less: Net Realizable value of by-product (75,000 × 5)	3,75,000
Net Joint costs to be allocated	11,25,000

Therefore, amount of joint product cost that Mili Ltd. would allocated to the product – R by using the physical volume method to allocated joint production costs:

= Physical quantity of Product-R / Total Quantity x Net joint costs to be allocated

$$= 1,80,000 \text{ units} / 2,70,000 \text{ units} \times 11,25,000 = \text{Rs } 7,50,000$$

## A-26

### Product A

As the question says that "Products B and C must be processed further before they can be sold", it means Product A can be sold at the split-off point.

$$\text{Cost to process Product A after the split-off point} = \text{Rs } 6,00,000$$

$$\text{Additional revenue to be earned by processing further} = \text{Rs } 3,00,000$$

$$(\text{Rs } 100 \text{ increase in selling price per unit} \times 3,000 \text{ units})$$

Therefore, Product A will not be processed further, and the sales value at split-off for A will be used for allocating the joint costs.

$$\text{Sales value at the split-off for A} = \text{Rs } 6,00,000$$

$$(\text{Rs } 200 \times 3,000 \text{ units})$$

### Product B

Since Product B must be processed further, we use its net realizable value for the joint cost allocation.

$$\text{Net realizable value of Product B} = \text{Rs } 15,00,000$$

$$[(\text{Rs } 350 \times 6,000 \text{ units}) - \text{Rs } 6,00,000 \text{ further processing costs}]$$

### Product C

Product C, the by-product, must also be processed further to be sold.

$$\text{Net realizable value of Product C} = \text{Rs } 3,00,000$$

$$[(\text{Rs } 100 \times 9,000 \text{ units}) - \text{Rs } 6,00,000 \text{ in further processing costs}]$$

### Joint Cost Allocation

$$\text{Joint production cost} = \text{Rs } 33,60,000$$

Since, by-product C is accounted for as reduction to the joint costs, the joint costs to be allocated

= Rs 30,60,000

(Rs 33,60,000 - Rs 3,00,000 NRV of Product C)

Allocation of joint costs between Product A and B will be on the basis of

Rs 6,00,000: Rs 15,00,000

Joint Cost allocated to Product A = Rs 30,60,000 x Rs 6,00,000/ Rs 21,00,000 = Rs 8,74,286

### A-27

#### Working Notes:

#### Total Distance (in km.) covered per month

Bus route	Km. per trip	Trips per day	Days per month	Km. per month
Delhi to Chandigarh	250	2	8	4,000
Delhi to Agra	210	2	10	4,200
Delhi to Jaipur	270	2	6	3,240
				11,440

#### Passenger-km. per month

	Total seats available per month (at 100% capacity)	Capacity utilised		Km. per trip	Passenger-km per month
		(%)	Seats		
Delhi to Chandigarh & Back	800 (50 seats × 2 trips × 8 days)	90	720	250	1,80,000 (720 seats × 250 km.)
Delhi to Agra & Back	1,000 (50 seats × 2 trips × 10 days)	85	850	210	1,78,500 (850 seats × 210 km.)
Delhi to Jaipur & Back	600 (50 seats × 2 trips × 6 days)	100	600	270	1,62,000 (600 seats × 270 km.)
<b>Total</b>					5,20,500

### Monthly Operating Cost Statement

	Rs	Rs
<b>(i) Running Costs</b>		
Diesel $\{(11,440 \text{ km} \div 4 \text{ km}) \times \text{Rs } 56\}$	1,60,160	
Lubricant oil $\{(11,440 \text{ km} \div 100) \times \text{Rs } 10\}$	1,144	1,61,304
<b>(ii) Maintenance Costs</b>		
Repairs & Maintenance		1,000
<b>(iii) Standing charges</b>		
Salary to driver	24,000	
Salary to conductor	21,000	
Salary of part-time accountant	5,000	
Insurance (Rs 4,800 $\div$ 12)	400	
Road tax (Rs 15,915 $\div$ 12)	1,326.25	
Permit fee	315	
Depreciation $\{( \text{Rs } 12,00,000 \times 20\%) \div 12\}$	20,000	72,041.25
Total costs per month before Passenger Tax (i) + (ii) + (iii)		2,34,345.25
Passenger Tax*		93,738.10
Total Cost		3,28,083.35
Add: Profit*		1,40,607.15
Total takings per month		4,68,690.50

\*Let, total takings be X then

$X = \text{Total costs per month before passenger tax} + 0.2 X (\text{passenger tax}) + 0.3 X (\text{profit})$

$X = \text{Rs } 2,34,345.25 + 0.2 X + 0.3 X$

$0.5 X = \text{Rs } 2,34,345.25$  or,  $X = \text{Rs } 4,68,690.50$

Passenger Tax = 20% of Rs 4,68,690.50 = Rs 93,738.10

Profit = 30% of Rs 4,68,690.50 = Rs 1,40,607.15

### Calculation of Rate per passenger km. and fares to be charged for different routes

**Rate per Passenger-Km** = Total takings per month/Total passenger-Km. per month



= Rs 4,68,690.50/ 5,20,500 passenger – km.

