

Mock Test Paper - Series II: December, 2025

Date of Paper: 12th December, 2025

Time of Paper: 10 A.M. to 1 P.M.

INTERMEDIATE: GROUP – II

PAPER – 4: 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.

Working notes should form part of the answer.

Time Allowed – 3 Hours

Maximum Marks – 100

1. The question paper comprises two parts, Part I and Part II.
2. Part I comprises Case Scenario based Multiple Choice Questions (MCQs) for 30 marks
3. Part II comprises questions which require descriptive type answers for 70 marks.

PART I – Case Scenario based MCQs

Part I is compulsory.

Write the most appropriate answer to each of the following multiple-choice questions by choosing one of the four options given. All questions are compulsory.

Case Scenario I

Bharat Pharma Ltd was established three years ago by a group of biotechnology researchers to commercialize a new therapeutic drug they had created. The production technology required for this drug is highly sophisticated and capital-intensive. As a result, the company incurs very high fixed manufacturing costs.

This situation is a major concern for Dr. Kavita Rao, the company's CEO. She recently organised a meeting of all senior managers to discuss profitability. Dr. Rao demonstrated how the average cost per unit decreases as production increases, due to the company's heavy fixed-cost base.

She explained:

"It is evident that as we move closer to the plant's maximum production capacity of 90,000 vials, the average cost per vial continues to fall. Producing and selling as near to that capacity as possible must improve our profitability."

The data she presented are shown below:

Production Volume (vials)	50,000	60,000	75,000	90,000
Average Cost per Unit (₹)	3,400	3,050	2,700	2,466.66

Current annual sales and production: 78,000 vials Selling price per vial: ₹ 3,900

(Average cost is defined as total fixed + variable cost divided by number of units produced.)

You are a member of the management accounting team. Soon after the meeting, you are contacted by Arun Mehta, the Marketing Director. He wants to understand how profitability changes with production.

Arun then informs you about a discussion he had with Dr. Rao. She again emphasized pushing production closer to the capacity of 90,000 vials.

Arun has the opportunity to secure an export order for 8,000 additional vials, but due to strong competition, the customer will pay only ₹ 2,550 per vial.

Dr. Rao believes the price is below cost and wants to reject it.

However, she says she would be willing to sell at ₹ 2,500 per vial, but only if the order is increased to 20,000 vials.

Based on the above facts, you are required to answer the following questions (MCQ 1 to 5):

1. What are the total fixed costs of Bharat Pharma Ltd?
 - (a) ₹ 6.5 crore
 - (b) ₹ 8.4 crore
 - (c) ₹ 10.5 crore
 - (d) ₹ 12.3 crore
2. What is the profit at the current sales volume of 78,000 vials?
 - (a) ₹ 4.2 crore
 - (b) ₹ 7.1 crore
 - (c) ₹ 9.78 crore
 - (d) ₹ 11.3 crore
3. What is the break-even point (units) and margin of safety (as a percentage)?
 - (a) 25,450 units and 52.25%
 - (b) 32,900 units and 60%

- (c) 40,385 units and 48.22%
- (d) 50,200 units and 40%
4. What is the change in profit if the company accepts the order for 8,000 vials at ₹ 2,550?
- (a) Increase of ₹ 82 lakh
- (b) Increase of ₹ 1 crore
- (c) Increase of ₹ 2.1 crore
- (d) No change in profit
5. What is the change in profit if the company accepts the order for 20,000 vials at ₹ 2,500?
- (a) Increase of ₹ 1.68 crore
- (b) Increase of ₹ 0.32 crore
- (c) Increase of ₹ 2.8 crore
- (d) Decrease of ₹ 1.1 crore
- (5 x 2 Marks)**

Case Scenario II

The Greenfield Recreation Club, a well-known community hub in the city, has been operating for over 25 years. Besides sports facilities and hobby classes, the club runs a dedicated public library for its members. Over the years, the library has grown into a quiet learning space where adults, students, and retirees gather for reading, research, and social interaction.

Recently, the club noticed a steady rise in library usage, especially after it introduced digital reading corners and weekend storytelling sessions for kids. As a result, the committee has decided to review the financial performance of the library to ensure it remains sustainable while continuing to serve the community.

To support the library, the club follows a long-standing policy of offering an annual subsidy of up to ₹ 6 per club member, drawn from the general funds. This subsidy can cover maintenance, utilities, and book purchases when necessary. However, with rising costs and increasing expectations, the club now wants to re-evaluate whether this subsidy is sufficient and whether the library is being managed efficiently.

The management provides the following operational details for the current year:

- The club has 4,800 active members, out of which 1,200 have opted for the library membership.

- Each library member pays a monthly fee of ₹ 110, which supports routine expenses.
- To encourage timely book returns, the library imposes a fine of ₹ 2 per book per day.
- On average, 450 books are returned late per month, each delayed by around 6 days.
- Due to increasing member engagement, late returns have slowly increased, indicating heavy circulation of books.

The library's book collection includes:

- 60,000 old books, requiring routine repairs, dusting, rebinding, and pest control.
- These activities cost about ₹ 15 per book per year.
- To stay updated with current releases and replace damaged copies, the library purchases 1,000 new books annually at a cost of ₹ 320 per book.

To manage daily operations smoothly, the library employs:

- 1 Librarian earning ₹ 12,000 per month
- 3 Assistant Librarians, each earning ₹ 8,000 per month
- 1 Clerk earning ₹ 5,000 per month

These employees handle catalogue management, member services, issuing and returning books, event coordination, and stock upkeep.

You are required to answer the following questions (MCQ 6 to 10):

6. What is the Cost incurred per library member per month (excluding cost of new books)
 - (a) ₹ 96.67
 - (b) ₹ 55.00
 - (c) ₹ 61.25
 - (d) ₹ 73.75
7. What is the Cost incurred per club member per month (excluding cost of new books)
 - (a) ₹ 96.67
 - (b) ₹ 24.17
 - (c) ₹ 52.25
 - (d) ₹ 13.75

8. Calculate the Net income earned by the library per year.
- (a) ₹ 7,65,200
 - (b) ₹ 6,42,600
 - (c) ₹ 4,86,200
 - (d) ₹ 2,56,800
9. How many extra books are currently being purchased per year?
- (a) 0 books (no excess; purchase is within limit)
 - (b) 350 books
 - (c) 198 books
 - (d) 220 books
10. Calculate the amount of more subsidy required:
- (a) ₹ 63,360
 - (b) ₹ 42,600
 - (c) ₹ 86,200
 - (d) ₹ 21,500
- (5 x 2 Marks)**
11. A manufacturing unit has budgeted standard hours of 15,000 for May 2025. During the month, the capacity utilisation ratio was 85%, while the efficiency ratio stood at 110%. The factory reported smooth operations with no major downtime.
- The standard hours allowed for May 2025 was:
- (a) 14,025
 - (b) 13,200
 - (c) 15,750
 - (d) 12,900
- (2 Marks)**
12. The cost of placing each purchase order is ₹ 20, and the company plans to purchase 5,000 units during the year at a purchase price of ₹ 50 per unit, inclusive of transportation charges. The annual storage cost per unit is ₹ 5. The lead time varies, with an average of 10 days, a maximum of 15 days, and a minimum of 5 days. The rate of consumption also fluctuates, with an average usage of 15 units per day and a maximum usage of 20 units per day. The maximum stock level is:
- (a) 450 units

- (b) 300 units
- (c) 375 units
- (d) 500 units

(2 Marks)

13. A worker receives the following monthly earnings:

Basic Pay: ₹ 12,000 per month

Dearness Allowance (D.A.): ₹ 4,000 per month

Fringe Benefits: ₹ 1,500 per month

There are 305 working days in a year, of which 25 days are paid holidays. Assume 8 working hours per day.

