



PAPER – 4: COST AND MANAGEMENT ACCOUNTING



QUESTIONS

PART I - Case Scenario based MCQs

Case Scenarios

1. ABC Enterprises is a well-established trading firm specialised in the distribution and sale of a diverse range of products, with a commitment to deliver superior quality to its customers.

Following informations are provided by ABC Enterprises:

- (a) The company is engaged in both cash and credit sales, with credit sales being twice of cash sales. Cash sales are eligible for 3% discount.
- (b) 60% of credit sales are collected within the same month of sale. The remaining 40% is collected in the following month. All receivables are expected to be fully recovered, with no bad debts anticipated.
- (c) The company employs a structured pricing policy, ensuring that the selling price includes a 20% profit margin on the selling price.
- (d) Goods are purchased one month before the month in which these are to be sold.
- (e) The company procures goods through a combination of cash and credit, with cash purchases comprising 40% of the total purchases. Half of the credit purchases are paid within the same month of

purchase, while the remaining 50% is settled in the subsequent month.

- (f) The fourth installment of advance tax, amounting to ₹ 50,000, is due for payment by 15th March, 2025.
- (g) The opening cash in hand as on 1st February, 2025 stands at ₹ 60,000.

The projected sales figures are as follows:

Month	Sales (₹)
January, 2025	9,00,000
February, 2025	7,50,000
March, 2025	8,25,000
April, 2025	6,75,000
May, 2025	6,00,000

On the basis of above Case Scenario, you are required to answer the following MCQs:

- i. What is the net cash sales (after discount) for the month of February 2025?
 - (A) ₹ 2,42,500
 - (B) ₹ 2,50,000
 - (C) ₹ 2,66,750
 - (D) ₹ 2,75,000
- ii. What is the amount of total collection from debtors for the month of March 2025?
 - (A) ₹ 5,13,000
 - (B) ₹ 5,40,000
 - (C) ₹ 5,03,500
 - (D) ₹ 5,30,000

- iii. What is the amount of credit purchases for the month of February 2025?
 - (A) ₹ 3,60,000
 - (B) ₹ 3,96,000
 - (C) ₹ 3,24,000
 - (D) ₹ 4,95,000
 - iv. What is the amount of payment to creditors for the month of March 2025?
 - (A) ₹ 3,42,000
 - (B) ₹ 3,78,000
 - (C) ₹ 3,60,000
 - (D) ₹ 4,50,000
 - v. What is the amount of closing cash in hand as on 31st March, 2025?
 - (A) ₹ 3,61,250
 - (B) ₹ 3,71,250
 - (C) ₹ 3,23,250
 - (D) ₹ 2,00,500
2. White Kollars Pvt. Ltd. is a company engaged solely in the manufacture of shirts, which are bought mainly by office goers. Currently, the company sells its products directly to the retailers. In the recent years, sales has steadily declined due to rising competition. The forecast for next year suggests that the current decline in profits is expected to persist.
- The management believes that a profit of ₹ 60,00,000 is necessary to ensure an adequate return on capital. Thus, it asked the marketing director to review the marketing policies.
- Now, the marketing director submits the following profit and loss account for the last year along with 3 proposals available with him:

(Amount in '000)

Particulars	(₹)	(₹)	(₹)
Sales revenue (50,000 shirts at ₹ 1,500 each)			75,000
Factory cost of goods sold:			
Direct materials	7,500		
Direct labour	26,250		
Variable factory overheads	4,500		
Fixed factory overheads	16,500	54,750	
Fixed Administration overhead		10,500	
Selling and distribution overhead:			
Sales commission (2% of sales)	1,500		
Delivery costs (variable per unit sold)	3,750		
Fixed costs	3,000	8,250	73,500
Profit			1,500

Proposals for upcoming year:

- (i) 10% reduction in selling price which may increase demand by 40%.
- (ii) Selling of 25,000 units to eFlip, an online platform selling products directly to consumers, at a particular price. eFlip would transport the shirts from White Kollars Pvt. Ltd. to its own warehouse. Thus, abolishing the delivery costs and sales commission to be paid for each sale by White Kollars Pvt. Ltd. However, if a suitable price is negotiated, White Kollars Pvt. Ltd. would contribute ₹ 45,00,000 annually towards the online order catalogue cost and provide special packaging at ₹ 75 per shirt.
 Remaining units of 25,000 would continue to be sold at ₹ 1,500 each as per existing business.
- (iii) 10% price reduction together with an advertising campaign costing ₹ 22,50,000 which may boost sales by 60%.

From the information given above, you are required to FIGURE OUT the following for managerial decision:

- i. P/V ratio and Break-even sales (in value) based on the last year accounts would be-
 - (A) 40%, ₹ 7,14,28,571
 - (B) 42%, ₹ 7,14,28,571
 - (C) 40%, ₹ 7,50,00,000
 - (D) 42%, ₹ 7,50,00,000
- ii. Profit/ (Loss) from proposal (i) would be:
 - (A) ₹ 3,38,10,000
 - (B) ₹ 3,00,00,000
 - (C) ₹ 38,10,000
 - (D) ₹ 30,00,000
- iii. With respect to proposal (i), how many number of units White Kollars Pvt. Ltd. would need to sell at ₹ 1,350 each to earn a desired profit of ₹ 60,00,000?
 - (A) 75,000 units
 - (B) 74,534 units
 - (C) 62,112 units
 - (D) 47,619 units
- iv. With respect to proposal (ii), how much selling price per unit be offered to eFlip, that would at least break even on this proposal?
 - (A) ₹ 180
 - (B) ₹ 660
 - (C) ₹ 840
 - (D) ₹ 1,020
- v. Profit/ (Loss) from proposal (iii) would be:
 - (A) ₹ 63,90,000

- (B) ₹ 86,40,000
- (C) ₹ 81,00,000
- (D) (₹ 81,00,000)

3. In two consecutive quarters, a company reported the following performance:

Quarter 1 sales were ₹ 2,10,000 with a profit of ₹ 12,000, while Quarter 2 sales rose to ₹ 2,40,000 with a profit of ₹ 24,000. Assume that the fixed cost remained constant across both quarters and that the company did not introduce any new product lines.