= Rs 0.90

**Bus fare to be charged per passenger**

Delhi to Chandigarh = Rs 0.90 × 250 km = Rs 225.00

Delhi to Agra = Rs 0.90 × 210 km = Rs 189.00

Delhi to Jaipur = Rs 0.90 × 270 km = Rs 243.00

**A-28**

**Calculation of relative costs of three proposals and their ranking**

	per annum Rs	I Use of company's car per km. Rs	II Use of own car per km. Rs	III Use of hired car per km. Rs
Reimbursement		--	10.00	9.00*
<b>Fixed cost:</b>				
Insurance	1,200	0.06	0.06	--
Taxes	800	0.04	--	0.04
Depreciation (Rs 6,00,000 – Rs 80,000) ÷ 5 year	1,04,000	5.20	--	--
<b>Running and Maintenance Cost:</b>				
Petrol	--	6.00	--	6.00
Repairs and Maintenance	--	0.20	--	--
Tyre	--	0.12	--	0.12
<b>Total cost per km.</b>	--	11.62	10.06	15.16
Cost for 20,000 km.		2,32,400	2,01,200	3,03,200
Ranking of proposals		II	I	III

\* (Rs 1,80,000 ÷ 20,000 km.)

The Second alternative i.e., use of own car by the executive and reimbursement of expenses by the company is the best alternative from company's point of view.

**A-29**

**Operating Cost Statement**

Particulars	Total Cost per Month (in Rs)
<b>Fixed Charges:</b>	
Salary of Drivers (Rs 25,000 × 20 buses)	5,00,000
Salary of Cleaners (Rs 15,000 × 20 buses)	3,00,000
Road Tax (Rs 1,50,000 × 20 buses)	30,00,000
Insurance (Rs 63,36,000/12 months)	5,28,000
Depreciation (48,00,000 × 20% × 20 buses)/12 months	16,00,000
Administrative Overheads (Rs 50,88,000/12 months)	4,24,000
<b>Total (A)</b>	<b>63,52,000</b>
<b>Variable Charges:</b>	
Diesel (60,750 km. × Rs 10)	6,07,500
Tyres and Tubes	12,58,040
Lubricants	10,70,000
Repairs	24,70,000
<b>Total (B)</b>	<b>54,05,540</b>
Total Operating Cost (A + B)	1,17,57,540
Add: Passenger tax (Refer to WN-1)	29,39,385
Add: Profit (Refer to WN-1)	48,98,975
<b>Total takings (C)</b>	<b>1,95,95,900</b>
No. of passengers kms. In a month (D)	24,30,000
Cost per passenger km. (C/D)	<b>8.06</b>

**Working Notes:**

1. Let total takings be X then Passenger tax and profit will be as follows:

$$X = \text{Rs } 1,17,57,540 + 0.15X + 0.25X$$

$$X - 0.40X = \text{Rs } 1,17,57,540$$

$$X = 1,17,57,540 / 0.60$$

$$= \text{Rs } 1,95,95,900$$

$$\text{Passenger tax} = \text{Rs } 1,95,95,900 \times 0.15 = \text{Rs } 29,39,385$$

$$\text{Profit} = \text{Rs } 1,95,95,900 \times 0.25 = \text{Rs } 48,98,975$$

2. Total Kilometers to run during the month of November, 2021

$$= (112.50 \text{ km.} \times 30 \text{ days} \times 20 \text{ Buses}) \times 90\% = 60,750 \text{ Kilometers}$$

3. Total passenger Kilometers during the month of November, 2021

$$= 60,750 \text{ km.} \times 40 \text{ passengers} = 24,30,000 \text{ Passenger-km.}$$

### A-30

(i) Total Cost of production = Rs 2,120 + 60 + 20 = Rs 2,200

Calculation of Economic Batch Quantity (EBQ):

$$\begin{aligned} \text{EBQ} &= \sqrt{\frac{2 \times 90,000 \times \text{Rs } 1,500}{5\% \text{ of Rs } 2,200}} \\ &= \sqrt{\frac{27,00,00,000}{\text{Rs } 110}} = 1,567 \text{ columns.} \end{aligned}$$

(ii) Calculation of Extra Cost due to processing of 18,000 columns in a batch

	When run size is 1,567 columns	When run size is 18,000 columns
Total set up cost	No. of setups $= 90,000 / 1567 = 57.43$ (58 setups) $= 90,000 / 1,567 \times \text{Rs } 1,500$	$= 90,000 / 18,000 \times \text{Rs } 1,500$ $= \text{Rs } 7,500$

	= Rs 87,000	
Total Carrying cost	$\frac{1}{2} \times 1,567 \times Rs 110$ = Rs 86,185	$\frac{1}{2} \times 18,000 \times Rs 110$ = Rs 9,90,000
Total Cost	Rs 1,73,185	Rs 9,97,500

Thus, extra cost = Rs 9, 97,500 – Rs 1, 73,185 = Rs 8, 24,315

### A-31

#### (i) Calculation of Overhead Recovery Rate:

$$\begin{aligned} \text{Factory Overhead Recovery Rate} &= \frac{\text{Factory Overhead in 2020-21}}{\text{Direct labour cost in 2020-21}} \times 100 \\ &= \text{Rs } 30,80,000 / \text{Rs } 90,50,000 \times 100 \\ &= 34\% \text{ of Direct labour} \end{aligned}$$

$$\begin{aligned} \text{Administrative overhead Recovery Rate} &= \frac{\text{Administrative Overhead in 2020-21}}{\text{Factory cost in 2020-21 (W.N.)}} \times 100 \\ &= \text{Rs } 20,50,400 / \text{Rs } 2,96,80,000 \times 100 \\ &= 6.91\% \text{ of Factory Cost} \end{aligned}$$

#### Working Note: Calculation of Factory Cost in 2020-21

Particulars	Amount
Opening Stock of Material	15,00,000
Add: Purchase of Material	1,80,50,000
Less: Closing Stock of Material	(20,00,000))
Material Consumed	1,75,50,000
Direct Labour	90,50,000
Prime Cost	2,66,00,000
Factory Overhead	30,80,000
Factory Cost	2,96,80,000

#### (ii) Job Cost Sheet for the order received in 2021-22

Particulars	Amount
Material	80,00,000

Labour	40,50,000
Factory Overhead (34% of Rs 40,50,000)	13,77,000
Factory Cost	1,34,27,000
Administrative Overhead (6.91% of Rs 1,34,27,000)	9,27,806
Cost of delivery	9,50,000
Total Cost	1,53,04,806
Add: Profit @ 25% of Sales or 33.33% of cost	51,01,602
Sales value (Price to be quoted for the order)	2,04,06,408

Hence the price to be quoted is Rs 2,04,06,408.