What is the employee hour rate?

- (a) ₹ 93.75 per hour
- (b) ₹ 85.50 per hour
- (c) ₹ 97.25 per hour
- (d) ₹ 102.00 per hour

(2 Marks)

14. A company manufactures Product A and Product B and uses Activity-Based Costing.

The following activity data relates to the current month:

Activity	Cost (₹)	Cost Driver	Total Driver Units	Product A	Product B
Machine Setup	60,000	Number of setups	120 setups	30 setups	90 setups
Quality Inspection	40,000	Number of inspections	200 inspections	50 inspections	150 inspections

What is the total overhead cost assigned to Product A under ABC?

- (a) ₹ 35,000
- (b) ₹ 25,000
- (c) ₹ 30,000
- (d) ₹ 40,000

(2 Marks)

15. The following details are available for a job work:

Material issued ₹ 60,000; return to stores ₹ 8,000

Dept A labour: 80 hrs @ ₹ 180/hr; OH rate = 120% of labour

Dept B labour: 50 hrs @ ₹ 150/hr; OH rate = ₹200 per labour hour

Total job cost is:

- (a) ₹ 1,04,600
- (b) ₹ 1,06,800
- (c) ₹ 1,12,400
- (d) ₹ 1,01,180

(2 Marks)

PART-II – Descriptive Questions (70 Marks)

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

1. (a) A manufacturing company disclosed a net loss of ₹ 6,40,000 as per their cost accounts for the year ended 31st March, 2025. However, the financial accounts showed a net profit of ₹ 45,000 for the same period.

Upon scrutiny of both sets of accounts, the following differences were identified:

Particulars	Amount (in ₹)
(i) Transfer fee received	23,000
(ii) Interest on investment received	3,00,000
(iii) Goodwill written-off	38,000
(iv) Depreciation	
– Charged in Financial books	5,00,000
– Recovered in Cost books	6,00,000
(v) Opening stock of raw material	
– Cost books	4,50,000
– Financial books	4,82,000
(vi) Closing stock of finished goods	
– Cost books	12,80,000

– Financial books	13,56,000
(vii) Notional rent of own premises recorded in Cost accounts	3,20,000
(viii) Factory overheads – Cost books	2,50,000
– Financial books	1,94,000
(ix) Income-tax provided	1,20,000

You are required to PREPARE Memorandum Reconciliation Account.

(5 Marks)

- (b) A machine shop cost centre contains three machines of equal capacities.

To operate these three machines nine operators are required i.e. three operators on each machine. Operators are paid ₹ 20 per hour. The factory works for forty eight hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the forty eight hours. In additions they are paid a bonus of 10 per cent of productive time. Costs are reported for this company on the basis of thirteen four-weekly period.

The company for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centre are available:

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

Required:

- (i) CALCULATE the cost of running one machine for a four week period.

- (ii) CALCULATE machine hour rate.

(5 Marks)

- (c) A Company manufactures a special product which requires a component 'Alpha'. The following particulars are collected for the year 2022-23:

(i)	Annual demand of Alpha	8,000 units
(ii)	Cost of placing an order	₹ 200 per order
(iii)	Cost per unit of Alpha	₹ 400
(iv)	Carrying cost p.a.	20%

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

Required:

- (i) COMPUTE the economic order quantity
(ii) STATE whether the quantity discount offer can be accepted. **(4 Marks)**

2. (a) Seema Ltd. is known for its two-stage production process, which is as follows:

Process A: Raw wool is converted into premium woollen thread.

Process B: Woollen threads are further refined to create luxurious woollen garments.

Following data is given for the quarter ended March 2025:

Particulars	Process A	Process B
Opening work-in-progress	2,000 units	Nil
– Material	₹ 4,50,000	—
– Labour & Overheads	₹ 1,44,000	—
Costs incurred during the quarter:		
– Material	₹ 18,00,000	₹ 6,87,500
– Labour & Overheads	₹ 5,70,000	—
– Other material	—	₹ 30,25,000
Units of production:		
Received in process	8,000 units	5,500 units
Completed units	7,000 units	5,500 units
Completed units transferred to next process	5,500 units	—
Completed units sold in the market	1,500 units	5,500 units

Closing work-in-progress	1,500 units	Nil
Normal loss in process	10% of the total input (including opening WIP)	Nil

Additional Information:

- Normal loss units are sold at a realizable value of ₹ 90 per unit.
- Any loss beyond normal loss is considered 100% complete in respect of material and labour & overheads.
- In the market, woollen garments and remaining woollen threads were sold at 20% markup on the cost price.

Degree of Completion: Process A

Particulars	Material	Labour & Overheads
Opening work-in-progress	100%	50%
Closing work-in-progress	100%	60%

Using Weighted Average Method, you are required to PREPARE:

- Statement of equivalent production of Process A.
 - Statement showing cost for each element of Process A.
 - Statement of distribution of cost of Process A.
 - Statement showing sale proceeds of each of the product woollen thread and woollen garments along-with total sale proceeds of Seema Ltd. during the specified period. **(8 Marks)**
- (b) Rivaan Industries manufactures and sells wooden study tables. The demand for these tables has been steadily increasing due to the company's strong distribution network and reputation for durable products. Despite the rising market potential, the company continues to rely on its long-established wage practices. At present, Rivaan Industries pays wages under a piece-rate system, with a standard piece rate of ₹ 18 per table produced.

The company policy for payment under the piece-rate system is as follows:

- For efficiency less than 100%:
Workers are paid 80% of the standard piece rate
- For efficiency equal to or more than 100%:
Workers are paid 125% of the standard piece rate

The standard output per hour is 3 tables.

Each worker works 9 hours per day from Monday to Friday and 4 hours on Saturday.

A total of 132 workers are currently eligible for this wage plan.

However, the cutting and finishing machines used in production were purchased many years ago and now limit workers' efficiency. As a result, workers have demanded a shift to a time-rate wage system at ₹ 65 per hour, along with incentives under the Halsey Premium Plan (50% sharing of time saved).

