

**MOCK TEST PAPER –2**  
**INTERMEDIATE: GROUP – I**  
**PAPER – 3: COST AND MANAGEMENT ACCOUNTING**

*Answers are to be given only in English except in the case of the candidates who have opted for Hindi medium.  
 If a candidate has not opted for Hindi medium his/ her answer in Hindi will not be valued.*

*Question No. 1 is compulsory.*

*Attempt any **four** questions from the remaining **five** questions.*

*Working notes should form part of the answer.*

**Time Allowed – 3 Hours**

**Maximum Marks – 100**

1. Answer the following:

- (a) A factory producing article A also produces a by-product B which is further processed into finished product. The joint cost of manufacture is given below:

Material	₹ 5,000
Labour	₹ 3,000
Overhead	<u>₹ 2,000</u>
	<u>₹ 10,000</u>

Subsequent cost in ₹ are given below:

	A	B
Material	3,000	1,500
Labour	1,400	1,000
Overhead	600	500
	5,000	3,000

Selling prices are

A	₹ 16,000
B	₹ 8,000

Estimated profit on selling prices is 25% for A and 20% for B.

Assume that selling and distribution expenses are in proportion of sales prices. Show how you would apportion joint costs of manufacture and prepare a statement showing cost of production of A and B.

- (b) T Ltd., produces and sells 95,000 units of 'X' in a year at its 80% production capacity. The selling price of product is ₹ 8 per unit. The variable cost is 75% of sales price per unit. The fixed cost is ₹ 3,50,000. The company is continuously incurring losses and management plans to shut-down the plant. The fixed cost is expected to be reduced to ₹ 1,30,000. Additional costs of plant shut-down are expected at ₹ 15,000.

Should the plant be shut-down? Find the shut-down point in units and also in percentage of capacity level of production.

- (c) P Limited produces product 'P'. It uses annually 60,000 units of a material 'Rex' costing ₹ 10 per unit. Other relevant information are:

Cost of placing an order : ₹ 800 per order

Carrying cost	:	15% per annum of average inventory
Re-order period	:	10 days
Safety stock	:	600 units

The company operates 300 days in a year.

You are required to calculate:

- (i) Economic Order Quantity for material 'Rex'.
  - (ii) Re-order Level.
  - (iii) Maximum Stock Level.
  - (iv) Average Stock Level.
- (d) The rate of change of labour force in a company during the year ending 31st March, 2023 was calculated as 13%, 8% and 5% respectively under 'Flux Method', 'Replacement method' and 'Separation method'. The number of workers separated during the year is 40.

You are required to calculate:

- (i) Average number of workers on roll.
- (ii) Number of workers replaced during the year.
- (iii) Number of new accessions i.e. new recruitment.
- (iv) Number of workers at the beginning of the year. **(4 × 5 Marks = 20 Marks)**

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

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

The following information is made available to formulate the budget:

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

Computer Inquiries	2,00,000	Estimated to increase by 80% during the budget period. (This activity is driven by telephone minutes)
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The activity drivers and their budgeted quantities are given below:

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

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

Required:

- Calculate the budgeted rate for each activity.
- Prepare the budgeted cost statement activity wise.
- Compute the budgeted product cost per account for each product using (i) and (ii) above.

**(10 Marks)**

- (b) G K Ltd. produces a product "XYZ" which passes through two processes, viz. Process-A and Process-B. The details for the year ending 31<sup>st</sup> March, 2023 are as follows:

	Process- A	Process - B
40,000 units of input introduced at a cost of	₹ 3,60,000	-
Material consumed	₹ 2,42,000	2,25,000
Direct wages	₹ 2,58,000	1,90,000
Manufacturing expenses	₹ 1,96,000	1,23,720
Output in units	37,000	27,000
Normal wastage of inputs	5%	10%
Scrap value (per unit)	₹ 15	20
Selling price (per unit)	₹ 37	61

**Additional Information:**

- 80% of the output of Process-A, was passed on to the next process and the balance was sold. The entire output of Process- B was sold.
- Indirect expenses for the year were ₹ 4,48,080.
- It is assumed that Process-A and Process-B are not responsibility centre.

Required:

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

**(10 Marks)**

3. (a) Following figures has been extracted from the books of M/s A&R Brothers:

	Amount (₹)
Stock on 1 <sup>st</sup> March, 2023	
- Raw materials	6,06,000
- Finished goods	3,59,000
Stock on 31 <sup>st</sup> March, 2023	
- Raw materials	7,50,000
- Finished goods	3,09,000
Work-in-process:	
- On 1 <sup>st</sup> March, 2023	12,56,000
- On 31 <sup>st</sup> March, 2023	14,22,000
Purchase of raw materials	28,57,000
Sale of finished goods	1,34,00,000
Direct wages	37,50,000
Factory expenses	21,25,000
Office and administration expenses	10,34,000
Selling and distribution expenses	7,50,000
Sale of scrap	26,000

You are required to compute:

- (i) Value of material consumed
  - (ii) Prime cost
  - (iii) Cost of production
  - (iv) Cost of goods sold
  - (v) Cost of sales
  - (vi) Profit/ loss **(10 Marks)**
- (b) ABC Hospital runs a Critical Care Unit (CCU) in a hired building. CCU consists of 35 beds and 5 more beds can be added, if required.