### A-32 Statement showing selling price per unit of Batch number 'PS143'

Particulars	Amount	Amount
Direct Materials		2,00,000
<b>Direct Labour</b>		
Department A 800 labour hours @ Rs 100 per hour	80,000	
Department B 1400 labour hours @ Rs 120 per hour	1,68,000	2,48,000
Factory overheads		
Department A 800 labour hours @ Rs 140 per hour	1,12,000	
Department B 1400 labour hours @ Rs 80 per hour	1,12,000	2,24,000
<b>Factory Cost</b>		<b>6,72,000</b>
Add: Administrative overheads (10% of selling price) (6,72,000/75% x 10%)		89,600
Cost of production		7,61,600
Add: Profit (15% of selling price) (6,72,000/75% x 15%)		1,34,400
Selling price of batch no 'PS 143'		8,96,000
Selling price per unit (8,96,000/ 1000 units)		896

Alternatively, selling price calculation: - Selling price assume X

$$25\% = (X - \text{factory cost}) / X$$

or  $0.25 X = X - 6,72,000$   
 or  $0.75 X = 6,72,000$   
 hence  $X = \text{Rs } 8,96,000$

**A-33**

**Factory Cost Statement of Completed Job.**

Month	Job No.	Materials	Direct Labour	Factory overheads (80% of direct labour cost)	Factory cost
	Rs	Rs	Rs	Rs	Rs
September	115	1,325	800	640	2,765
October	115	--	125	100	225
Total		1,325	925	740	2,990
September	118	810	500	400	1,710
October	118	515	330	264	1,109
Total		1,325	830	664	2,819
September	120	765	475	380	1,620
October	120	665	245	196	1,106
Total		1,430	720	576	2,726

**Invoice Price of Complete Job**

Job No.	115 (Rs)	118 (Rs)	120 (Rs)
Factory cost	2,990	2,819.00	2,726.00
Administration and selling overheads @ 10% of factory cost	299.00	281.90	272.60
Total cost	3,289.00	3,100.90	2,998.60
Profit (20% of total cost)	657.80	620.18	599.72
Invoice Price	3,946.80	3,721.08	3,598.32

**Assumption:** - Indirect labour costs have been included in the factory overhead which has been recovered as 80% of the labour cost.

**A-34**

**Contract Account (2020-21)**

Particulars	Rs	Particulars	Rs
To Material issued	90,000	By Material sold	18,125
To Wages Paid 75,000		By Plant sold	2,875
Add: Outstanding <u>6,250</u>	81,250	By Plant at site c/d	7,750
To Plant	25,000	By Material at site c/d	4,250
To Sundry Expenses 7,250		By Work-in-progress c/d	
Less: Prepared <u>625</u>	6,625	Work certified 2,18,750 (Rs 1,75,000 ÷ 80%)	
To Establishment charges	14,625	Work uncertified 27,375	2,46,125
To Costing P & L A/c (Rs 18,125 - Rs 15,000)	3,125		
To Notional profit (Profit for the year)	58,500		
	2,79,125		2,79,125

**Calculation of Estimated Profit**

		Rs	Rs
(1)	Material consumed (90,000 + 3,125 – 18,125)	75,000	
	Add: Further consumption	85,750	1,60,750
(2)	Wages:	81,250	
	Add: Further cost (87,325 – 6,250)	81,075	
	Add: Outstanding	8,300	1,70,625
(3)	Plant used (25,000 – 2,875)	22,125	
	Add: Further plant introduced	31,250	



	Less: Closing balance of plant	(3,750)	49,625
(4)	Establishment charges	14,625	
	Add: Further charges for nine months (14,625 × 9/12)	10,969	25,594
(5)	Sundry expenses	7,250	
	Add: Further expenses	6,875	14,125
(6)	Reserve for contingencies		10,800
Estimated Profit (balancing figure)			68,481
Contract price			5,00,000

**A-35**

**Contract Account**

Particulars	Rs	Particulars	Rs
To Material issued	12,55,000	By Machine (Working note 1)	12,30,000
To Wages	28,28,000	By Material (In hand)	1,77,000
To Foreman's salary	4,06,500	By Works cost (balancing figure)	52,45,000
To Machine	13,00,000		
To Supervisor's Salary (Rs 40,000 x 9)/2	1,80,000		
To Administrative charges	6,82,500		
	<b>66,52,000</b>		<b>66,52,000</b>
To Works cost	52,45,000	By Value of work certified	50,00,000
To Costing P&L A/c (Notional profit)	10,66,250	By Cost of work uncertified (Working Note 2)	13,11,250
	<b>63,11,250</b>		<b>63,11,250</b>

**Working notes:**

1. Written down value of Machine:

$$\text{Depreciation} = \frac{\text{Rs } 13,00,000 - 75,000}{7 \text{ years}} \times \frac{4.8 \text{ months}}{12 \text{ months}} = \text{Rs } 70,000$$

Hence the value of machine after the period of 4.8 month = Rs 13,00,000 - Rs 70,000 = Rs 12,30,000

2. The cost of 2/3rd of the contract is Rs 52,45,000

∴ Cost of 100% of the contract is Rs 52,45,000/2 x 3 = Rs 78,67,500

∴ Cost of 50% of the contract which has been certified by the architect is Rs 39,33,750. Also, the cost of 1/3rd of the contract, which has been completed but not certified by the architect is Rs 13,11,250.