To evaluate the financial impact, the management has prepared the following estimated production levels for January 2026 under three different scenarios:

Production Estimates (January 2026)

Scenario	Worst Case	Optimal Case	Best Case
Production (units)	36,900	73,800	1,10,700

In addition, the company is assessing a potential *Technology Upgrade Case* involving partial automation, which may influence both output levels and worker productivity.

Required:

- (a) COMPUTE the Total wages, and Average wages per worker per month, for all three scenarios (Worst, Optimal, Best Case) under each of the following wage systems:
- (i) Current piece-rate wage system (based on differential piece rates)
 - (ii) Workers' proposed system: Time-rate wages @ ₹ 65 per hour + Halsey Premium (50%)
- (b) Mr. R, one of the workers, produced 900 tables in December 2025. If he produces the same number of tables in January 2026, COMPUTE:
- His earnings under the current piece-rate system
 - His earnings under the proposed time-rate + Halsey incentive system
 - The difference in his earnings

Based on your computation, SHOULD Mr. R support the workers' demand?

(Assume 4 working weeks in a month.)

(6 Marks)

3. (a) Kantur Ltd. is a medium-sized manufacturer of precision components used in the automobile aftermarket. The factory runs a single production line where two product variants (Product A and Product B) are made from the same raw material and by the same grade of direct labour. Management is preparing the master budget for the next period and wants the material purchases and direct wages budgets prepared so that procurement and staffing decisions can be finalised.

Below is an extract from the company's budget working papers (all figures are for the whole budget period unless stated otherwise):

Production & material data

Particulars	Product A	Product B
Budgeted sales (units)	2,100	2,700
Budgeted material consumption per product (kg)	6.00	2.50
Budgeted material cost	₹ 14 per kg (for both products)	
Standard hours allowed per product	6.0	5.0
Budgeted basic wage rate	₹ 9 per hour (for all direct workers)	

Labour / working-time assumptions

- Overtime premium is 60% of the basic wage rate and is payable for any hours worked over 40 hours in a 5-day week.
- There are 48 direct workers available in the budget period.
- The target productivity (efficiency) ratio for productive hours actually used in manufacturing is 85%. In addition, non-productive downtime (set-up, maintenance, unavoidable delays) is budgeted at 15% of the productive hours worked.
- The budget period contains thirteen 5-day weeks and production and it is anticipated that sales and production will occur evenly throughout the whole period.

Opening and desired closing stocks

- Expected opening stocks at the start of the budget period: Product A 600 units; Product B 1,000 units; Raw material 2,800 kg.

- Target closing stocks (expressed in terms of anticipated activity during the budget period):
 - Product A — 18 days' sales
 - Product B — 22 days' sales
 - Raw material — 12 days' consumption

Other assumptions

- Production is planned to meet budgeted sales and to build up / run down stocks to the closing targets stated above.
- Sales and production occur evenly over the budget period (i.e., the daily demand pattern is smooth).

Required

PREPARE the following budgets for the next period showing quantities and values:

1. Material purchases budget.
2. Wages budget for direct workers **(9 Marks)**

- (b) Phoenix Manufacturing Ltd. has grown significantly and now operates through several specialised departments. The management wants to assign each department as an appropriate responsibility centre:

1. The Assembly Department works with fixed input–output norms. Standard labour hours and material quantities are established for each unit, and any deviation is analysed as variance.
2. The Corporate R&D Lab focuses on product innovation. Its output cannot be measured financially, and its performance is evaluated based only on the annual budget allocated.
3. The West Zone Sales Department is responsible for achieving sales targets and generating revenue. It does not control production costs, but it incurs selling expenses such as sales commission.
4. The Global Operations Division has authority over revenue, cost, and investment decisions, and its performance is evaluated based on ROI.

Required:

IDENTIFY the type of responsibility centre for each of the four departments above and SHOW the reason for your classification. **(5 Marks)**

4. (a) XYZ Ltd. manufactures four types of products namely P, Q, R and S.

The details for the month of April 2025 are as follows:

Particulars	P	Q	R	S
Actual Production & Sales (in units)	7,000	17,500	45,000	1,60,000
Direct Material Cost (in ₹)	3,50,000	4,75,000	5,80,000	9,60,000
Direct Wages (in ₹)	1,05,000	1,40,000	1,70,000	2,65,000
Selling price per unit (in ₹)	120.00	75.00	38.00	15.00

Additional Information:

If the company limits manufacturing to just one type of product, the monthly production will be as follows:

Product	Quantity
P	60,000 units
Q	75,000 units
R	1,00,000 units
S	3,00,000 units

Additional Information

- Factory overhead expenditure for the month is ₹ 10,00,000. Total available hours are 3,00,000 hours.
- Factory overhead expenses need to be allocated to each product based on the number of units, which could have been produced in a month when single product production was in operation.
- Administration cost (relating to production) has been allocated to each product on appropriate basis.
- Selling and distribution cost of ₹ 5,60,000 needs to be allocated among the products P, Q, R and S in the ratio of 1 : 2 : 3 : 4 respectively.
- The company requires a profit margin @ 20% on sales.
- There is no opening & closing inventory.

You are required to SHOW for each product :

- (i) Prime Cost

- (ii) Works Cost
- (iii) Cost of Goods Sold
- (iv) Cost of Sales
- (v) Profit earned and Sales for the month (9 Marks)

- (b) Vihan Retail Co. has decided to expand the size of its store. It wants information about the profitability of its individual product lines: Pineapple, Orange, and Litchi. The company provides the following data for the year 2024 for each product line:

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

Vihan Retail Co. also provides the following information for the year 2024:

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

Required

If Vihan Retail Co. allocates store support costs (all costs other than the cost of goods sold) to the product lines on the basis of ABC system, CALCULATE the operating income and operating income as the percentage of revenue of each product line. **(5 Marks)**

5. (a) Astra Components Pvt. Ltd. is a Tier-2 supplier to the electrical vehicle (EV) industry. The company manufactures a single machined housing component in a single cost centre. Management uses standard costing for control and performance measurement.

The Standard Cost Card for the component is as follows:

Standard — Unit cost (₹)

- Direct material: 6.00 kg @ 5.00 per kg = 30.00
- Direct labour: 2.50 hours @ 4.50 per hour = 11.25
- Factory overhead: 2.00 per labour hour = 5.00
- Total standard manufacturing cost per unit = ₹ 46.25

Budget & actual production activity for the month of June 2025:

- Production scheduled (required completion) for the month: 50,000 units.
- Actual completed units during the month: 51,200 units (no opening or closing WIP).
- Purchases of direct material during the month: 3,20,000 kg at ₹ 5.20 per kg.
- Actual material used in production: 2,96,000 kg.
- Actual direct labour hours worked: 125,000 hours; total labour cost incurred: ₹ 6,40,000.
- Actual total factory overhead incurred during the month: ₹ 2,80,000.
- Sales during the month: 50,000 units.

Selling price policy: Selling price is to be fixed so as to allow a mark-up of 25% on the selling price (i.e., profit = 25% of selling price).