Rent per month - ₹ 75,000

Supervisors – 2 persons – ₹ 25,000 per month – each

Nurses – 4 persons – ₹ 20,000 per month – each

Ward Boys – 4 persons – ₹ 5,000 per month – each

Doctors paid ₹ 2,50,000 per month – paid on the basis of number of patients attended and the time spent by them

**Other expenses for the year are as follows:**

Repairs (Fixed) – ₹ 81,000

Food to Patients (Variable) – ₹ 8,80,000

Other services to patients (Variable) – ₹ 3,00,000

Laundry charges (Variable) – ₹ 6,00,000

Medicines (Variable) – ₹ 7,50,000

Other fixed expenses – ₹ 10,80,000

Administration expenses allocated – ₹ 10,00,000

It was estimated that for 150 days in a year 35 beds are occupied and for 80 days only 25 beds are occupied.

The hospital hired 750 beds at a charge of ₹ 100 per bed per day, to accommodate the flow of patients. However, this does not exceed more than 5 extra beds over and above the normal capacity of 35 beds on any day.

You are required to –

- (i) Calculate profit per patient day, if the hospital recovers on an average ₹ 2,000 per day from each patient.
- (ii) Find out breakeven point for the hospital. **(10 Marks)**

4. (a) X Associates undertake to prepare income tax returns for individuals for a fee. They use the weighted average method and actual costs for the financial reporting purposes. However, for internal reporting, they use a standard costs system. The standards, based on equivalent performance, have been established as follows:

Labour per return                      5 hrs @ ₹ 40 per hour

Overhead per return                    5 hrs @ ₹ 20 per hour

For July 2023 performance, budgeted overhead is ₹98,000 for standard labour hours allowed.

The following additional information pertains to the month of July 2023:

July 1	Return-in-process (25% complete)	200 No.
	Return started in July	825 Nos
July 31	Return-in-process (80% complete)	125 Nos
Cost Data:		
July 1	Return-in-process labour	₹ 12,000
	- Overheads	₹ 5,000
July 1 to 31	Labour : 4,000 hours	₹ 1,78,000
	Overheads	₹ 90,000

You are required to compute:

- (i) For each element, equivalent units of performance and the actual cost per equivalent unit.
  - (ii) Actual cost of return-in-process on July 31.
  - (iii) The standard cost per return.
  - (iv) The labour rate and labour efficiency variance as well as overhead volume and overhead expenditure variance. **(10 Marks)**
- (b) In an engineering company, the factory overheads are recovered on a fixed percentage basis on direct wages and the administrative overheads are absorbed on a fixed percentage basis on factory cost.

The company has furnished the following data relating to two jobs undertaken by it in a period:

	Job 101	Job 102
	(₹)	(₹)
Direct materials	54,000	37,500
Direct wages	42,000	30,000

Selling price	1,66,650	1,28,250
Profit percentage on Total Cost	10%	20%

Required:

- Computation of percentage recovery rates of factory overheads and administrative overheads.
- Calculation of the amount of factory overheads, administrative overheads and profit for each of the two jobs.
- Using the above recovery rates determine the selling price of job 103. The additional data being:

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

**(10 Marks)**

5. (a) N Ltd., a vehicle manufacturer, has prepared sales budget for the next few months, and the following draft figures are available:

Month	No. of vehicles
October	40,000
November	35,000
December	45,000
January	60,000
February	65,000

To manufacture a vehicle a standard cost of ₹5,71,400 is incurred and sold through dealers at a uniform selling price of ₹8,57,100 to customers. Dealers are paid 15% commission on selling price on sale of a vehicle.

Apart from other materials four units of Part - X are required to manufacture a vehicle. It is a policy of the company to hold stocks of Part-X at the end of each month to cover 40% of next month's production. 48,000 units of Part-X are in stock as on 1<sup>st</sup> October.

There are 9,500 nos. of completed vehicles are in stock as on 1<sup>st</sup> October and it is policy to have stocks at the end of each month to cover 20% of the next month's sales.