Based on the above information, the P/V ratio must be:

- (A) 20%
- (B) 30%
- (C) 40%
- (D) 50%

4. In a chemical processing unit, materials are added at the beginning of the process. During the month, the department reported 9,200 equivalent units of production (EUP) under the FIFO method.

The process had an opening WIP of 800 units, which were 50% complete, and a closing WIP of 900 units, which were 70% complete with respect to conversion costs.

During the month, the plant also faced a minor machine breakdown, but it did not affect the material input, only the processing speed.

Based on the above information, the number of units completed during the month was:

- (A) 9,100
- (B) 8,970
- (C) 8,450
- (D) 8,650

5. In a manufacturing enterprise, two joint products, X and Y, emerge simultaneously from a common production process. The company incurs joint costs up to the split-off point, after which the products become separately identifiable. For the previous month, the following details relating to production and inventory are available:

Product	Sales (units)	Finished Goods – Opening Stock (units)	Finished Goods – Closing Stock (units)
X	96,000	2,400	6,000
Y	64,000	4,800	2,400

The total joint production cost incurred during the month amounted to ₹ 18,60,000. These joint costs are apportioned between products X and Y in proportion to the number of units produced.

Required:

Determine the amount of joint production cost to be allocated to Product X for the month.

- (A) ₹ 10,23,000
 (B) ₹ 11,49,230
 (C) ₹ 10,71,000
 (D) ₹ 11,16,000

PART - II Descriptive Questions

Material Cost

6. Hari Udyog is a small-scale manufacturing unit producing a single product X using two raw materials PK and BK in the input ratio of 3 : 2. The input–output ratio in production is 5 : 3.

Raw material PK is perishable and becomes obsolete if not used within 5 days of purchase, whereas raw material BK is durable and can be stored for more than one year. Material PK is procured locally with a lead time of 1 to 2 days, while material BK is purchased from a neighbouring state and takes 2 to 4 days to reach the factory.

The estimated sales volume for April 2025 is 30,000 kg, and the same level of sales is expected to continue throughout the year. The company operates for 25 days a month, and production is carried out evenly.

The purchase price per kilogram (excluding taxes) is ₹ 15 for material PK and ₹ 22 for material BK. To place an order, the company incurs an administrative cost of ₹ 120 per order. The annual carrying cost is estimated at 15% of the value for material PK and 5% for material BK.

Currently, material PK is purchased in lots of 8,000 kg to avail a 10% trade discount on the market price. GST at 5% is applicable on material PK, for which input tax credit is available. Material BK is subject to 2% CST, for which no input tax credit is available.

You are required to calculate:

- (i) Economic Order Quantity (EOQ) for each material;
- (ii) Maximum stock level for Material PK;
- (iii) Calculate saving/ loss in Material PK if purchase quantity equals to EOQ.

Employee Cost

7. 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 four scenarios (Worst, Optimal, Best, and Technology Upgrade 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.)

Overheads: Absorption Costing method

8. Omega Engineering Pvt. Ltd., a company manufacturing precision components for the automotive sector, operates three major CNC machines in its machining department—Machines X, Y, and Z. Due to a surge in customer demand and rising input costs, the company plans to revise its predetermined machine hour rates for the next financial year. The management has provided the following annual cost data for the three machines:

Preliminary Estimates of Annual Expenses

Particulars	Total (₹)	Machines		
		X (₹)	Y (₹)	Z (₹)
Depreciation	3,00,000	1,20,000	1,00,000	80,000
Spare parts	1,50,000	60,000	50,000	40,000
Power	5,50,000	—	—	—
Consumable stores	1,20,000	50,000	40,000	30,000
Insurance of machinery	1,00,000	—	—	—
Indirect labour	2,40,000	—	—	—
Building maintenance	2,50,000	—	—	—
Annual interest on capital outlay	1,20,000	50,000	40,000	30,000

Additional monthly information:

- Rent & rates: ₹ 30,000 per month
- Salary of Production Supervisor: ₹ 60,000 per month
- Salary of Machine Operator: ₹ 18,000 per month

The supervisor and operator oversee all three machines and spend equal time on each.

The following additional information is also available:

Machine	Estimated Direct Labour Hours	K.W. Rating Ratio	Floor Space (sq. ft.)
X	1,20,000	4	50,000
Y	1,60,000	3	40,000
Z	1,40,000	2	30,000

Working Conditions

- The plant operates 8 hours per day.
- Saturdays are half-days.
- There are 15 holidays besides Sundays, of which 3 fall on Saturdays.
- Machines run at 92% capacity.
- A 3% allowance for breakdown is considered reasonable.

Management expects the following increases for the coming financial year:

1. 10% increase in spare parts prices.
2. 30% increase in spare parts consumption for Machines Y & Z only.