**A-36**

**(i) Statement showing Flexible Budget and its comparison with actual**

		Master Budget 80,000 units	Flexible Budget (at standard cost)		Actual for 72,000 units	Variance
			Per unit	72,000 units		
<b>A</b>	Sales	3,20,000	4.00	2,88,000	2,80,000	8,000(A)
<b>B</b>	Direct material	80,000	1.00	72,000	73,600	1,600(A)
<b>C</b>	Direct wages	1,20,000	1.50	1,08,000	1,04,800	3,200(F)
<b>D</b>	Variable overheads	40,000	0.50	36,000	37,600	1,600(A)
<b>E</b>	Total variable cost	2,40,000	3.00	2,16,000	2,16,000	-
<b>F</b>	Contribution	80,000	1.00	72,000	64,000	-
<b>G</b>	Fixed overhead	40,000	0.50	40,000	39,200	800(F)
<b>H</b>	Net profit	40,000	0.50	32,000	24,800	7,200(A)

**(ii) Variances:**

Sales Price Variance = Actual Quantity (Standard Rate – Actual Rate)  
 = 72,000 units (Rs 4.00 - Rs 3.89)  
 = Rs 8,000 (A)

Direct Material Cost Variance = Standard Cost for Actual output – Actual cost  
 = Rs 72,000 - Rs 73,600 = Rs 1,600 (A)

$$\begin{aligned} \text{Direct Material Price Variance} &= \text{Actual Quantity (Standard rate – Actual Rate)} \\ &= 78,400 \text{ units (Rs 1.00 – Rs 73,600/78,400 units)} \\ &= \text{Rs 4,800 (F)} \end{aligned}$$

$$\begin{aligned} \text{Direct Material Usage Variance} &= \text{Standard Rate (Std. Qty. – Actual Quantity)} \\ &= \text{Rs 1 (72,000 units – 78,400 units)} \\ &= \text{Rs 6,400 (A)} \end{aligned}$$

$$\begin{aligned} \text{Direct Labour Cost Variance} &= \text{Standard Cost for actual output – Actual Cost} \\ &= \text{Rs 1,08,000 - Rs 1,04,800 = Rs 3,200 (F)} \end{aligned}$$

$$\begin{aligned} \text{Direct Labour Rate Variance} &= \text{Actual Hour (Std Rate – Actual Rate)} \\ &= 70,400 \text{ hours (Rs 1.5 –Rs 1,04,800/70,400 hours)} \\ &= \text{Rs 800 (F)} \end{aligned}$$

$$\begin{aligned} \text{Direct Labour Efficiency} &= \text{Standard Rate (Standard Hour – Actual Hour)} \\ &= \text{Rs 1.5 (72,000 – 70,400) = Rs 2,400 (F)} \end{aligned}$$

$$\begin{aligned} \text{Variable Overhead} &= \text{Recovered variable overhead – Actual variable overhead} \\ &= (72,000 \text{ units} \times \text{Rs 0.50}) – \text{Rs 37,600} \\ &= \text{Rs 1,600(A)} \end{aligned}$$

$$\begin{aligned} \text{Fixed Overhead Expenditure} &= \text{Budgeted fixed overhead – Actual fixed overhead} \\ &= \text{Rs 40,000 – Rs 39,200 = Rs 800 (F)} \end{aligned}$$

$$\begin{aligned} \text{Sales Volume (Profit) Variance} &= \text{Std. Profit (Budgeted Quantity – Actual Quantity)} \\ &= \text{Rs 0.50 (80,000 – 72,000) = Rs 4,000(A)} \end{aligned}$$

### A- 37

#### (a) Decision making Cost Sheet (per unit)

Particulars	(Amount in Rs)	(Amount in Rs)
Direct material 40 m2 at Rs 10.60 per m2		424
Direct wages:		
Bonding department – 48 hours at Rs 25 per hour	1,200	
Finishing department – 30 hours at Rs 19 per hour	570	1,770

<b>Prime Cost</b>		<b>2,194</b>
Variable overhead:*		
Bonding department – 48 hours at Rs 1.50 per hour	72	
Finishing department – 30 hours at Rs 1.00 per hour	30	102
<b>Variable production cost</b>		<b>2,296</b>
Fixed production overhead #		80
<b>Total Production cost</b>		<b>2,376</b>
Selling and distribution cost \$	40	
Administration Cost \$	20	60
<b>Total Cost</b>		<b>2,436</b>

Selling price per unit = Rs 2,436 x 100/ 75 = Rs 3,248

#### Working Notes:

\* Variable overhead rates—

Bonding: 15,00,000/ 10,00,000 hours = Rs 1.50

Finishing: 6,00,000/6,00,000 hours = Rs 1.00

# Fixed production overhead rate per unit of output = 15,68,000/ 19,600 units = Rs 80

\$ Selling and production cost per unit of output = 7,84,000/ 19,600 units = Rs 40

#### A-38

Maximum Capacity in a budget period

= 50 Employees × 9 Hrs. × 5 Days × 4 Weeks = 9,000 Hrs.

Budgeted Hours

= 40 Employees × 9 Hrs. × 5 Days × 4 Weeks = 7,200 Hrs.

Actual Hrs

= 6,750 Hrs

Standard Hrs. for Actual Output

= 7,875 Hrs.