Incentive scheme: The company operates a labour bonus scheme — employees are paid a bonus equal to 60% of the standard direct labour rate for each standard

direct labour hour saved (i.e., for hours saved compared to standard hours allowed for actual output).

Required: Using the above data, prepare calculations and reports for June, 2025 as follows:

- (i) CALCULATE all material variances based on actual material consumption.
- (ii) CALCULATE the labour variances (rate and efficiency) and compute the total factory overhead variance.
- (iii) PREPARE an Income Statement for June 2025 showing the actual gross margin
- (iv) COMPUTE if any bonus is payable under the incentive scheme

(11 Marks)

- (b) Star study centre provides coaching classes to school students. The study centre has taken an auditorium of 250 seat capacity on rent of ₹ 3,75,000 per month. It has also hired some renowned teachers for taking classes. A teacher takes ₹ 3,000 per hour. The study centre has decided to conduct a batch of 2-hour per day for 3 days a week for 4 months.

- (i) CALCULATE the total cost per batch.
- (ii) COMPUTE the minimum fee to be charged per student in a batch, if the centre operates at 60% capacity.
- (iii) DETERMINE the fee per student if the study centre desires to earn a profit of 50% and study centre operates at 50% capacity.

(3 Marks)

6. (a) Divit Electronics manufactures three types of home appliances. The management notes that the plant has an installed capacity of 50,000 units per product per year. Because of preventive maintenance, setup time, holidays, and training sessions, the plant can only produce 45,000 units per product annually. Over the past year, the average output per product was 42,000 units, while unexpected machine breakdowns reduced actual output to 40,500 units.

DEFINE AND IDENTIFY the installed, practical, normal, and actual capacities for the plant. EXPLAIN the role of practical capacity in determining overhead absorption rates.

(5 Marks)

- (b) DISCUSS the remedial steps to be taken to minimize the labour turnover.

(5 Marks)

- (c) MENTION the circumstances under which following types of method of apportioning joint costs can be used.

1. Net Realisable Value (NRV) at Split-off Point Method
2. Technical Estimates
3. Market value at the point of separation
4. Market value after further processing

(4 Marks)

OR

- (c) EXPLAIN the suitability for flexible budget.

(4 Marks)

Mock Test Paper - Series II: December, 2025

Date of Paper: 12th December, 2025

Time of Paper: 10 A.M. to 1 P.M.

INTERMEDIATE: GROUP – II

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

Suggested Answers/ Solution

PART I – Case Scenario based MCQs

1. (c) ₹ 10.5 crore

Total cost at 50,000

$$= 50,000 \times ₹ 3,400 = ₹ 17,00,00,000$$

Total cost at 60,000

$$= 60,000 \times ₹ 3,050 = ₹ 18,30,00,000$$

$$\text{Difference in total cost} = 18.3 \text{ crore} - 17 \text{ crore} = ₹ 1,30,00,000$$

$$\text{Difference in output} = 10,000 \text{ units}$$

$$\text{Variable cost per unit} = \frac{1,30,00,000}{10,000}$$

$$= ₹ 1,300$$

Total Fixed Costs

Use total cost at 50,000 units:

$$\text{Total cost} = 50,000 \times 3,400 = ₹ 17,00,00,000$$

$$\text{Variable cost} = 50,000 \times 1,300 = ₹ 6,50,00,000$$

$$\text{Fixed cost} = 17,00,00,000 - 6,50,00,000$$

$$= ₹ 10,50,00,000$$

$$\text{Fixed Costs} = ₹ 10.5 \text{ crore}$$

2. (c) ₹ 9.78 crore

Profit at current sales of 78,000 units

Selling price = ₹ 3,900

Variable cost = ₹ 1,300

Contribution per unit = 3,900 – 1,300
= ₹ 2,600

Revenue = 78,000 × 3,900 = ₹ 30,42,00,000

Variable cost = 78,000 × 1,300 = ₹ 10,14,00,000

Contribution = 30.42 cr – 10.14 cr = ₹ 20,28,00,000

Profit = Contribution – Fixed cost

Profit = 20.28 cr – 10.5 cr
= ₹ 9,78,00,000

Profit = ₹ 9.78 crore

3. (c) 40,385 units and 48.22%

Contribution per unit = ₹ 2,600

Break-even units = $\frac{\text{Fixed cost}}{\text{CPU}}$
= $\frac{10,50,00,000}{2,600}$
= 40,385 units

Break-even point = 40,385 units

Current sales = 78,000 units

Break-even = 40,385 unit

MOS = $\frac{78,000 - 40,385}{78,000} \times 100$
= $\frac{37,615}{78,000} \times 100$
= 48.22%

Margin of safety = 48.22%

4. (b) Increase of ₹ 1 crore

Profit impact of accepting 8,000 vials at ₹ 2,550

Contribution per unit = Selling price – Variable cost

$$= 2,550 - 1,300$$

$$= ₹ 1,250$$

Additional contribution = $8,000 \times 1,250$

$$= ₹ 1,00,00,000$$

Profit increases by ₹ 1 crore

(Within plant capacity: $78,000 + 8,000 = 86,000 < 90,000$)

5. (b) Increase of ₹ 0.32 crore

Domestic sales contribution per unit

Selling price = ₹ 3,900

Variable cost = ₹ 1,300

Contribution = ₹ 2,600 per vial

Export order contribution per unit

Selling price = ₹ 2,500

Variable cost = ₹ 1,300

Contribution = ₹ 1,200 per vial

(i) Contribution gained from export order

$$20,000 \times ₹ 1,200$$

$$= ₹ 2,40,00,000 \text{ (₹ 2.4 crore)}$$

(ii) Contribution lost by reducing domestic sales

$$8,000 \times ₹ 2,600$$

$$= ₹ 2,08,00,000 \text{ (₹ 2.08 crore)}$$

Net Change = Gain – Loss

$$= ₹ 2,40,00,000 - ₹ 2,08,00,000$$

$$= ₹ 32,00,000$$

Net Profit Increase = ₹ 0.32 crore

6. (a) ₹ 96.67

Particular		Amount (₹)
Librarian	₹ 12,000 x 12 x 1 person	1,44,000
Assistant librarians	₹ 8,000 x 12 x 3 persons	2,88,000
Clerk	₹ 5,000 x 12 x 1 person	60,000
Total Staff Cost		4,92,000
Old Books Maintenance	60,000 old books x ₹ 15 per year	9,00,000
Total Annual Cost (excluding new books)		13,92,000

Cost per member per year

$$= 13,92,000 / 1,200$$

$$= ₹ 1,160$$

Cost per library member per month

$$= 1,160 / 12$$

$$= ₹ 96.67$$

7. (b) ₹ 24.17

Cost per member per year

$$= 13,92,000 / 4,800$$

$$= ₹ 290$$

Cost per library member per month

$$= 290 / 12$$

$$= ₹ 24.17$$

8. (d) ₹ 2,56,800

Total Revenue

Particulars	Amount (₹)
Library fees per month (1,200 members x ₹ 110)	1,32,000
Late fees per month (450 books x 6 days x ₹ 2)	5,400

Total Revenue per month	1,37,400
Total Revenue per year (1,37,400×12)	16,48,800

Net Income per Year

= Total revenue – Total cost

= 16,48,800 – 13,92,000

= ₹ 2,56,800

9. (c) 198 books

Cost per new book	320
Maximum number of new books per annum (₹ 2,56,800 ÷ ₹ 320)	802 nos.
Number of books purchased	1,000 nos.
Excess books purchased (1,000 nos. – 802 nos.)	198 nos.