You are required to :

CALCULATE the predetermined machine hour rates for Machines X, Y, and Z after incorporating all the revisions.

Activity Based Costing

9. A XYZ company supplies and maintains a range of printers for business customers. The sales department is responsible for selling the printers and related consumables such as ink and paper. The service department provides after-sales support, including routine preventive maintenance and repair services in the event of equipment breakdown. Customers are charged a fee per print, and this rate varies depending on the type and capacity of the printer.

There is one customer per machine.

The company's existing cost system uses a single overhead rate, based on total sales revenue from print charges, to charge the cost of the service department's support activities to each type of printer.

The service manager has suggested that the print charge should more accurately reflect the costs involved. The company's accountant has decided to implement an activity-based costing (ABC) system and has obtained the following information about the support activities of the service department:

Activity	Cost driver	Overheads per annum ₹ 000
Customer account handling	No. of Customers	126
Planned maintenance Scheduling	No. of planned maintenance visit	480
Unplanned maintenance scheduling	No. of unplanned maintenance visit	147
Spare part procurement	No. of purchase orders	243
Other overheads	No. of machines	600
Total overheads		1,596

The following data have also been collected for each machine size:

	Desktop Inkjet Printers	Office Laser Printers	High-Volume Production colour Printers
Charge per copy	₹ 0.03	₹ 0.04	₹ 0.05
Average number of copies per year per machine	60,000	1,20,000	1,80,000
Number of machines	300	800	500
Planned maintenance visits per machine per year	4	6	12

Unplanned maintenance visits per machine per year	1	1	2
Total number of purchase orders per year	500	1,200	1,000
Cost of parts per maintenance visit	₹ 100	₹ 300	₹ 400
Labour cost per maintenance visit	₹ 60	₹ 80	₹ 100

- Calculate the annual profit per machine for each of the three sizes of machine, using the current basis for charging the costs of support activities to machines.
- Calculate the annual profit per machine for each of the three sizes of machine using activity-based costing (ABC).
- Explain the potential benefits to the company of using an activity-based costing system.

Cost Sheet

- Following information is available from the books of YSPP Ltd. for the current year ending 31st March:

S. No.	Particulars	(₹)	(₹)
(i)	Raw materials purchased		35,00,00,000
(ii)	Freight inwards		39,22,100
(iii)	Wages paid to factory workers		1,02,20,000
(iv)	Contribution made towards employees' PF & ESIS		12,60,000
(v)	Hire charges paid for hiring specific equipment		8,40,000
(vi)	Amount paid for power & fuel		16,17,000
(vii)	Amount paid for purchase of moulds and patterns (life is equivalent to four years production)		31,36,000

(viii)	Job charges paid to job workers		28,42,000
(ix)	Lease rent paid for production assets		3,92,000
(x)	Depreciation on:		
	Factory building	2,94,000	
	Office building	1,96,000	
	Plant & Machinery	4,41,000	
	Delivery vehicles	3,01,000	12,32,000
(xi)	Salary paid to supervisors		4,41,000
(xii)	Repairs & Maintenance paid for:	1,68,000	
	Plant & Machinery		
	Sales office building	63,000	2,31,000
(xiii)	Insurance premium paid for:		
	Plant & Machinery	1,09,200	
	Factory building	63,350	
	Stock of raw materials & WIP	1,26,000	2,98,550
(xiv)	Expenses paid for quality control check activities		68,600
(xv)	Salary paid to quality control staffs		3,36,700
(xvi)	Research & development cost paid for improvement in production process		63,700
(xvii)	Expenses paid for administration of factory work		4,15,100
(xviii)	Salary paid to functional managers:		
	Production control	33,60,000	
	Finance & Accounts	32,13,000	
	Sales & Marketing	35,42,000	1,01,15,000
(xix)	Salary paid to General Manager		43,96,000
(xx)	Packing cost paid for:		
	Primary packing necessary to maintain quality	3,36,000	

	For re-distribution of finished goods	3,92,000	7,28,000
(xxi)	Fee paid to auditors		6,30,000
(xxii)	Fee paid to independent directors		7,70,000
(xxiii)	Value of stock as on 1 st April (beginning):		
	Raw materials	63,00,000	
	Work-in-process	32,20,000	
	Finished goods	38,50,000	1,33,70,000
(xxiv)	Value of stock as on 31 st March (ending):		
	Raw materials	33,60,000	
	Work-in-process	30,45,000	
	Finished goods	63,00,000	1,27,05,000

Due to delay in picking up cargo from the port, YSPP Ltd. had to pay ₹ 15,000 as demurrage in the month of March.

From the above data you are required to PREPARE Statement of cost for YSPP Ltd. for the year ended 31st March, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of sales.

Cost Accounting Systems

11. The following figures have been extracted from the cost records of a manufacturing unit:

	(₹)
Stores: Opening balance	32,000
Purchases of material	1,58,000
Transfer from work-in-progress	80,000
Issues to work-in-progress	1,60,000
Issues to repair and maintenance	20,000
Deficiencies found in stock taking	6,000
Work-in-progress: Opening balance	60,000

Direct wages applied	65,000
Overheads applied	2,40,000
Closing balance of W.I.P.	45,000

Finished products: Entire output is sold at a profit of 10% on actual cost from work-in-progress. Wages incurred ₹ 70,000, overhead incurred ₹ 2,50,000.

Items not included in cost records: Income from investment ₹ 10,000, Loss on sale of capital assets ₹ 20,000.