Budget No. of Days

= 20 Days (4 Weeks x 5 Days)

Actual No. of Days

$$= 20 - 1 = 19 \text{ Days}$$

(i) Efficiency Ratio = Standard Hrs/ Actual Hrs x 100

$$= 7,875 \text{ hours}/6,750 \text{ hours} \times 100 = 116.67\%$$

(ii) Activity Ratio = Standard Hrs/Budgeted Hrs x 100

$$= 7,875 \text{ hours}/7,200 \text{ hours} \times 100 = 109.375\%$$

(iii) Calendar Ratio = Available working days/ Budgeted working days x 100

$$= 19 \text{ days}/ 20 \text{ days} \times 100 = 95\%$$

(iv) Standard Capacity Usage Ratio = Budgeted Hours/ Max. Possible hours in the budgeted period x 100

$$= 7,200 \text{ hours}/ 9,000 \text{ hours} \times 100 = 80\%$$

(v) Actual Capacity Usage Ratio = Actual Hours worked/ Max. Possible working hours in a period x 100

$$= 6,750 \text{ hours}/ 9,000 \text{ hours} \times 100 = 75\%$$

(vi) Actual Usage of Budgeted Capacity Ratio = Actual working Hours/ Budgeted Hours x 100

$$= 6,750 \text{ hours}/ 7,200 \text{ hours} \times 100 = 93.75\%$$

## A-39

### Material variances

#### 1. Material cost variance

$$= (\text{Std. qty for actual output}^* \times \text{Std. price}) - (\text{Actual qty.} \times \text{Actual price})$$

$$= (18,000 \times 4) - (19,000 \times 4.40)$$

$$= 72,000 - 83,600 = \text{Rs } 11,600 \text{ (A)}$$

$$* \text{ Std. qty. for actual output} = 1,800 \times 10 = 18,000 \text{ units}$$

#### 2. Material price variance

$$= (\text{Std. price} - \text{Actual price}) \times \text{Actual qty.}$$

$$= (4 - 4.40) \times 19,000$$

$$= 0.40 \times 19,000 = \text{Rs } 7,600 \text{ (A)}$$

### 3. Material usage variance

$$\begin{aligned} &= (\text{Std. qty.} - \text{Actual qty.}) \times \text{Std. price} \\ &= (18,000 - 19,000) \times 4 \\ &= 1,000 \times 4 = \text{Rs } 4,000 \text{ (A)} \end{aligned}$$

### Labour variances

#### 1. Labour cost variance

$$\begin{aligned} &= (\text{Std. hours for actual output}^* \times \text{Std. price}) - \text{Actual cost} \\ &= (4,500 \times 4) - 24,750 \\ &= 18,000 - 24,750 = \text{Rs } 6,750 \text{ (A)} \end{aligned}$$

$$^* \text{Std. hours for actual output} = 1,800 \times 2.5 = 4,500 \text{ hrs.}$$

#### 2. Labour rate variance

$$\begin{aligned} &= (\text{Std. rate} - \text{Actual rate}) \times \text{Actual hrs.} \\ &= (4 - 5) \times 4,950 = \text{Rs } 4,950 \text{ (A)} \end{aligned}$$

#### 3. Labour efficiency variance

$$\begin{aligned} &= (\text{Std. hrs. for actual output} - \text{Actual hrs.}) \times \text{Std. rate} \\ &= (4,500 - 4,950) \times 4 = \text{Rs } 1,800 \text{ (A)} \end{aligned}$$

A-40

### Working Notes:

	Budget	Actual
1. Working hours per month	24,000	20,160
2. Production units per month = (Budget 24,000 ÷ 4 hrs, Actual given)	6,000	5,305
3. Standard fixed overhead rate per unit = Rs 1,44,000 ÷ 6,000 = Rs 24		
4. Standard fixed overhead rate per hour = Rs 1,44,000 ÷ 24,000 = Rs 6		
5. Standard fixed overhead rate per day		

= Rs 1,44,000 ÷ 25 = Rs 5,760		
-------------------------------	--	--

Fixed Overhead Variances:

Actual Fixed overhead incurred = Rs 1,42,000 (given)

Budgeted fixed overhead for the period = Rs 1,44,000.

Standard fixed overhead for actual production

= (Standard output for actual time × Standard Fixed Overhead per unit)

= 5,305 × Rs 24 = Rs 1,27,320.

**Variances:**

(i) F.O. Expenditure Variance = (Budgeted fixed overhead – Actual fixed overhead)

$$= 1,44,000 - 1,42,000 = \text{Rs } 2,000 \text{ (F)}$$

(ii) Total Volume Variance = (Standard fixed overhead – Budgeted fixed overhead)

$$= 1,27,320 - 1,44,000 = \text{Rs } 16,680 \text{ (A)}$$

(iii) Fixed overhead variance = (Standard fixed overhead – Actual Fixed overhead)

$$= 1,27,320 - 1,42,000 = \text{Rs } 14,680 \text{ (A)}$$

**Alternatively:**

Expenditure Variance + Volume Variance = 2,000 (F) + 16,680 (A) = Rs 14,680 (A)

**A-41**

**(i) Material Variances**

	Budget			Std. for actual			Actual		
	Quantity	Price	Amount	Quantity	Price	Amount	Quantity	Price	Amount
		Rs	Rs		Rs	Rs		Rs	Rs
Material	0.5	60	30	5,000	60	3,00,000	5,700	58	3,30,600

**Material Cost Variance = (SQ×SP – AQ ×AP)**

$$3,00,000 - 3,30,600 = \text{Rs } 30,600 \text{ (A)}$$

**Material Price Variance = (SP – AP) AQ**

$$(60 - 58) 5,700 = \text{Rs } 11,400 \text{ (F)}$$



**Material Usage Variance = (SQ – AQ) SP**

$$(5,000 – 5,700) 60 = \text{Rs } 42,000 \text{ (A)}$$

**(ii) Variable Overheads variances**

Variable overhead cost Variance = (Standard variable overhead – Actual Variable Overhead)