10. (a) ₹ 63,360

Additional Subsidy Required

= Extra books × cost per book

= 198 × 320

= ₹ 63,360

11. (a) 14,025

Capacity Utilisation Ratio = $\frac{\text{Actual Hours}}{\text{Budgeted Hours}}$

0.85 = $\frac{\text{Actual Hours}}{15,000}$

Actual Hours = 15,000 × 0.85 = 12,750

Efficiency Ratio = $\frac{\text{Standard Hours Allowed}}{\text{Actual Hours Taken}}$

1.10 = $\frac{\text{Standard Hours Allowed}}{12,750}$

Standard Hours Allowed = 12,750 × 1.10 = 14,025

12. (a) 450 units

$$\begin{aligned}
 \text{Maximum level} &= \text{ROL} + \text{ROQ} - [\text{Min. rate of consumption} \times \text{Min. lead time}] \text{ (Refer to working notes 1, 2 and 3)} \\
 &= 300 \text{ units} + 200 \text{ units} - [10 \text{ units per day} \times 5 \text{ days}] \\
 &= 450 \text{ units}
 \end{aligned}$$

Working Notes:

1. Minimum rate of consumption per day

$$\text{Av. rate of consumption} = \frac{\text{Minimum rate of consumption} + \text{Maximum rate of consumption}}{2}$$

$$15 \text{ units per day} = \frac{X \text{ units / day} + 20 \text{ units per day}}{2} \text{ or } X = 10 \text{ units per day.}$$

2. Re-order Quantity (ROQ) or Economic Order Quantity (EOQ)

$$= \sqrt{\frac{2 \times 5,000 \text{ units} \times ₹ 20}{5}} = 200 \text{ units}$$

3. Re-ordering level = Maximum usage per period × Maximum lead time
(ROL) = 20 units per day × 15 days
= 300 units

13. (a) ₹ 93.75 per hour

(i)	Effective working days in a year	305
	Less: Leave days on full pay	25
	Effective working days	280 days
	Total effective working hours (280 days × 8 hours)	2,240 hours
(ii)	Total wages paid in a year (₹)	
	Basic Pay	1,44,000
	D.A.	48,000
	Fringe Benefits	18,000
	Total Wages	2,10,000

(iii) Hourly Rate = ₹ 2,10,000 ÷ 2,240 hours = ₹ 93.75 per hour

14. (b) ₹ 25,000

Cost per setup = 60,000 / 120 = ₹ 500

Cost assigned to Product A = 30 × 500 = ₹ 15,000

Cost per inspection = 40,000 / 200 = ₹ 200

Cost assigned to Product A = 50 × 200 = ₹ 10,000

Total Overhead for Product A = 15,000 + 10,000 = ₹ 25,000

15. (d) ₹ 1,01,180

Direct Material = Material issued — Material returned
= 60,000 - 8,000 = ₹ 52,000

Department A Labour = 80 hrs × ₹ 180 = ₹ 14,400

Dept A Overhead = 14,400 × 120% = ₹ 17,280

Department B Labour = 50 hrs × ₹ 150 = ₹ 7,500

Dept B Overhead = 50 hrs × ₹ 200 = ₹ 10,000

Total Job Cost = 52,000 + 14,400 + 17,280 + 7,500 + 10,000 = ₹ 1,01,180

PART II – Descriptive Questions

1. (a)

Memorandum Reconciliation Account

Debit	Amount (₹)	Credit	Amount (₹)
Net loss as per costing books	6,40,000	Transfer fee recorded in financial books	23,000
Goodwill written off not recorded in cost books	38,000	Interest on investment not included in costs	3,00,000
Under valuation of opening stock in cost accounts	32,000	Depreciation overcharge in cost books	1,00,000

Income tax not provided in costs	1,20,000	Under valuation of closing stock (finished goods) in cost accounts	76,000
Net profit as per financial books	45,000	Notional rent charges in cost books	3,20,000
		Factory overheads over recovered in cost books	56,000
Total	8,75,000	Total	8,75,000

(b) Effective Machine hour for four-week period

= Total working hours – unproductive set-up time

= {(48 hours × 4 weeks) – {(4 hours × 4 weeks)}}

= (192 – 16) hours = 176 hours.

(i) Computation of cost of running one machine for a four week period

		(₹)	(₹)
(A)	Standing charges (per annum)		
	Rent	5,400.00	
	Heat and light	9,720.00	
	Forman's salary	12,960.00	
	Other miscellaneous expenditure	18,000.00	
	Standing charges (per annum)	46,080.00	
	Total expenses for one machine for four week period $\left(\frac{₹46,080}{3 \text{ machines} \times 13 \text{ four-week period}} \right)$		1,181.54
	Wages (48 hours × 4 weeks × ₹ 20 × 3 operators)		11,520.00
	Bonus {(176 hours × ₹ 20 × 3 operators) × 10%}		1,056.00
	Total standing charges		13,757.54

(B)	Machine Expenses		
	Depreciation = $\left(₹52,000 \times 10\% \times \frac{1}{13 \text{ four - week period}} \right)$		400.00
	Repairs and maintenance (₹ 60 × 4 weeks)		240.00
	Consumable stores (₹ 75 × 4 weeks)		300.00
	Power (176 hours × 20 units × ₹ 0 .80)		2,816.00
	Total machine expenses		3,756.00
(C)	Total expenses (A) + (B)		17,513.54

(ii) Machine hour rate = $\frac{₹ 17,513.54}{176 \text{ hours}} = ₹99.51$

(c) (i) Calculation of Economic Order Quantity

$$EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 8,000 \text{ units} \times ₹ 200}{₹ 400 \times 20 / 100}} = 200 \text{ units}$$

(ii) Evaluation of Profitability of Different Options of Order Quantity

(a) When EOQ is ordered

		(₹)
Purchase Cost	(8,000 units × ₹ 400)	32,00,000
Ordering Cost	[(8,000 units/200 units) × ₹ 200]	8,000
Carrying Cost	(200 units × ₹ 400 × ½ × 20/100)	8,000
Total Cost		32,16,000

(b) When Quantity Discount is accepted

		(₹)
Purchase Cost	(8,000 units × ₹ 384*)	30,72,000
Ordering Cost	[(8,000 units/4000 units) × ₹ 200]	400
Carrying Cost	(4000 units × ₹ 384 × ½ × 20/100)	1,53,600
Total Cost		32,26,000

*Unit Cost = ₹ 400

Less: Quantity Discount @ 4% = 16

Purchase Cost = 400 – 16 = ₹ 384

Advise – The total cost of inventory is lower if EOQ is adopted. Hence, the company is advised not to accept the quantity discount.