Draw up Store Control account, Work-in-progress Control account, Costing Profit and Loss account, Profit and Loss account and Reconciliation statement.

Job & Batch Costing

12. Analysis of costs by behaviour for decision-making. The Northshire Hospital Trust operates two types of specialist X-ray scanning machine, XR1 and XR50. Details for the next period are estimated as follows:

Machine	XR1	XR50
Running hours	1,100	2,000
	(₹)	(₹)
Variable running costs (excluding plates)	27,500	64,000
Fixed costs	20,000	97,500

A brain scan is normally carried out on machine type XR1: this task uses special X-ray plates costing ₹40 each and takes four hours of machine time. Because of the nature of the process, around 10 per cent of the scans produce blurred and therefore useless results.

Required:

- (a) Calculate the cost of a satisfactory brain scan on machine type XR1.

- (b) Brain scans can also be done on machine type XR50 and would take only 1.8 hours per scan with a reduced reject rate of 6 per cent. However, the cost of the X-ray plates would be ₹ 55 per scan.

Required:

ADVISE which type should be used, assuming sufficient capacity is available on both types of machines.

Process Costing

13. A Company produces a component, which passes through two processes. During the month of April, 2025, materials for 40,000 components were put into Process I of which 30,000 were completed and transferred to Process II. Those not transferred to Process II were 100% complete as to materials cost and 50% complete as to labour and overheads cost. The Process I costs incurred were as follows:

Direct Materials	₹ 15,000
Direct Wages	₹ 18,000
Factory Overheads	₹ 12,000

Of those transferred to Process II, 28,000 units were completed and transferred to finished goods stores. There was a normal loss with no salvage value of 200 units in Process II. There were 1,800 units, remained unfinished in the process with 100% complete as to materials and 25% complete as regard to wages and overheads.

No further process material costs occur after introduction at the first process until the end of the second process, when protective packing is applied to the completed components. The process and packing costs incurred at the end of the Process II were:

Packing Materials	₹ 4,000
Direct Wages	₹ 3,500
Factory Overheads	₹ 4,500

Required:

- (i) PREPARE Statement of Equivalent Production, Cost per unit and Process I A/c.
- (ii) PREPARE statement of Equivalent Production, Cost per unit and Process II A/c.

Joint Product and By-Product

14. ABC Ltd. operates a simple chemical process to convert a single material into three separate items, referred to here as X, Y and Z. All three end products are separated simultaneously at a single split-off point.

Product X and Y are ready for sale immediately upon split off without further processing or any other additional costs. Product Z, however, is processed further before being sold. There is no available market price for Z at the split-off point.

The selling prices quoted here are expected to remain the same in the coming year. During 2024-25, the selling prices of the items and the total amounts sold were:

X – 186 tons sold for ₹ 3,000 per ton

Y – 527 tons sold for ₹ 2,250 per ton

Z – 736 tons sold for ₹ 1,500 per ton

The total joint manufacturing costs for the year were ₹ 12,50,000. An additional ₹ 6,20,000 was spent to finish product Z.

There were no opening inventories of X, Y or Z at the end of the year. The following inventories of complete units were on hand:

X 180 tons

Y 60 Tons

Z 25 tons

There was no opening or closing work-in-progress.

Required:

COMPUTE the cost of inventories of X, Y and Z and cost of goods sold for year ended March 31, 2025, using Net realizable value (NRV) method of joint cost allocation.

Standard Costing

15. BabyMoon Ltd. uses standard costing system in manufacturing one of its product 'Baby Cap'. The details are as follows:

Direct Material 1 Meter @ ₹ 60 per meter	₹ 60
Direct Labour 2 hour @ ₹ 20 per hour	₹ 40
Variable overhead 2 hour @ ₹ 10 per hour	₹ <u>20</u>
Total	₹ <u>120</u>

During the month of August, 10,000 units of 'Baby Cap' were manufactured. Details are as follows:

Direct material consumed	11,400 meters @ ₹ 58 per meter
Direct labour Hours	? @ ? ₹ 4,48,800
Variable overhead incurred	₹ 2,24,400

Variable overhead efficiency variance is ₹ 4,000 A. Variable overheads are based on Direct Labour Hours.

You are required to CALCULATE the following Variances:

- Material Variances- Material Cost Variance, Material Price Variance and Material Usage Variance.
- Variable Overheads variances- Variable overhead Cost Variance, Variable overhead Efficiency Variance and Variable overhead Expenditure Variance.
- Labour variances- Labour Cost Variance, Labour Rate Variance and Labour Efficiency Variance.

Service Costing

16. Fit'n'fine Ltd. runs a fitness club in Delhi. It offers three types of membership plans: Bronze, Silver, and Gold.

The club is using a traditional costing system with the following information:

Cost Information

Description	Amount (in ₹)
Rent	1,00,000 per month
Gym equipments	30,00,000 (service life 5 years)
Licenses & Permits	86,000 (renewed in every six month)
Insurance	12,000 per annum
Salary to the instructors	7,48,000 per annum
Utilities	75,000 per quarter
Cleaning supplies	1,44,000 per annum
AMC of equipments & machinery	1,20,000 per month
Marketing expenses	3,00,000 per annum
Electricity expenses @ ₹ 14 per unit	April to July – 60 units per hour August to March – 25 units per hour

Membership Details

Type of Members	Club Access time	Occupancy % (April to July)	Occupancy % (August to March)
Gold	5.00 AM to 9.00 AM	100%	80%
Silver	6.00 PM to 9.00 PM	70%	50%
Bronze	9.00 AM to 6.00 PM	50%	30%

The maximum capacity of the fitness club is 200 persons in any time slot. The membership fee per month for Gold members is to be fixed at 1.5 times of the Silver membership and that of Silver membership as twice of the Bronze membership fee after providing profit @ 25% on membership fees. The club opens 25 days in a month.