You are required to -

- Prepare Production budget (in nos.) for the month of October, November, December and January.
  - Prepare a Purchase budget for Part-X (in units) for the months of October, November and December.
  - Calculate the budgeted gross profit for the quarter October to December. **(10 Marks)**
- (b) A company manufactures four products. The annual demand for products, selling prices and variable production costs are as follows:

Product	P	Q	R	S
Demand (Units)	1,20,000	1,86,000	1,71,000	99,000
	₹	₹	₹	₹
Selling price/unit	23.88	28.68	55.08	47.88

Direct Material/Unit	10.08	13.20	30.48	24.96
Direct Labour/unit	4.08	4.08	6.72	6.36
Variable overheads/unit	1.44	1.44	2.40	2.16

Other data:

- (i) The variable overheads are absorbed on a machine hour basis at a rate of ₹ 1.20 per machine hour.
- (ii) Fixed overheads total ₹ 46,84,000 per annum.
- (iii) Production capacity available 8,15,000 machine hours per annum.
- (iv) Products P, Q and R can be bought-in at ₹ 21.36 per unit, ₹ 24 per unit and ₹ 48 per unit respectively.

You are required to calculate Best product mix and Profitability statement for the year. **(10 Marks)**

6. (a) State the difference between cost control and cost reduction.
- (b) Explain Standard cost centre and Discretionary cost centre.
- (c) State the difference between job costing and process costing.
- (d) State the advantages and disadvantage of cost- plus contract. **(4 × 5 =20 Marks)**

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**Suggested Answers/ Hints**

1. (a) Apportionment of Joint Costs

Particulars	A (₹)	B (₹)
Selling Price	16,000	8,000
Less: Estimated profit	4,000 (25% of ₹16,000)	1,600 (20% of ₹ 8,000)
Cost of sales	12,000	6,400
Less: Selling & Distribution exp. (Refer working note)	267 (₹ 400 × 2/3)	133 (₹ 400 × 1/3)
Less: Subsequent cost	5,000	3,000
Share of Joint cost	6,733	3,267

So, Joint cost of manufacture is to be distributed to A & B in the ratio of 6733 : 3267

**Statement showing Cost of Production of A and B**

Elements of cost	Joint Cost		Subsequent Cost		Total Cost	
	A	B	A	B	A	B
Material	3,367	1,633	3,000	1,500	6,367	3,133
Labour	2,020	980	1,400	1,000	3,420	1,980
Overheads	1,346	654	600	500	1,946	1,154
Cost of production					11,733	6,267

**Working Note:**

**Calculation of Selling and Distribution Expenses**

Particulars	(₹)
Total Sales Revenue (₹ 16,000 + ₹ 8,000)	24,000
Less: Estimated Profit (₹ 4,000 + ₹ 1,600)	(5,600)
Cost of Sales	18,400
Less: Cost of production:	
- Joint Costs	(10,000)
- Subsequent costs (₹ 5,000 + ₹ 3,000)	(8,000)
Selling and Distribution expenses (Balancing figure)	400

(b) Statement Showing "Operating Loss"

	If Plant is Continued	If Plant is Shutdown
Sales	7,60,000	---
Less: Variable Cost	5,70,000	---
Contribution	1,90,000	---

Less: Fixed Cost	3,50,000	1,30,000
Less: Additional Cost	---	15,000
Operating Loss	1,60,000	1,45,000

### Decision on Shut Down

A comparison of loss figures (indicated as above) points out that loss is reduced by **₹15,000** (₹ 1,60,000 - ₹ 1,45,000) if plant is shut down.

→ Accordingly, plant should be Shut Down.

$$\text{Shut Down Point} = \frac{\text{₹}3,50,000 - \text{₹}1,45,000}{\text{₹}8 - \text{₹}6} = 1,02,500 \text{ units}$$

### Capacity Level at Shut Down Point (%)

At 100% Level – Production Capacity

$$= 1,18,750 \left( \frac{95,000 \text{ units}}{0.80} \right)$$

Capacity Level at Shut Down Point

$$= 86.32\% \left( \frac{1,02,500 \text{ units}}{1,18,750 \text{ units}} \right)$$

### (c) (i) Economic Order Quantity (E.O.Q)

$$= \sqrt{\frac{2 \times \text{Annual requirement of 'Rex'} \times \text{Ordering cost per order}}{\text{Annual carrying cost per unit per annum}}}$$

$$= \sqrt{\frac{2 \times 60,000 \text{ units} \times \text{₹} 800}{\text{₹} 10 \times 15\%}} = \sqrt{\frac{9,60,00,000}{\text{₹} 1.5}} = 8,000 \text{ units}$$