2. (a) (i) **Statement of equivalent production : Process A**

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Material		Labour & OH	
				%	Units	%	Units
Opening WIP	2,000	Completed Units	7,000	100	7,000	100	7,000
Units Introduced	8,000	Normal Loss [(2,000+8,000) x 10%]	1,000	---	---	---	---
		Abnormal Loss (Bal. Fig.)	500	100	500	100	500
		Closing WIP	1,500	100	1,500	60	900
Total	10,000	Total	10,000		9,000		8,400

(ii) **Statement showing cost for each element: Process A**

Particulars	Material	Labour & OH	Total
Cost of Opening WIP	4,50,000	1,44,000	5,94,000
Cost of Completed Units	18,00,000	5,70,000	23,70,000
Less: Realizable Value (1,000 x 90)	(90,000)	----	(90,000)
Total Cost	21,60,000	7,14,000	28,74,000
Equivalent Units	9,000	8,400	
Cost per EQ Unit	240	85	325

(iii) **Statement of distribution of cost: Process A**

Particulars	EQ Units	Cost per EQ Unit	Amount
Completed Units	7,000	325	22,75,000
Abnormal Loss	500	325	1,62,500
Closing WIP:			
Material	1,500	240	3,60,000
Labour & Overheads	900	85	76,500
			4,36,500

(iv) **Sale proceeds of WR fabrics:**

Out of 7,000 units of Process A (woolen threads), only 5,500 units were further processed in Process B and sold as woolen garments. Thus balance 1,500 units of woolen threads were sold in the market.

	Units	Selling price p.u. (Refer Working note)	Amount in Rs.
Process A	1,500	390	5,85,000
Woolen Threads:			
Process B:			
Woolen Garments	5,500	1,200	66,00,000
		Total Sales	71,85,000

Working Notes:

Further Processing: Process B

Particulars	Units	Computation	Amount
Transferred from Process A	5,500	5,500 x 325	17,87,500
Material			30,25,000
Labour & Overheads			6,87,500
Total	5,500		55,00,000
Woolen Garment Cost per Unit		55,00,000/5,500	1,000

Sale Price of Woolen Thread = ₹ 325 per unit + 20% = ₹ 390 per unit

Sale Price of Woolen Garment = ₹ 1,000 per unit + 20% = ₹ 1,200 per unit

(b) (a) **Calculation of Total wages and average wages per worker per month.**

(i) **When Current system of wages and incentive payment system is followed:**

Standard hours per Month = (9 hrs x 4 days + 4 hrs) x 4 = 196 hours

Standard production per worker = 196 hours x 3 units = 588 units

Standard production for 132 workers = 588 x 132 = 77,616 units

Particulars	Worst Case	Optimal Case	Best Case
I. Standard Production (units) (588 units x 132 workers)	77,616	77,616	77,616

II. Actual Production (units)	36,900	73,800	1,10,700
III. Efficiency (%) (II ÷ I × 100)	47.54%	95.08%	142.63%
IV. Applicable Piece Rate	₹ 14.40 (₹ 18 × 0.8)	₹ 14.40 (₹ 18 × 0.8)	₹ 22.50 (₹ 18 × 1.25)
V. Total Wages (II × IV)	₹ 5,31,360	₹ 10,62,720	₹ 24,90,750
VI. Average Wage per Worker (V ÷ 132)	₹ 4,025.45	₹ 8,050.91	₹ 18,869.32

(ii) When workers' demand for time rate wages and Halsey premium plan is accepted:

Particulars	Worst Case	Optimal Case	Best Case
I. Actual Production (units)	36,900	73,800	1,10,700
II. Standard Units per hour	3	3	3
III. Standard Hours Required (I ÷ II)	12,300	24,600	36,900
IV. Actual working hours (132 workers × 196 hrs)	25,872	25,872	25,872
V. Time Saved (III – IV)	—	—	11,028
VI. Time Wages (IV × ₹ 65)	₹ 16,81,680	₹ 16,81,680	₹ 16,81,680
VII. Halsey Bonus (50% × Time Saved × 65)	—	—	₹ 3,58,410
VIII. Total Wages (VI + VII)	₹ 16,81,680	₹ 16,81,680	₹ 20,40,090
IX. Average Wage per Worker (VIII ÷ 132)	₹ 12,740	₹ 12,740	₹ 15,455.23

(b) Calculation of gain or loss in the current monthly income of Mr. R:

1. Under Current Piece-Rate System

Standard production = 588 units

Production in December = 900 units

Efficiency = $900 \div 588 \times 100 = 153.06\%$

Rate = ₹ 22.50

Total wages = $900 \times 22.50 = ₹ 20,250$

2. Under Proposed Time Rate + Halsey Plan

Standard hours = 900 units ÷ 3 units = 300 hours

Actual hours available = 196 hours

Time saved = 300 – 196 = 104 hrs , so bonus = 0

Time wages = 196 × ₹ 65 = ₹ 12,740

Halsey Bonus (50% × Time Saved × 65) = 104 hrs x 50% x 65 = ₹3,380

Total expected wages = ₹ 16,120

3. Loss To Mr. R

Loss = 20,250 – 16,120 = ₹ 4,130

Supporting the demand of colleague workers will cost ₹ 4,130 in the next month to Mr. R.

3. (a) (i) Material Purchase Budget

(in quantities and value)

Particulars	Total
Material Consumption (Kg.)	
A (2,082 units × 6 kg = 12,492)	12,492
B (2,614 units × 2.5 kg = 6,535)	6,535
Total	19,027
Add: Closing Balance of Material (Kg.) (W.N. 3)	3,513
Less: Anticipated Opening Balance of Material (Kg.)	2,800
Total Quantity of Material (Kg.) to be purchased	19,740
Total Value of Material to be purchased (19,740 kg × ₹ 14)	₹ 2,76,360

(ii) Direct Workers Wages Budget

(Showing hours required and wages paid)

Particulars	Total
Standard Hours for Budgeted Production	
A (2,082 units × 6 hrs = 12,492)	12,492
B (2,614 units × 5 hrs = 13,070)	13,070
Total Standard Hours for Budgeted Production	25,562

Standard Hours for Budgeted Production at Targeted Efficiency Ratio (W.N. 4)	30,072.94
Add: Non-Productive Downtime (15% × 30,072.94 hours)	4,510.94
Total Labour Hours Required	34,583.88
Less: Normal Labour Hours (48 workers × 13 weeks × 5 days × 8 hours)	24,960
Difference (Overtime hours)	9,624
Wages for normal hours (24,960 hours × ₹ 9)	₹ 2,24,640.00
Overtime Wages (9,624 hrs × ₹ 14.40)	₹ 1,38,585.60
Total Wages	₹ 3,63,225.60