You are required to calculate the membership fee per month to be charged by the club for each member type.

Miscellaneous

17. (a) A manufacturing firm is planning to introduce a new product while simultaneously considering changes in its production methods, advertising budget, and investment plans. As the management accountant, you are required to advise the management on how different types of costs should be treated for effective decision-making. Explain how pre-determined cost, Differential Cost, product cost, out-of-pocket cost, shutdown cost, sunk cost, and implicit cost would influence managerial decisions in this scenario.
- (b) A furniture manufacturing company produces wooden tables. During production in June, the supervisor reports two issues:
- Some wooden pieces get completely damaged during cutting and can only be sold as low-value waste.
 - A few finished tables have minor defects like rough edges or uneven legs, which can be corrected with extra labour and polishing.

As the cost accountant, explain:

1. How scrap differs from defective products in this scenario.
2. accounting treatment of scrap and defectives in the cost accounts.


SUGGESTED ANSWERS

1. (i) (A): ₹ 2,42,500
- (ii) (D): ₹ 5,30,000
- (iii) (B): ₹ 3,96,000
- (iv) (C): ₹ 3,60,000
- (v) (B): ₹ 3,17,750

Working Note No. 1: Calculation of Sales

Credit Sales = Twice of cash sales

If Cash sales = X, then Credit sales = 2X

Total sales = X + 2X = 3X

Cash Sales = Total Sales / 3

Credit Sales = 2/3 of Total Sales (In ₹)

Sales	January 2025	February 2025	March 2025	April 2025
Total Sales	9,00,000	7,50,000	8,25,000	6,75,000
Cash Sales	3,00,000	2,50,000	2,75,000	2,25,000
Discount @3%	9,000	7,500	8,250	6,750
Net Cash Sales	2,91,000	2,42,500	2,66,750	2,18,250
Credit Sales	6,00,000	5,00,000	5,50,000	4,50,000

Working Note No. 2: Collection from Debtors

60% of credit sales are collected in the same month

40% of credit sales are collected in the following month

- Current Month Collection = 60% of Credit Sales
- Next Month Collection = 40% of Previous Month's Credit Sales

(In ₹)

Particulars	January 2025	February 2025	March 2025
Credit Sales	6,00,000	5,00,000	5,50,000
60% of credit sale (same month)	3,60,000	3,00,000	3,30,000
40% next month	—	2,40,000	2,00,000
Total Collection	—	5,40,000	5,30,000

Working Note No. 3: Calculation of Purchases

Selling price includes a 20% profit margin on selling price.

Goods are purchased one month before sale.

For sales of February 2025, goods were purchased in January 2025.

Sales for February 2025 = ₹ 7,50,000

Purchases for January 2025 = 80% of Sales

= ₹ 7,50,000 × 80% = ₹ 6,00,000 (In ₹)

Particulars	January 2025	February 2025	March 2025
Purchases	6,00,000	6,60,000	5,40,000
Cash Purchases (40%)	2,40,000	2,64,000	2,16,000
Credit Purchases	3,60,000	3,96,000	3,24,000

Working Note No. 4: Payment to Creditors (In ₹)

Particulars	January 2025	February 2025	March 2025
Credit Purchases	3,60,000	3,96,000	3,24,000
Payment–Same Month @50%	1,80,000	1,98,000	1,62,000
Balance Next Month @50%		1,80,000	1,98,000
Payment to Creditors		3,78,000	3,60,000

Working Note No. 5: Cash Budget (In ₹)

Particulars	February 2025	March 2025
Receipts		
Opening Cash in Hand	60,000	2,00,500
Net Cash Sales (W.N.1)	2,42,500	2,66,750
Collection from Debtors (W.N.2)	<u>5,40,000</u>	<u>5,30,000</u>
Total Receipts (A)	8,42,500	9,97,250
Payments		
Cash Purchases (W.N.3)	2,64,000	2,16,000
Payment to Creditors (W.N.4)	3,78,000	3,60,000
Advance Income Tax	–	50,000
Total Payments (B)	<u>6,42,000</u>	<u>6,26,000</u>
Closing Cash in Hand (A – B)	2,00,500	3,71,250

2. (i) (B) 42%, ₹ 7,14,28,571

Calculation of Contribution:

(Amount in '000)

Particulars	(₹)	(₹)
Sales revenue (50,000 shirts at ₹ 1,500 each)		75,000
Less: Variable costs-		
Direct materials	7,500	
Direct labour	26,250	
Variable factory overheads	4,500	
Sales commission (2% of sales)	1,500	
Delivery costs (variable per unit sold)	3,750	43,500
Contribution		31,500

Calculation of Fixed Costs:

(Amount in '000)

Particulars	(₹)
Fixed factory overheads	16,500
Administration overhead	10,500
Selling and distribution overhead:	
Fixed costs	3,000
Total Fixed Costs	30,000

$$\begin{aligned}
 \text{P/V ratio} &= \frac{\text{Contribution}}{\text{Sales}} \times 100 \\
 &= \frac{\text{₹ } 31,500}{\text{₹ } 75,000} \times 100 \\
 &= 42\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Break even sales value} &= \frac{\text{Fixed Cost}}{\text{P/V ratio}} \\
 &= \frac{\text{₹ } 3,00,00,000}{42\%} \\
 &= \text{₹ } 7,14,28,571
 \end{aligned}$$