### (ii) Re-order Level = Safety Stock + (Normal daily Usage × Re-order period)

$$= 600 + \left( \frac{60,000 \text{ units}}{300 \text{ days}} \times 10 \text{ days} \right)$$

$$= 600 + 2,000$$

$$= 2,600 \text{ units}$$

### (iii) Maximum Stock Level = E.O.Q (Re-order Quantity) + Safety Stock

$$= 8,000 \text{ units} + 600 \text{ units}$$

$$= 8,600 \text{ units}$$

### (iv) Average Stock Level = Minimum Stock level + $\frac{1}{2}$ Re-order Quantity

$$= 600 + \frac{1}{2} \times 8,000 \text{ units}$$

$$= 4,600 \text{ units}$$

**OR**

$$\text{Average Stock Level} = \frac{\text{Maximum Stock level} + \text{Minimum Stock level}}{2}$$

$$= \frac{8,600 \text{ units} + 600 \text{ units}}{2}$$

$$= 4,600 \text{ units}$$

$$\text{* Minimum Stock Level} = \text{Re-order level} - (\text{Normal daily usage} \times \text{Re-order period})$$

$$= 2,600 - \left( \frac{60,000 \text{ units}}{300 \text{ days}} \times 10 \text{ days} \right)$$

$$= 2,600 - 2,000$$

$$= 600 \text{ units}$$

**OR**

$$\text{Minimum Stock Level} = \text{Safety Stock level} = 600 \text{ units}$$

**(d) (i) Labour Turnover Rate (Separation method)**

$$= \frac{\text{No. of workers separated}}{\text{Average no. of workers on roll}}$$

$$\text{Or, } \frac{5}{100} = \frac{40}{\text{Average no. of workers on roll}}$$

$$\text{Or, } \text{Average no. of workers on roll} = 800$$

**(ii) Labour Turnover Rate (Replacement method)**

$$= \frac{\text{No. of workers replaced}}{\text{Average no. of workers on roll}}$$

$$\text{Or, } \frac{8}{100} = \frac{\text{No. of workers replaced}}{800}$$

$$\text{Or, } \text{No. of workers replaced} = 64$$

**(iii) Labour Turnover Rate (Flux Method)**

$$= \frac{\text{No. of Separations} + \text{No. of accessions (new recruitments)}}{\text{Average No. of workers on roll}}$$

$$\text{Or, } \frac{13}{100} = \frac{40 + \text{No. of accessions (New recruitments)}}{800}$$

$$\text{Or, } 100 (40 + \text{No. of Accessions}) = 10,400$$

$$\text{Or, } \text{No. of new accessions} = 64$$

**(iv) No. of workers at the beginning of the year**

Let workers at the beginning of the year were 'X'

$$\text{Average no. of workers on roll} = \frac{\text{Workers at the beginning} + \text{Workers at the end}}{2}$$

$$800 = \frac{X + (X + \text{New accessions} - \text{Separations})}{2}$$

$$800 = \frac{X + (X + 64 - 40)}{2}$$

$$800 = \frac{X + (X + 24)}{2}$$

$$2X = 1,600 - 24 \text{ or, } X = 788 \text{ workers}$$

2. (a) Statement Showing “Budgeted Cost per unit of the Product”

Activity	Activity Cost (Budgeted) (₹)	Activity Driver	No. of Units of Activity Driver (Budget)	Activity Rate (₹)	Deposits	Loans	Credit Cards
ATM Services	8,00,000	No. of ATM Transaction	2,00,000	4.00	6,00,000	---	2,00,000
Computer Processing	10,00,000	No. of Computer processing Transaction	20,00,000	0.50	7,50,000	1,00,000	1,50,000
Issuing Statements	20,00,000	No. of Statements	5,00,000	4.00	14,00,000	2,00,000	4,00,000
Customer Inquiries	3,60,000	Telephone Minutes	7,20,000	0.50	1,80,000	90,000	90,000
Budgeted Cost	41,60,000				29,30,000	3,90,000	8,40,000
<b>Units of Product (as estimated in the budget period)</b>					58,600	13,000	14,000
<b>Budgeted Cost per unit of the product</b>					50	30	60

Working Note

Activity	Budgeted Cost (₹)	Remark
ATM Services:		
(a) Machine Maintenance	4,00,000	- All fixed, no change.
(b) Rents	2,00,000	- Fully fixed, no change.
(c) Currency Replenishment Cost	2,00,000	- Doubled during budget period.
Total	8,00,000	
Computer Processing	2,50,000	- ₹ 2,50,000 (half of ₹5,00,000) is fixed and no change is expected.
	7,50,000	- ₹ 2,50,000 (variable portion) is expected to increase to three times the current level.
Total	10,00,000	
Issuing Statements	18,00,000	- Existing.
	2,00,000	- 2 lakh statements are expected to be increased in budgeted period. For every increase of one lakh statement, one lakh rupees is the budgeted increase.
Total	20,00,000	

Computer Inquiries	3,60,000	- Estimated to increase by 80% during the budget period. (₹ 2,00,000 x 180%)
Total	3,60,000	