Working Notes:

1. Computation of Closing Stock Balance of Products A and B

Budgeted Period of Sales (In days) = 13 weeks × 5 days = **65 days**

Closing stock of Product A (Units) (18 days' sales)

$$= \frac{2,100}{65} \times 18 = \mathbf{582 \text{ units}} \text{ (rounded up)}$$

Closing stock of Product B (Units) (22 days' sales)

$$= \frac{2,700}{65} \times 22 = \mathbf{914 \text{ units}} \text{ (rounded up)}$$

2. Production Budget (Units)

Particulars	Product A	Product B
Sales in units (65 days)	2,100	2,700
Add: Closing Stock (W.N. 1)	582	914
Total	2,682	3,614
Less: Anticipated Opening Balance	600	1,000
Total Number of Units to be produced	2,082	2,614

3. Closing Balance of Material (Kg.)

Total material consumption for production = 12,492 kg (A) + 6,535 kg (B)
= 19,027 kg

$$\text{Daily consumption} = \frac{19,027}{65} = 292.72 \text{ kg/day}$$

Closing stock of material (12 days consumption) = $292.72 \times 12 = 3,513$ kg (rounded up)

4. **Standard Hours for Budgeted Production at targeted 85% efficiency ratio**

Total standard hours for production = $(2,082 \times 6) + (2,614 \times 5) = 25,562$ hrs

Productive hours required = Standard hours $\div$ Efficiency

$$= \frac{25,562}{0.85} = 30,072.94 \text{ hrs}$$

Non-productive downtime = 15% of productive hours = $0.15 \times 30,072.94 = 4,510.94$ hrs

Total labour hours required = $30,072.94 + 4,510.94 = 34,583.88$ hrs

(b) 1. **Assembly Department – Standard Cost Centre**

The Assembly Department operates with fixed input–output norms, and standard quantities of materials and labour are established for each unit. Any deviation (variance) in cost is measured and analysed into controllable and uncontrollable cost. Since its output is measurable and the input-output relationship is clearly defined, it qualifies as a Standard Cost Centre, where the manager is responsible for controlling costs and complying with established standards.

2. **Corporate R&D Lab – Discretionary Cost Centre**

The R&D Lab focuses on product innovation, and its output cannot be measured in financial terms. The performance of this department is evaluated only against the budget allocated. Because the input-output ratio cannot be defined and the cost cannot be directly linked to output, it is classified as a Discretionary Cost Centre.

3. **West Zone Sales Department – Revenue Centre**

This department is responsible for generating revenue and achieving sales targets but has no control over production or administrative costs, except for selling expenses like commissions. As its primary responsibility is revenue generation, it is classified as a Revenue Centre, where performance is measured based on revenue achieved.

4. **Global Operations Division – Investment Centre**

The Global Operations Division has authority over revenue, cost, and capital investment decisions. Its performance is evaluated on profitability as well as

Return on Investment (ROI). Therefore, it is classified as an Investment Centre, where managers are not only responsible for profitability but also have the authority to make capital investment decisions.

4. (a) If the company limits the manufacture to just one product, the monthly production will be as follows:

Products	Units	Weights
P	60,000	5
Q	75,000	4
R	1,00,000	3
S	3,00,000	1

Statement showing calculation of weighted Production

Products	Weights	Actual Production (in units)	Weighted Production
P	5	7,000	35,000
Q	4	17,500	70,000
R	3	45,000	1,35,000
S	1	1,60,000	1,60,000
		Total	4,00,000

Factory overhead recovery rate = Factory Overhead / Weighted Production
= ₹ 10,00,000 / ₹ 4,00,000 = ₹ 2.50 per unit

Overhead recovery rate and Factory overhead allocated to each brand will be:

Product	Overhead Recovery rate per unit	Factory overhead allocation in ₹
P	2.50 x 5 = ₹ 12.50	₹ 12.50 x 7,000 = ₹ 87,500
Q	2.50 x 4 = ₹ 10.00	₹ 10 x 17,500 = ₹ 1,75,000
R	2.50 x 3 = ₹ 7.50	₹ 7.50 x 45,000 = ₹ 3,37,500
S	2.50 x 1 = ₹ 2.50	₹ 2.5 x ₹ 1,60,000 = ₹ 4,00,000

Cost Sheet of XYZ Ltd for April 2025

Particulars	P (in ₹)	Q (in ₹)	R (in ₹)	S (in ₹)
Direct Material Cost	3,50,000	4,75,000	5,80,000	9,60,000

Add: Direct Wages	1,05,000	1,40,000	1,70,000	2,65,000
Prime Cost	4,55,000	6,15,000	7,50,000	12,25,000
Add: Factory Overheads	87,500	1,75,000	3,37,500	4,00,000
Works Cost	5,42,500	7,90,000	10,87,500	16,25,000
Office Overheads (Balancing figure)	73,500	1,48,000	1,12,500	71,000
Cost of Goods Sold	6,16,000	9,38,000	12,00,000	16,96,000
Add: Selling Overheads in ratio of 1:2:3:4	56,000	1,12,000	1,68,000	2,24,000
Cost of Sales	6,72,000	10,50,000	13,68,000	19,20,000
Profit @ 25% on cost (1/5 the of sales)	1,68,000	2,26,500	3,42,000	4,80,000
Sales (Sales units X Selling price p.u.)	8,40,000	13,12,500	17,10,000	24,00,000

(b) Overhead Allocation Rate -

Activity	Total Costs (₹)	Quantity of Cost Allocation Base	Overhead Allocation Rate (₹)
Ordering	15,600	156 Purchase Orders	100.00
Delivery	25,200	315 Delivering Orders	80.00
Shelf Stocking	17,280	864 Self Stocking Hours	20.00
Customer Support	30,720	1,53,600 Items Sold	0.20

Store Support Cost -

Particulars	Cost Driver	Pineapple	Orange	Litchi	Total
Bottle Returns	Direct	1,200	0	0	1,200
Ordering	Purchase Orders	3,600	8,400	3,600	15,600
Delivery	Deliveries	2,400	17,520	5,280	25,200
Self -Stocking	Hours of time	1,080	10,800	5,400	17,280
Customer Support	Items Sold	2,520	22,080	6,120	30,720
Grand Total		10,800	58,800	20,400	90,000

Operating Income-

Particulars	Pineapple	Orange	Litchi	Total
Revenue	79,350	2,10,060	1,20,990	410,400
Less: Cost of Goods Sold	60,000	1,50,000	90,000	300,000
Less: Store Support Cost	10,800	58,800	20,400	90,000
Operating Income	8,550	1,260	10,590	20,400
Operating Income (%)	10.78	0.60	8.75	4.97

5. (a) (i) Material variances:

(a) **Direct Material Cost Variance** = Standard Cost – Actual Cost
= (Actual output × Std qty per unit × Std price) – (Actual qty used × Actual price)
= (51,200 units × 6 kg × ₹ 5.00) – (296,000 kg × ₹ 5.20)
= ₹ 15,36,000 – ₹ 15,39,200 = ₹ **3,200 (A)**