(ii) (C) ₹ 38,10,000

Particulars	(₹)	(₹)
Revised selling price (₹ 1,500 - 10%)		1,350
Less: variable costs-		
Direct materials	150	
Direct labour	525	
Variable overhead	90	
Delivery expenses	75	
Sales commission (2% of selling price)	27	867
Contribution per unit		483
Number of units sold		70,000
Total contribution (70,000 units x 483) (A)		3,38,10,000
Fixed costs (B)		3,00,00,000
Profit from proposal (i) (A - B)		38,10,000

(iii) (B) 74,534 units

We know that,

$$\text{Sales} \times \text{P/V Ratio} = \text{Fixed Cost} + \text{Profit}$$

$$\text{Or, } (\text{₹ } 1,350 \times \text{required no. of units}) \times \frac{\text{Contribution}}{\text{Sales}} = \text{Fixed Cost} + \text{Profit}$$

$$\text{Or, } (\text{₹ } 1,350 \times \text{required no. of units}) \times \frac{\text{₹ } 483 \text{ per unit}}{\text{₹ } 1,350 \text{ per unit}} = \text{₹ } 3,00,00,000 + \text{₹ } 60,00,000$$

$$\text{Therefore, required no. of units} = \frac{\text{₹ } 3,60,00,000}{\text{₹ } 483} = 74,534 \text{ units}$$

(iv) (D) ₹ 1,020

The variable cost of selling to eFlip is:

Particulars	(₹)
Direct material	150
Direct labour	525
Variable overhead	90
Delivery expenses	-
Sales commission	-
Additional package cost	75
	840

$$\text{Break-even Point} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

$$25,000 \text{ units} = \frac{₹ 45,00,000}{\text{Contribution per unit}}$$

$$\text{Contribution per unit} = ₹ 180$$

$$\text{Selling Price at Break-even Point} = \text{Variable cost} + \text{Contribution}$$

$$= ₹ 840 + ₹ 180$$

$$= ₹ 1,020 \text{ per unit}$$

(v) (A) ₹ 63,90,000

Particulars	(₹)
Contribution per unit (similar to Proposal (i))	483
Number of units sold	80,000
Total contribution (80,000 units x 483) (A)	3,86,40,000
Fixed costs (₹ 3,00,00,000 + ₹ 22,50,000) (B)	3,22,50,000
Profit from proposal (iii) (A - B)	63,90,000

3. (C) 40%

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}}$$

For Quarter I

Sales = ₹ 2,10,000

Profit = ₹ 12,000

$F + 12,000 = C \times 2,10,000$

For Quarter II

Sales = ₹ 2,40,000

Profit = ₹ 24,000

$F + 24,000 = C \times 2,40,000$

OR

Change in Profit / Change in Sales gives P/V Ratio

$$\text{P/V Ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}}$$

$$= \frac{24,000 - 12,000}{2,40,000 - 2,10,000}$$

$$= \frac{12,000}{30,000}$$

$$= 0.40$$

4. (B) 8,970

Statement of Equivalent Production Units (Under FIFO Method)

Particulars	Output units	Equivalent Production	
		(%)	Equivalent units
From opening W-I-P	800	50	400
Units Started & Completed	X-800	100	X-800
Units completed (Transferred to next process)	X		-
Closing W-I-P	900	70	630
	Y		9,200

$$\begin{aligned}
 X - 800 + 1030 &= 9,200 \\
 X + 230 &= 9,200 \\
 X &= 8,970
 \end{aligned}$$

5. (B) ₹ 11,49,230

Joint Production Cost = ₹ 18,60,000

Product	Sales (units) (A)	Finished Goods (units) Opening stock (B)	Finished Goods (units) Closing stock (C)	Production (units) (D) = (A) + (C) - (B)
X	96,000	2,400	6,000	99,600
Y	64,000	4,800	2,400	61,600
Total				1,61,200

Apportionment of Joint Production Cost to Product X:

$$\begin{aligned}
 &= \left(\frac{99,600 \text{ units}}{1,61,200 \text{ units}} \times ₹ 18,60,000 \right) \\
 &= ₹ 11,49,230
 \end{aligned}$$

6. **Workings:**

Monthly Production of X = 30,000 kgs.

Raw Material Required = $\frac{30,000}{3} \times 5 = 50,000$ kgs.

Material PK = $\frac{50,000}{5} \times 3 = 30,000$ kg.

Material BK = $\frac{50,000}{5} \times 2 = 20,000$ kg.