(b) (i) **Process- A Account**

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Inputs	40,000	3,60,000	By Normal wastage (2,000 units × ₹15)	2,000	30,000
To Material	---	2,42,000	By Abnormal loss A/c (1,000 units × ₹27)	1,000	27,000
To Direct wages	---	2,58,000	By Process- B (29,600 units × ₹27)	29,600	7,99,200
To Manufacturing Exp.	---	1,96,000	By Profit & Loss A/c (7,400 units × ₹27)	7,400	1,99,800
	40,000	10,56,000		40,000	10,56,000

$$\text{Cost per unit} = \frac{\text{₹}10,56,000 - \text{₹}30,000}{40,000\text{units} - 2,000\text{units}} = \text{₹ } 27 \text{ per unit}$$

$$\text{Normal wastage} = 40,000 \text{ units} \times 5\% = 2,000 \text{ units}$$

$$\text{Abnormal loss} = 40,000 \text{ units} - (37,000 \text{ units} + 2,000 \text{ units}) = 1,000 \text{ units}$$

$$\text{Transfer to Process- B} = 37,000 \text{ units} \times 80\% = 29,600 \text{ units}$$

$$\text{Sale} = 37,000 \text{ units} \times 20\% = 7,400 \text{ units}$$

**Process- B Account**

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process- A A/c	29,600	7,99,200	By Normal wastage (2,960 units × ₹ 20)	2,960	59,200
To Material	---	2,25,000	By Profit & Loss A/c (27,000 units × ₹ 48)	27,000	12,96,000
To Direct Wages	---	1,90,000			
To Manufacturing Exp.	---	1,23,720			
To Abnormal Gain A/c (360 units × ₹ 48)	360	17,280			
	29,960	13,55,200		29,960	13,55,200

$$\text{Cost per unit} = \frac{\text{₹}13,37,920 - \text{₹}59,200}{29,600\text{units} - 2,960\text{units}} = \text{₹ } 48 \text{ per unit}$$

$$\text{Normal wastage} = 29,600 \text{ units} \times 10\% = 2,960 \text{ units}$$

$$\text{Abnormal gain} = (27,000 \text{ units} + 2,960 \text{ units}) - 29,600 \text{ units} = 360 \text{ units}$$

(ii) Costing Profit & Loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Process- A A/c	1,99,800	By Sales:	
To Process- B A/c	12,96,000	- Process-A (7,400 units × ₹ 37)	2,73,800
To Abnormal loss A/c	12,000	- Process- B (27,000 units × ₹ 61)	16,47,000
To Indirect Expenses	4,48,080	By Abnormal gain	10,080
		By Net loss	25,000
	19,55,880		19,55,880

Working Notes:

Normal wastage (Loss) Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process- A A/c	2,000	30,000	By Abnormal Gain A/c (360 units × ₹ 20)	360	7,200
To Process- B A/c	2,960	59,200	By Bank (Sales)	4,600	82,000
	4,960	89,200		4,960	89,200

Abnormal Loss Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process- A A/c	1,000	27,000	By Bank A/c (1,000 units × ₹ 15)	1,000	15,000
			By Profit & Loss A/c	---	12,000
	1,000	27,000		1,000	27,000

Abnormal Gain Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Normal loss A/c (360 units × ₹ 20)	360	7,200	By Process- B A/c	360	17,280
To Profit & Loss A/c		10,080			
	360	17,280		360	17,280

3. (a) Cost Sheet of M/s A&R Brothers for the month ended March 2023:

	Particulars	Amount (₹)	Amount (₹)
(i)	<b>Materials consumed:</b>		
	- Opening stock	6,06,000	
	- Add: Purchases	28,57,000	
		34,63,000	

	- Less: Closing stock	(7,50,000)	<b>27,13,000</b>
	Direct wages		37,50,000
<b>(ii)</b>	<b>Prime cost</b>		<b>64,63,000</b>
	Factory expenses		21,25,000
			85,88,000
	Add: Opening W-I-P		12,56,000
	Less: Closing W-I-P		(14,22,000)
	Factory cost		84,22,000
	Less: Sale of scrap		(26,000)
<b>(iii)</b>	<b>Cost of Production</b>		<b>83,96,000</b>
	Add: Opening stock of finished goods		3,59,000
	Less: Closing stock of finished goods		(3,09,000)
<b>(iv)</b>	<b>Cost of Goods Sold</b>		<b>84,46,000</b>
	Office and administration expenses		10,34,000
	Selling and distribution expenses		7,50,000
<b>(v)</b>	<b>Cost of Sales</b>		<b>1,02,30,000</b>
<b>(vi)</b>	<b>Profit (balancing figure)</b>		<b>31,70,000</b>
	Sales		1,34,00,000