Standard Variable Overheads: 10,000 units × 10 = 1,00,000

$$(1,00,000 – 1,12,200) = \text{Rs } 12,200 \text{ (A)}$$

**Variable overhead Efficiency Variance = (Standard Hours – Actual Hours) × Standard Rate per Hour**

Let Actual Hours be 'X'

$$(10,000 – X) \times 10 = 2,000 \text{ (A)}$$

$$1,00,000 – 10X = -2,000$$

$$X = 1,02,000 \div 10$$

Therefore, Actual Hours (X) = 10,200

**Variable overhead Expenditure Variance = (Variable Overhead at Actual Hours – Actual Variable Overheads)**

$$10,200 \times 10 – 1,12,200 = \text{Rs } 10,200 \text{ (A)}$$

**(iii) Labour variances**

	Budget			Std. for actual			Actual		
	Hours	Rate Rs	Amount Rs	Hours Rs	Rate Rs	Amount	Hours	Rate Rs	Amount Rs
Labour	1	20	20	10,000	20	2,00,000	10,200	22	2,24,400

Actual Rate = Rs 2,24,400 ÷ 10,200 hours = Rs 22

**Labour Cost Variance = (SH × SR) – (AH × AR)**

$$10,000 \times 20 – 10,200 \times 22 = \text{Rs } 24,400 \text{ (A)}$$

**Labour Rate Variance = (SR – AR) × AH**

$$(20 – 22) \times 10,200 = \text{Rs } 20,400 \text{ (A)}$$

**Labour Efficiency Variance = (SH – AH) × SR**

$$(10,000 – 10,200) \times 20 = \text{Rs } 4,000 \text{ (A)}$$

## A-42

### 1. Calculation of Standard Man hours

When 100 workers work for 1 hour, the standard output is 50 units.

Standard man hours per unit =  $100 \text{ hours} / 50 \text{ units} = 2 \text{ hours per unit}$

### 2. Calculation of standard man hours for actual output:

=  $1,920 \text{ units} \times 2 \text{ hours} = 3,840 \text{ hours.}$

### 3. Calculation of actual cost

Types of Workers	No of Workers	Actual Hours Paid	Rate	Amount	Idle Hours (5% of hours paid)	Actual hours Worked
Group 'A'	10	400	12.40	4,960	20	380
Group 'B'	30	1,200	12	14,400	60	1,140
Group 'C'	60	2,400	11.40	27,360	120	2,280
	100	4,000		46,720	200	3,800

### 4. Calculation of Standard wage Rate:

Labour Efficiency Variance = 480F

(Standard hours for Actual production – Actual Hours) x SR = 480F

$(3,840 - 3,800) \times \text{SR} = 480$

Standard Rate (SR) = Rs 12 per hour

#### (i) Total Labour Cost Variance

= (Standard hours x Standard Rate) – (Actual Hours x Actual rate)

=  $(3,840 \times 12) - 46,720 = 640A$

#### (ii) Total Labour Rate Variance

= (Standard Rate – Actual Rate) x Actual Hours

Group 'A' =  $(12 - 12.40) \times 400 = 160A$

Group 'B' =  $(12 - 12) \times 1,200 = 0$

Group 'C' =  $(12 - 11.40) \times 2,400 = \underline{1,440F}$

1,280F

**(iii) Total Labour Gang Variance**

= Total Actual Time Worked (hours) × {Average Standard Rate per hour of Standard Gang  
-Average Standard Rate per hour of Actual Gang@}

@ on the basis of hours worked

= 3,800 × (12 – (3,840 × 12)/ 3,800)

= 0

[**Note:** As the number of workers in standard and actual is the same, there is no difference in mix ratio, so labour gang variance will be NIL]

**(iv) Total Labour Yield Variance**

= Average Standard Rate per hour of Standard Gang × {Total Standard Time (hours) - Total  
Actual Time worked (hours)}

= 12 × (3,840 – 3,800)

= 480F

**(v) Total Labour idle time variance**

= Total Idle hours × standard rate per hour

= 200 hours × 12

= 2,400A



**Q-43** Calculation of P/V Ratio

(Rs 000)

	<b>Sales</b>	<b>Profit</b>
<b>North: Actual</b>	1,100	135
Add: Under budgeted	400	180
<b>Budgeted</b>	1,500	315

P/V ratio = Difference in Profit/ Difference in Sales

= (315 – 135)/ (1,500–1,100) × 100 =

$$= 180 / 400 \times 100 = 45\%$$

(Rs 000)

	Sales	Profit
<b>East: Actual</b>	1,450	210
Add: over budgeted	(150)	(90)
Budgeted	1,300	120

(Rs 000)