(i) **Calculation of Economic Order Quantity (EOQ):**

$$\text{Material PK} = \sqrt{\frac{2 \times \text{Annual consumption} \times \text{Order cost}}{\text{Carrying cost per unit p.a.}}}$$

$$\begin{aligned}
 &= \sqrt{\frac{2 \times (30,000 \text{ kg.} \times 12 \text{ months}) \times ₹ 120}{(15\% \text{ of } ₹ 15)}} \\
 &= \sqrt{\frac{8,64,00,000}{2.25}} = 6,196.77 \text{ kg. or } 6,197 \text{ kg.} \\
 \text{Material BK} &= \sqrt{\frac{2 \times (20,000 \text{ kg.} \times 12 \text{ months}) \times ₹ 120}{(5\% \text{ of } ₹ 22.44^*)}} \\
 &= \sqrt{\frac{5,76,00,000}{1.122}} = 7,164.97 \text{ or } 7,165 \text{ kg.}
 \end{aligned}$$

*Purchase price + 2% CST = ₹ 22 + 2% of ₹ 22 = ₹ 22.44

(ii) **Calculation of Maximum Stock level: Since, the Material PK is perishable in nature and it required to be used within 5 days, hence, the Maximum Stock Level shall be lower of two:**

(a) Stock equal to 5 days consumption

$$= \frac{30,000 \text{ kg.}}{25 \text{ days}} \times 5 \text{ days} = 6,000 \text{ kg.}$$

(a) Maximum Stock Level for Material PK:

Re-order Quantity + Re-order level – (Min consumption* × Min. lead time)

Where, Re-order Quantity = 8,000 kg.

$$\begin{aligned}
 \text{Re-order level} &= \text{Max. Consumption}^* \times \text{Max. Lead time} \\
 &= 30,000/25 \times 2 \text{ days} = 2,400 \text{ kg.}
 \end{aligned}$$

$$\text{Maximum stock Level} = 8,000 \text{ kg.} + 2,400 \text{ kg.} - (30,000/25 \times 1 \text{ day})$$

$$= 10,400 - 1,200 = 9,200 \text{ kg.}$$

Stock required for 5 days consumption is lower than the maximum stock level calculated through the formula. Therefore, Maximum Stock Level will be 6,000 kg.

(*Since, production is processed evenly throughout the month hence material consumption will also be even.)

(iii) Calculation of Savings/ loss in Material PK if purchase quantity equals to EOQ.

	Purchase Quantity = 8,000 kg.	Purchase Quantity = EOQ i.e. 6,197 kg.
Annual consumption	3,60,000 kg. (30,000 × 12 months)	3,60,000 kg. (30,000 × 12 months)
No. of orders [Note- (i)]	60 (3,60,000 ÷ 6,000)	60 (3,60,000 ÷ 6,000)
Ordering Cost (a)	₹ 7,200 (₹ 120 × 60)	₹ 7,200 (₹ 120 × 60)
Carrying Cost (b) [Note- (ii)]	₹ 8,100 (15% of ₹ 13.50 × 4,000)	₹ 6,972 (15% of ₹ 15 × 3,098.5)
Purchase Cost (c) (for good portion)	₹ 48,60,000 (₹ 13.50 × 3,60,000)	₹ 54,00,000 (₹ 15 × 3,60,000)
Loss due to obsolescence (d) [Note- (iii)]	₹ 16,20,000 [₹ 13.5 × (60 × 2,000)]	₹ 1,77,300 [₹ 15 × (60 × 197)]
Total Cost [(a) + (b) + (c) + (d)]	₹ 64,95,300	₹ 55,91,472

If purchase quantity equals to EOQ, there will be a saving of ₹ 9,03,828 i.e. ₹ 64,95,300 - ₹ 55,91,472.

Notes: (i) As after 5 days of purchase the Material PK gets obsolete, the quantity in excess of 5 days consumption i.e. 6,000 kg. are wasted. Hence, after 6,000 kg. a fresh order needs to be given.

(ii) Carrying cost is incurred on average stock of Materials purchased.

(iii) the excess quantity of material gets obsolete and loss has to be incurred.

7. (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 Production per Month

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

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

Particulars	Worst Case	Optimal Case	Best Case
I. Standard Production (units) (588 units × 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. Expected working hours (132 workers × 196 hrs.)	25,872	25,872	25,872
V. Time Saved (IV – III)	—	—	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 = $900 \text{ units} \div 3 \text{ units} = 300 \text{ hours}$

Actual hours available = 196 hours

Time saved = $300 - 196 = 104 \text{ hrs}$,

Time wages = $196 \times ₹ 65 = ₹ 12,740$

Halsey Bonus (50% × Time Saved × 65)

= $104 \text{ hrs} \times 50\% \times 65 = ₹ 3,380$

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.

8. (a) Computation of Machine Hour Rate

(A) Standing Charges

Particulars	Basis of Apportionment	Total (₹)	Machine X (₹)	Machine Y (₹)	Machine Z (₹)
Insurance	Depreciation Basis (6:5:4)	1,00,000	40,000	33,333	26,667
Indirect Labour	Direct Labour Hours (6:8:7)	2,40,000	68,571	91,429	80,000
Building Maintenance	Floor Space (5:4:3)	2,50,000	1,04,167	83,333	62,500
Rent & Rates	Floor Space (5:4:3)	3,60,000	1,50,000	1,20,000	90,000
Salary of Supervisor	Equal	7,20,000	2,40,000	2,40,000	2,40,000
Salary of Operator	Equal	2,16,000	72,000	72,000	72,000
Total Standing Charges	—	—	6,74,738	6,40,095	5,71,167
Hourly Rate (Standing)	—	—	345.49	327.75	292.46

(B) Machine Expenses

Particulars	Basis of Apportionment	Total (₹)	Machine X (₹)	Machine Y (₹)	Machine Z (₹)
Depreciation	Direct	—	1,20,000	1,00,000	80,000
Spare Parts	Revised Estimates	—	66,000	71,500	57,200
Power	KW Rating (4:3:2)	5,50,000	2,44,444	1,83,333	1,22,222
Consumable Stores	Direct	1,20,000	50,000	40,000	30,000
Total Machine Expenses	—	—	4,80,444	3,94,833	2,89,422
Hourly Rate (Machine)	—	—	246.00	202.17	148.19