(b) **Material Price Variance** = Actual Qty used × (Std Price – Actual Price)
= 2,96,000 kg × (₹ 5.00 – ₹ 5.20)
= 2,96,000 × (–₹ 0.20) = ₹ **59,200 (A)**

(Material variances are calculated on the basis of consumption)

(c) **Material Usage (Quantity) Variance** = Std Price × (Std Qty for actual output – Actual Qty used)
= ₹ 5.00 × (51,200 × 6 – 2,96,000)
= ₹ 5.00 × (3,07,200 – 2,96,000)
= ₹ 5.00 × 11,200 = ₹ **56,000 (F)**

(ii) Labour variances and Factory Overhead variance:

(a) **Labour Cost Variance** = Standard Cost – Actual Cost
= (Std hrs allowed for actual output × Std rate) – Actual labour cost
Std hrs allowed = 51,200 units × 2.5 hrs = 1,28,000 hrs

$$= (1,28,000 \times ₹ 4.50) - ₹ 6,40,000$$

$$= ₹ 5,76,000 - ₹ 6,40,000 = ₹ 64,000 \text{ (A)}$$

(b) **Labour Rate Variance** = Actual Hours × (Std Rate – Actual Rate)

$$\text{Actual rate} = \text{Actual labour cost} / \text{Actual hours}$$

$$= ₹ 6,40,000 / 1,25,000 = ₹ 5.12 / \text{hr}$$

$$= 1,25,000 \times (₹ 4.50 - ₹ 5.12) = 125,000 \times (-₹ 0.62) = ₹ 77,500 \text{ (A)}$$

(c) **Labour Efficiency Variance** = Std Rate × (Std Hours – Actual Hours)

$$= ₹ 4.50 \times (1,28,000 - 1,25,000) = ₹ 4.50 \times 3,000 = ₹ 13,500 \text{ (F)}$$

(d) **Total Factory Overhead Variance** = Factory Overhead Absorbed – Actual Factory Overhead

$$\text{Factory overhead absorbed} = \text{Actual hours} \times \text{Std FOH rate}$$

$$= 1,25,000 \times ₹ 2.00 = ₹ 2,50,000$$

$$\text{Actual FOH incurred} = ₹ 2,80,000$$

$$\text{FOH variance} = ₹ 2,50,000 - ₹ 2,80,000 = ₹ 30,000 \text{ (A)}$$

(iii) **Preparation of Income Statement**

Calculation of unit selling price

Standard manufacturing cost per unit = ₹ 46.25 (given)

Selling price per unit = ₹ 46.25 ÷ 0.75 = ₹ 61.6667

Income Statement

Particulars	Amount (₹)
Sales (50,000 units × ₹ 61.6667)	30,83,333
Less: Standard cost of goods sold (50,000 × ₹ 46.25)	23,12,500
Standard gross margin	7,70,833
Less: Adverse variances:	
Material Price variance	59,200
Labour Rate variance	77,500
Factory Overhead variance	30,000
Total Adverse variances	1,66,700

Add: Favourable variances:	
Material Usage variance	56,000
Labour Efficiency variance	13,500
Total Favourable variances	69,500
Actual gross margin = 7,70,833 – 1,66,700 + 69,500	6,73,633

(iv) **Bonus under incentive scheme**

Standard labour hours for actual output = 51,200 × 2.5 = 1,28,000 hrs

Actual labour hours worked = 1,25,000 hrs

Labour hours saved = 1,28,000 – 1,25,000 = 3,000 hrs

Bonus rate = 60% of standard direct labour rate per hour
= 60% × ₹ 4.50
= ₹ 2.70 / hr

Bonus payable = Hours saved × ₹ 2.70 = 3,000 × 2.70 = ₹ 8,100

(b) (i) **Calculation of total cost per batch:**

Particulars	Amount (₹)
(i) Auditorium hire charges (₹ 3,75,000 × 4 months)	15,00,000
(ii) Teachers' remuneration (₹ 3,000 × 2 hours × 3 days × 4 weeks × 4 months)	2,88,000
Total cost	17,88,000

(ii) **Computation of minimum fee per student per batch:**

Minimum fee to be charged = $\frac{\text{Total Cost}}{\text{No. of students}} = \frac{\text{₹ 17,88,000}}{150 \text{ students}} = \text{₹ 11,920/-}$

(iii) **Fee to be charged per student** = $\frac{\text{Total Cost} + \text{Profit}}{\text{No. of students}}$
= $\frac{\text{₹ 17,88,000} + \text{₹ 8,94,000}}{125 \text{ students}}$
= $\frac{\text{₹ 26,82,000}}{125 \text{ students}} = \text{₹ 21,456}$

6. (a) 1. Identification of Capacities

Capacity Type	Definition	Units (per product)
Installed (Rated or Theoretical) Capacity	It refers to the maximum capacity of producing goods or providing services.	50,000 units
Practical (Operating) Capacity	It is defined as actually utilised capacity of a plant after considering planned losses such as preventive maintenance, setup times, holidays, and training	45,000 units
Normal Capacity	Normal capacity is the volume of production or services achieved or achievable on an average over a period under normal circumstances taking into account the reduction in capacity resulting from planned maintenance.	42,000 units
Actual Capacity	It is the Capacity actually achieved during a given period	40,500 units

2. Role of Practical Capacity in Overhead Absorption

- It reflects the **available productive capacity** after accounting for planned downtime, allowing management to allocate overhead costs fairly and accurately to products.
- Using practical capacity **avoids over- or under-absorbing overheads** that would occur if installed capacity (theoretical maximum) or actual capacity were used.

(b) The following steps are useful for minimizing labour turnover:

- Exit interview:* An interview to be arranged with each outgoing employee to ascertain the reasons of his leaving the organization.
- Job analysis and evaluation:* to ascertain the requirement of each job.
- Organization should make use of a scientific system of recruitment, placement and promotion for employees.

- (d) Organization should create healthy atmosphere, providing education, medical and housing facilities for workers.
- (e) Committee for settling workers grievances.

(c)

Method	Circumstances
Net Realisable Value (NRV) at Split-off Point Method	When the realisable value of joint products at split-off is not known.
Technical Estimates	When the result obtained by Net Realisable Value (NRV) at Split-off Point Method does not match with the resources consumed by joint products.
Market value at the point of separation	Where further processing costs are incurred disproportionately.
Market value after further processing	Where further processing costs after the point of separation are proportionate and all the joint products are subject to further processing.

OR

(c) **Suitability for flexible budget:**

1. Seasonal fluctuations in sales and/or production, for example in soft drinks industry;
2. a company which keeps on introducing new products or makes changes in the design of its products frequently;
3. industries engaged in make-to-order business like ship building;
4. an industry which is influenced by changes in fashion; and
5. general changes in sales.