	Sales	Profit
<b>South: Actual</b>	1,200	330
Add: Under budgeted	200	110
Budgeted	1,400	440

$$P/V \text{ ratio} = 110 / 200 \times 100 = 55\%$$

**(i) Calculation of fixed cost**

$$\text{Fixed Cost} = (\text{Actual sales} \times P/V \text{ ratio}) - \text{Profit}$$

$$\text{North} = (1,100 \times 45\%) - 135 = 360$$

$$\text{East} = (1,450 \times 60\%) - 210 = 660$$

$$\text{South} = (1,200 \times 55\%) - 330 = \underline{330}$$

$$\text{Total Fixed Cost} = \underline{1,350}$$

**(ii) Calculation of break-even sales (in Rs' 000)**

$$\text{B.E. Sales} = \text{Fixed Cost} / P/V \text{ ratio}$$

$$\text{North} = 360 / 45\% = 800$$

$$\text{East} = 660 / 60\% = 1,100$$

$$\text{South} = 330 / 55\% = \underline{600}$$

$$\text{Total} = \underline{2,500}$$

**A-44 Income Statement (Absorption Costing) for the year ending 30th March**

	Rs	Rs
Sales (1,50,000 units @ Rs 20)		30,00,000
Production Costs:		
Variable (1,60,000 units @ Rs 11)	17,60,000	
Add: Increase	<u>35,000</u>	17,95,000
Fixed (1,60,000 units @ Rs 2*)		3,20,000
Cost of Goods Produced		21,15,000
Add: Opening Stock (10,000 units @ Rs 13)*		1,30,000
		22,45,000
Less: Closing stock (Rs 21,15,000/1,60,000 units × 20,000 units)		2,64,375
Cost of Goods Sold		19,80,625
Add: Under absorbed fixed production overhead (3,60,000 – 3,20,000)		40,000
		20,20,625
Add: Non-Production costs:		
Variable selling costs (1,50,000 units @ Rs 3)		4,50,000
Fixed selling costs		2,70,000
Total cost		27,40,625
Profit (Sales – Total Cost)		2,59,375

**\* Working Notes:**

1. Fixed production overhead is absorbed at a pre-determined rate based on normal capacity, i.e.  $\text{Rs } 3,60,000 \div 1,80,000 \text{ units} = \text{Rs } 2$ .
2. Opening stock is 10,000 units, i.e.,  $1,50,000 \text{ units} + 20,000 \text{ units} - 1,60,000 \text{ units}$ . It is valued at Rs 13 per unit, i.e.,  $\text{Rs } 11 + \text{Rs } 2$  (Variable + fixed).

**Income Statement (Marginal Costing) for the year ended 30th March**

	Rs	Rs
Sales (1,50,000 units @ Rs 20)		30,00,000

Variable production cost (1,60,000 units @ Rs 11 + Rs 35,000)		17,95,000
Variable selling cost (1,50,000 units @ Rs 3)		4,50,000
		22,45,000
Add: Opening Stock (10,000 units @ Rs 11)		1,10,000
		23,55,000
Less: Closing Stock ( Rs 17,95,000/ 1,60,000 units × 20,000 units)		2,24,375
Variable cost of goods sold		21,30,625
Contribution (Sales – Variable cost of goods sold)		8,69,375
Less: Fixed cost – Production	3,60,000	
- Selling	2,70,000	6,30,000
Profit		2,39,375

Reasons for Difference in Profit:	Rs
Profit as per absorption costing	2,59,375
Add: Op. stock under –valued in marginal costing (Rs 1,30,000 – 1,10,000)	20,000
	2,79,375
Less: Cl. Stock under –valued in marginal closing (Rs 2,64,375 – 2,24,375)	40,000
Profit as per marginal costing	2,39,375

#### A-45

Let  $C_x$  be the Contribution per unit of Product X.

Therefore, Contribution per unit of Product Y =  $C_y = 4/5C_x = 0.8C_x$

Given  $F_1 + F_2 = 1,50,000$ ,

$F_1 = 1,800C_x$  (Break even Volume × Contribution per unit)

Therefore,  $F_2 = 1,50,000 - 1,800C_x$ .

$3,000C_x - F_1 = 3,000 \times 0.8C_x - F_2$  or  $3,000C_x - F_1 = 2,400C_x - F_2$  (Indifference Point)

i.e.,  $3,000C_x - 1,800C_x = 2,400C_x - 1,50,000 + 1,800C_x$

i.e.,  $3,000C_x = 1,50,000$ , Therefore,  $C_x = \text{Rs } 50/-$  ( $1,50,000 / 3,000$ )

Therefore, Contribution per unit of X = Rs 50

Fixed Cost of X =  $F_1 = \text{Rs } 90,000$  ( $1,800 \times 50$ )

Therefore, Contribution per unit of Y is  $\text{Rs } 50 \times 0.8 = \text{Rs } 40$  and

Fixed Cost of Y =  $F_2 = \text{Rs } 60,000$  ( $1,50,000 - 90,000$ )

The Value of  $F_1 = \text{Rs } 90,000$ ,  $F_2 = \text{Rs } 60,000$  and X = Rs 50 and Y = Rs 40

#### A-46

##### (i) Computation of PV ratio, contribution, profit and break-even sales for existing product mix

	Products			Total
	S	T	M	
Selling Price (Rs)	600	800	400	
Less: Variable Cost (Rs)	300	400	240	
Contribution per unit (Rs)	300	400	160	
P/V Ratio (Contribution/ Selling price)	50%	50%	40%	
Sales Mix	25%	35%	40%	
Contribution per rupee of sales	12.5%	17.5%	16%	46%
(P/V Ratio x Sales Mix)				
Present Total Contribution (Rs 1,20,00,000 x 46%)				Rs 55,20,000
Less: Fixed Costs				Rs 36,00,000
Present Profit				Rs 19,20,000
Present Break Even Sales (Rs 36,00,000/0.46)				Rs 78,26,087

##### (ii) Computation of PV ratio, contribution, profit and break-even sales for proposed product mix

	Products			Total
	S	T	U	
Selling Price (Rs)	600	800	600	



Less: Variable Cost (Rs)	300	400	300	
Contribution per unit (Rs)	300	400	300	
P/V Ratio (Contribution/ Selling price)	50%	50%	50%	
Sales Mix	40%	35%	25%	
Contribution per rupee of sales	20%	17.5%	12.5%	50%
(P/V Ratio x Sales Mix)				
Proposed Total Contribution (Rs 1,28,00,000 x 50%)				Rs 64,00,000
Less: Fixed Costs				Rs 36,00,000
Present Profit				Rs 28,00,000
Proposed Break Even Sales (Rs 36,00,000/0.50)				Rs 72,00,000