**(b) Working Notes:**

**(1) Calculation of number of patient days**

35 Beds × 150 days	=	5,250
25 Beds × 80 days	=	2,000
Extra beds	=	<u>750</u>
Total	=	<u>8,000</u>

**Statement of Profitability**

Particulars	Amount	Amount
Income for the year (₹ 2,000 per patient per day × 8,000 patient days)		1,60,00,000
<b>Variable Costs:</b>		
Doctor Fees (₹ 2,50,000 per month × 12)	30,00,000	
Food to Patients (Variable)	8,80,000	
Other services to patients (Variable)	3,00,000	
Laundry charges (Variable) – (₹)	6,00,000	
Medicines (Variable) – (₹)	7,50,000	
Bed Hire Charges (₹100 × 750 Beds)	75,000	
Total Variable costs		56,05,000
Contribution		1,03,95,000
<b>Fixed Costs:</b>		
Rent (₹ 75,000 per month × 12)	9,00,000	

Supervisor (2 persons × ₹25,000 × 12)	6,00,000	
Nurses (4 persons × ₹ 20,000 × 12)	9,60,000	
Ward Boys (4 persons × ₹ 5,000 × 12)	2,40,000	
Repairs (Fixed)	81,000	
Other fixed expenses – (₹)	10,80,000	
Administration expenses allocated – (₹)	10,00,000	
Total Fixed Costs		48,61,000
Profit		55,34,000

(i) **Calculation of Contribution per Patient- day**

Total Contribution – ₹ 1,03,95,000

Total Patient days – 8,000

Contribution per Patient -day – ₹ 1,03,95,000 / 8,000 = ₹ 1,299.375

(ii) **Breakeven Point = Fixed Cost / Contribution per Patient- day**

= ₹ 48,61,000 / ₹1,299.375

= 3,741 patient days

4. (a) (i) **Statement Showing Cost Elements Equivalent Units of Performance and the Actual Cost per Equivalent Unit**

Detail of Returns	Detail of Input Units	Details	Equivalent Units				
			Output Units	Labour		Overheads	
				Units	%	Units	%
Returns in Process at Start	200	Returns Completed in July	900	900	100	900	100
Returns Started in July	825	Returns in Process at the end of July	125	100	80	100	80
	1,025		1,025	1,000		1,000	

Costs:	Labour (₹)	Overhead (₹)
From previous month	12,000	5,000
During the month	1,78,000	90,000
Total Cost	1,90,000	95,000
Cost per Equivalent Unit	190.00	95.00

(ii) **Actual cost of returns in process on July 31:**

	Numbers	Stage of Completion	Rate per Return (₹)	Total (₹)
Labour	125 returns	0.80	190.00	19,000
Overhead	125 returns	0.80	95.00	9,500
				28,500

(iii) **Standard Cost per Return:**

Labour 5 Hrs × ₹ 40 per hour = ₹200

Overhead 5 Hrs × ₹ 20 per hour = ₹100

₹ 300

Budgeted volume for July = ₹ 98,000 / 1000 = 980 Returns

Actual labour rate = ₹ 178000 / 4000 = ₹44.50

(iv) **Computation of Variances:**

Statement Showing Output (July only) Element Wise	Labour	Overhead
Actual performance in July in terms of equivalent units as Calculated above	1,000	1,000
Less: Returns in process at the beginning of July in terms of equivalent units i.e. 25% of returns (200)	50	50
	950	950

**Variance Analysis:**

**Labour Rate Variance**

$$\begin{aligned} &= \text{Actual Time} \times (\text{Standard Rate} - \text{Actual Rate}) \\ &= \text{Standard Rate} \times \text{Actual Time} - \text{Actual Rate} \times \text{Actual Time} \\ &= ₹ 40 \times 4,000 \text{ hrs.} - ₹ 1,78,000 = ₹ 18,000(A) \end{aligned}$$

**Labour Efficiency Variance**

$$\begin{aligned} &= \text{Standard Rate} \times (\text{Standard Time} - \text{Actual Time}) \\ &= \text{Standard Rate} \times \text{Standard Time} - \text{Standard Rate} \times \text{Actual Time} \\ &= ₹ 40 \times (950 \text{ units} \times 5 \text{ hrs.}) - ₹ 40 \times 4,000 \text{ hrs.} \\ &= ₹ 30,000(F) \end{aligned}$$

**Overhead Expenditure or Budgeted Variance**

$$\begin{aligned} &= \text{Budgeted Overhead} - \text{Actual Overhead} \\ &= ₹ 98,000 - ₹ 90,000 \\ &= ₹ 8,000(F) \end{aligned}$$

**Overhead Volume Variance**

$$\begin{aligned} &= \text{Recovered/Absorbed Overhead} - \text{Budgeted Overhead} \\ &= 950 \text{ Units} \times 5 \text{ hrs.} \times ₹20 - ₹ 98,000 = ₹ 3,000(A) \end{aligned}$$

(b) (i) **Computation of percentage recovery rates of factory overheads and administrative overheads.**

Let the factory overhead recovery rate as percentage of direct wages be F and administrative overheads recovery rate as percentage of factory cost be A.