#### A- 47

(i)

Particulars	Rs
Variable cost per running hour of Machine MR 10 (Rs 68,750/1100 hours)	62.50
Fixed cost (Rs 50,000/1100 hours)	45.46
Cost of brain scan on Machine MR 10:	Rs
Variable machine cost (4 hours x Rs 62.50)	250.00
Special technology	100.00
Total variable cost	350.00
Fixed machine cost (4 hours x Rs 45.46)	181.84
Total cost of a scan	531.84
<b>Total cost of a satisfactory scan (Rs 531.84/0.9)</b>	<b>590.93</b>

(ii) It is given that fixed cost will remain unchanged and thus they are not relevant for the decision. The relevant costs would be the incremental costs of an additional scan:

Machine MR10:	Rs
Variable cost per scan	350.00

<b>Variable cost per satisfactory scan (Rs 350/0.9)</b>	388.89
<b>Machine MR59:</b>	<b>Rs</b>
Variable machine cost per scan (Rs 1,60,000 / 2000 hours x 1.8 hours)	144.00
Special technology	137.50
Variable cost per scan	281.50
<b>Variable cost per satisfactory scan (Rs 281.50/0.94)</b>	299.47

The relevant costs per satisfactory scan are cheaper on machine MR59 and therefore brain scans should be undertaken on said machine.

#### Q-48 (a)

Item	Direct	Indirect	Fixed	Variable
Electronic monitoring	YES			YES
Meals for patients	YES			YES
Nurses' salaries		YES	YES	
Parking maintenance		YES	YES	
Security		YES	YES	

#### (b)

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

	system exists
5. Cost control ends when targets are achieved.	5. Cost reduction has no visible end and is a continuous process.

(c)

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

(d) Cost units are usually the units of physical measurement like number, weight, area, volume, length, time and value.

Industry or Product	Cost Unit Basis
Automobile	Number
Steel	Ton
Cement	Ton/per bag etc.
Chemicals	Litre, gallon, Kilogram, ton etc.

Power	Kilo-watt hour (kWh)
Transport	Passenger - kilometer

**A-49** Computation of Total Cost of material purchased of SKY Manufacturing Company

Particulars	Units	(Amount in Rs)
Listed Price of Materials	5,000	7,50,000
Less: Trade discount @ 10% on invoice price		(75,000)
		6,75,000
Add: CGST @ 6% of Rs 6,75,000		40,500
SGST @ 6% of Rs 6,75,000		40,500
		7,56,000
Add: Road Tax paid		15,000
Freight and Insurance		51,000
Commission and Brokerage Paid		30,000
Add: Cost of returnable containers:		
Amount deposited      Rs 90,000		
Less: Amount refunded <u>Rs 60,000</u>		30,000
		8,82,000
Add: Other Expenses @ 2% of Total Cost (8,82,000/ 98 × 2)		18,000
Total cost of material		9,00,000
Less: Shortage due to Normal Loss @ 20%	1,000	--
Total cost of material of good units	4,000	9,00,000
Cost per unit (Rs 9,00,000/4,000 units)		225

**Notes:**

1. GST is payable on net price i.e., listed price less discount.

2. Detention charges/ fines imposed for non-compliance of rule or law by any statutory authority. It is an abnormal cost and not included with cost of purchase.
3. Shortage due to normal reasons should not be deducted from cost to ascertain total cost of good units.

#### A-50 Computation of comprehensive machine hour rate of machine shop

Particulars	Rs
Operators' wage (Refer to working note 2)	7,38,000
Production bonus (15% on wages)	1,10,700
Power consumed	80,500
Supervision and indirect labour	33,000
Lighting and electricity	12,000
Repairs and maintenance ( $3\% \times \text{Rs } 8 \text{ lakh} \times \frac{1}{2}$ )	12,000
Insurance ( $\text{Rs } 40,000 \times \frac{1}{2}$ )	20,000
Depreciation ( $10\% \times \text{Rs } 8 \text{ lakh} \times \frac{1}{2}$ )	40,000
Sundry works expenses ( $\text{Rs } 12,000 \times \frac{1}{2}$ )	6,000
General management expenses ( $\text{Rs } 54,530 \times \frac{1}{2}$ )	27,265
	10,79,465

Machine hour rate = Total overheads of machine shop/ Hours of machines operation  
 = Rs 10,79,365/7,200 hours (Refer to working note 1) = Rs149.93

#### Working notes

1. Computation of hours, for which 6 operators are available for 6 months.

	For 6 months and 6 operators
Normal available hours (208 x 6 months x 6 operators)	7,488
Less: Absenteeism hours (18 x 6 operators)	(108)

Paid hours	7,380
Less: Leave hours (20 x 6 operators)	(120)
Less: Idle time hours (10 x 6 operators)	(60)
<b>Effective working hours</b>	<b>7,200</b>

As machines cannot be worked without an operator wholly engaged on them therefore, hours for which 6 operators are available for 6 months are the hours for which machines can be used. Hence 7,200 hours represent effective working hours.

## 2. Computation of operator's wages

Average rate of wages:  $\text{Rs } 800/8 \text{ hours} = \text{Rs } 100 \text{ per hour}$

Total wages paid to 6 operators for 6 months =  $7,380 \text{ hours} \times \text{Rs } 100 = \text{Rs } 7,38,000$