**Factory Cost of Jobs:**

Direct materials + Direct wages + Factory overhead

For Job 101 = ₹ 54,000 + ₹ 42,000 + ₹ 42,000F

For Job 102 = ₹ 37,500 + ₹ 30,000 + ₹ 30,000F

**Total Cost of Jobs:**

**Factory cost + Administrative overhead**

For Job 101 = (₹ 96,000 + ₹ 42,000F) + (₹ 96,000+ ₹ 42,000F) A = ₹ 1,51,500\*

For Job-102 = (₹ 67,500 + ₹ 30,000F) + (₹ 67,500+ ₹ 30,000F) A = ₹ 1,06,875\*\*

The value of F & A can be found using following equations

$$96,000 + 42,000F + 96,000A + 42,000AF = 1,51,500 \quad \text{.....eqn (i)}$$

$$67,500 + 30,000F + 67,500A + 30,000AF = 1,06,875 \quad \text{.....eqn (ii)}$$

Multiply equation (i) by 5 and equation (ii) by 7

$$4,80,000 + 2,10,000F + 4,80,000A + 2,10,000AF = 7,57,500 \quad \text{.....eqn (iii)}$$

$$4,72,500 + 2,10,000F + 4,72,500A + 2,10,000AF = 7,48,125 \quad \text{.....eqn (iv)}$$

-	-	-	-
7,500 + 7,500A			= 9,325

$$7,500 A = 9,325 - 7,500$$

$$A = 0.25$$

Now put the value of A in equation (i) to find the value of F

$$96,000 + 42,000F + 24,000 + 10,500F = 1,51,500$$

$$52,500F = 1,51,500 - 1,20,000$$

$$F = 0.6$$

On solving the above relations: F = 0.60 and A = 0.25

Hence, percentage recovery rates of:

Factory overheads = 60% of wages and

Administrative overheads = 25% of factory cost.

**Working note:**

$$\text{Total Cost} = \frac{\text{Selling price}}{(100\% + \text{Percentage of profit})}$$

$$*\text{For Job 101} = \frac{₹1,66,650}{(100\% + 10\%)} = ₹ 1,51,500$$

$$**\text{For Job 102} = \frac{₹1,28,250}{(100\% + 20\%)} = ₹ 1,06,875$$

**(ii) Statement of jobs, showing amount of factory overheads, administrative overheads and profit:**

	Job 101	Job 102
	(₹)	(₹)
Direct materials	54,000	37,500
Direct wages	42,000	30,000

Prime cost	96,000	67,500
<i>Factory overheads</i>		
60% of direct wages	25,200	18,000
Factory cost	1,21,200	85,500
<i>Administrative overheads</i>		
25% of factory cost	30,300	21,375
Total cost	1,51,500	1,06,875
Profit (10% & 20% respectively)	15,150	21,375
Selling price	1,66,650	1,28,250

(iii) **Selling price of Job 103**

	(₹)
Direct materials	24,000
Direct wages	20,000
Prime cost	44,000
Factory overheads (60% of Direct Wages)	12,000
Factory cost	56,000
Administrative overheads (25% of factory cost)	14,000
Total cost	70,000
Profit margin (balancing figure)	10,000
Selling price $\left[ \frac{\text{Total Cost}}{87.5\%} \right]$	80,000

5. (a) (i) **Preparation of Production Budget (in units)**

	October	November	December	January
Demand for the month (Nos.)	40,000	35,000	45,000	60,000
Add: 20% of next month's demand	7,000	9,000	12,000	13,000
Less: Opening Stock	(9,500)	(7,000)	(9,000)	(12,000)
Vehicles to be produced	37,500	37,000	48,000	61,000

(ii) **Preparation of Purchase budget for Part-X**

	October	November	December
Production for the month (Nos.)	37,500	37,000	48,000
Add: 40% of next month's production	14,800 (40% of 37,000)	19,200 (40% of 48,000)	24,400 (40% of 61,000)
	52,300	56,200	72,400
No. of units required for production	2,09,200 (52300 × 4 units)	2,24,800 (56200 × 4 units)	2,89,600 (72,400 × 4 units)
Less: Opening Stock	(48,000)	(59,200) (14800 × 4 units)	(76,800) (19200 × 4 units)
No. of units to be purchased	1,61,200	1,65,600	2,12,800

(iii) **Budgeted Gross Profit for the Quarter October to December**

	October	November	December	Total
Sales in nos.	40,000	35,000	45,000	1,20,000
Net Selling Price per unit*	7,28,535	7,28,535	7,28,535	
Sales Revenue (₹ in lakh)	2,91,414	2,54,987.25	3,27,840.75	8,74,242
Less: Cost of Sales (₹ in lakh) (Sales unit × Cost per unit)	2,28,560	1,99,990.00	2,57,130.00	6,85,680
Gross Profit (₹ in lakh)	62,854	54,997.25	70,710.75	1,88,562

\* Net Selling price unit = ₹ 8,57,100 – 15% commission on ₹ 8,57,100 = ₹ 7,28,535.

(b) (i) **Statement Showing “Calculation of Contribution/ unit”**

	P (₹)	Q (₹)	R (₹)	S (₹)
Selling Price ... (A)	23.88	28.68	55.08	47.88
Variable Cost				
Direct Material	10.08	13.20	30.48	24.96
Direct Labour	4.08	4.08	6.72	6.36
Variable Overheads	1.44	1.44	2.40	2.16
Total Variable Cost ... (B)	15.60	18.72	39.60	33.48
Contribution <i>per unit</i> ... (A) - (B)	8.28	9.96	15.48	14.40

(ii) **Calculation of Machine Hours/ unit**

Machine Hours <i>per unit</i>	1.20	1.20	2.00	1.80
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(iii) **Machine Hours Required**

Machine Hours <i>per unit</i>	1,44,000*	2,23,200%	3,42,000@	1,78,200#
	Total			8,87,400

\* - (1,20,000 × 1.2); % - (1,86,000 × 1.2); @ - (1,71,000 × 2); # - (99,000 × 1.8)

(iv) Total Machine Hours Available 8,15,000. Hence, it is a key factor. Product ‘S’ is to be manufactured, since it is not available with sub-contractor/ market.

(v) **Statement Showing “Make or Buy for Products P, Q, R”**

	P (₹)	Q (₹)	R (₹)
Sub-Contractor/ Buy Price	21.36	24.00	48.00
Less: Variable Manufacturing Cost	15.60	18.72	39.60
Saving in Cost	5.76	5.28	8.40
Saving in Cost <i>per machine hour</i>	4.8	4.4	4.20
Ranking	I	II	III

(vi) **Statement Showing "Best Product Mix"**

Product	Units	Machine Hour/ Unit	Total Machine Hours
S	99,000	1.8	1,78,200
P	1,20,000	1.2	1,44,000
Q	1,86,000	1.2	2,23,200
R (Balance)	1,34,800	2.0	2,69,600
Total			8,15,000

Balance quantity of R to be purchased 36,200 units (1,71,000 – 1,34,800).

(vii) **Profitability Statement**

Product	No of Units	Contribution/unit (₹)	Total Cont. (₹)
P (Mfg)	1,20,000	8.28	9,93,600
Q (Mfg)	1,86,000	9.96	18,52,560
R (Mfg)	1,34,800	15.48	20,86,704
R (Buy)	36,200	7.08 (₹55.08 - ₹48.00)	2,56,296
S (Mfg)	99,000	14.40	14,25,600
Total Contribution			66,14,760
Less: Fixed Overheads			46,84,000
Net Profit			19,30,760

6. (a) **Difference between Cost Control and Cost Reduction**

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

- (b) (i) **Standard Cost Centre:** Cost Centre where output is measurable and input required for the output can be specified. Based on a well-established study, an estimate of standard units of input to produce a unit of output is set. The actual cost for inputs is compared with the standard cost. Any deviation (variance) in cost is measured and analysed into controllable and uncontrollable cost. The manager of the cost centre is expected to comply with the standard and held responsible for adverse cost variances. The input-output ratio for a standard cost centre is clearly identifiable.

(ii) **Discretionary Cost Centre:** The cost centre whose output cannot be measured in financial terms; thus input-output ratio cannot be defined. The cost of input is compared with allocated budget for the activity. Examples of discretionary cost centres are Research & Development department, Advertisement department where output of these department cannot be measured with certainty and co-related with cost incurred on inputs.

(c) The main points which distinguish job costing and process costing are as below:

Job Costing	Process Costing
(i) A Job is carried out or a product is produced by specific orders.	The process of producing the product has a continuous flow and the product produced is homogeneous.
(ii) Costs are determined for each job.	Costs are compiled on time basis i.e., for production of a given accounting period for each process or department.
(iii) Each job is separate and independent of other jobs.	Products lose their individual identity as they are manufactured in a continuous flow.
(iv) Each job or order has a number and costs are collected against the same job number.	The unit cost of process is an average cost for the period.
(v) Costs are computed when a job is completed. The cost of a job may be determined by adding all costs against the job.	Costs are calculated at the end of the cost period. The unit cost of a process may be computed by dividing the total cost for the period by the output of the process during that period.
(vi) As production is not continuous and each job may be different, so more managerial attention is required for effective control.	Process of production is usually standardized and is therefore, quite stable. Hence control here is comparatively easier.

(d) **Cost plus contracts have the following advantages and disadvantages:**

**Advantages:**

- (i) The Contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.
- (ii) It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.
- (iii) Contractee can ensure himself about 'the cost of the contract', as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of the contract.

**Disadvantages -** The contractor may not have any inducement to avoid wastages and effect economy in production to reduce cost.