Total (A + B)

Machine	Machine Hour Rate (₹)
X	591.49
Y	529.92
Z	440.65

Working Notes:
(i) Calculation of effective working hours:

$$\begin{aligned}
 \text{No. of full off-days} &= \text{No. of Sunday} + \text{No. of holidays} \\
 &= 52 + 15 = 67 \text{ days} \\
 \text{No. of half working days} &= 52 \text{ days} - 3 \text{ holidays} = 49 \text{ days} \\
 \text{No. of full working days} &= 365 \text{ days} - 67 \text{ days} - 49 \text{ days} \\
 &= 249 \text{ days} \\
 \text{Total Working Hours} &= \{(249 \text{ days} \times 8 \text{ hours}) + (49 \text{ days} \times 4 \text{ hours})\} \\
 &= 1,992 + 196 \\
 &= 2,188 \text{ hours} \\
 \text{Effective Working Hours} &= \text{Total working hours} \times 92\% - 3\% \text{ for breakdown} \\
 &= 2,188 \times 92\% - 3\% \times (2,188 \times 92\%) \\
 &= 2,012.96 - 60.39 \\
 &= 1,953 \text{ hours}
 \end{aligned}$$

(ii) Amount of spare parts is calculated as under:

Machine	X	Y	Z
Preliminary estimates	60,000	50,000	40,000
Add: Increase in price @ 10%	6,000	5,000	4,000
	66,000	55,000	44,000
Add: Increase in consumption @ 30%	—	16,500	13,200
Estimated cost	66,000	71,500	57,200

(iii) Interest on capital outlay is a finance cost, therefore it has been excluded from the cost accounts.

9. (a) Calculation of single overhead rate based on sales revenue

	Desktop Inkjet Printers	Office Laser Printers	High-Volume Production colour Printers	Total
	₹	₹	₹	₹
Sales revenue	₹ 1,800 × 300 = ₹ 5,40,000	₹ 4,800 × 800 = ₹ 38,40,000	₹ 9,000 × 500 = ₹ 45,00,000	₹ 88,80,000
Overheads				₹ 15,96,000
Overheads/ Sales revenue				18%
Cost per machine	₹ 1,800 × 18% = ₹ 324	4,800 × 18% = ₹ 864	9,000 × 18% = ₹ 1,620	

(b) Profit per machine

	Desktop Inkjet Printers	Office Laser Printers	High-Volume Production colour Printers
	₹	₹	₹
Copy charge per machine	(60,000 × ₹ 0.03) 1,800	(1,20,000 × 0.04) 4,800	(180,000 × ₹ 0.05) 9,000
Cost of parts per machine	(₹ 100 × 5) (500)	(₹ 300 × 7) (2,100)	(₹ 400 × 14) (5,600)
Labour cost per machine	(₹ 60 × 5) (300)	(₹ 80 × 7) (560)	(₹ 100 × 14) (1,400)
Overhead cost	(324)	(864)	(1,620)
Profit per machine	676	1,276	380

Cost driver rates

Activity	Cost Driver	Overheads ₹ 000	No. of cost drivers	Cost per driver ₹
Customer account handling	Number of customers	126	300 + 800 + 500 = 1,600	₹79 per customers*

Planned maintenance scheduling	Number of planned maintenance visits	480	$(300 \times 4) + (800 \times 6) + (500 \times 12) = 12,000$	₹ 40 per planned maintenance visit
Unplanned maintenance scheduling	Number of unplanned maintenance visits	147	$(300 \times 1) + (800 \times 1) + (500 \times 2) = 2,100$	₹ 70 per unplanned maintenance visit
Spare part procurement	Number of purchase orders	243	$(500 + 1,200 + 1,000) = 2,700$	₹ 90 per purchase order
Other overheads	Number of machines	600	$(300 + 800 + 500) = 1,600$	₹ 375 per machine

* **Round off**

Overhead cost per machine

	Desktop Inkjet Printers	Office Laser Printers	High-Volume Production colour Printers
Customer account handling	= ₹ 79	= ₹ 79	= ₹ 79
Planned maintenance scheduling	$(₹ 40 \times 4) = ₹ 160$	$(₹ 40 \times 6) = ₹ 240$	$(₹ 40 \times 12) = ₹ 480$
Unplanned maintenance scheduling	$(₹ 70 \times 1) = ₹ 70$	$(₹ 70 \times 1) = ₹ 70$	$(₹ 70 \times 2) = ₹ 140$
Spare part procurement	$(₹ 90 \times 500/300) = ₹ 150$	$(₹ 90 \times 1,200/800) = ₹ 135$	$(₹ 90 \times 1,000/500) = ₹ 180$
Other overheads	₹ 375	₹ 375	₹ 375
Total overhead cost per machine	₹ 834	₹ 899	₹ 1,254

ABC profitability analysis

	Desktop Inkjet Printers	Office Laser Printers	High-Volume Production colour Printers
Copy charge per machine	1,800	4,800	9,000
Parts and labour per machine	(800)	(2,660)	(7,000)
Overhead cost per machine	(834)	(899)	(1,254)
Profit per machine using ABC	166	1,241	746

(c) The answer should include the following points:

- The generation of more accurate product/service costs resulting in improved decision-making;
- Improved cost management by focusing on activity cost management
- More accurate profitability analysis
- The implementation of ABC will enable the company to adopt activity-based budgeting

10.

Statement of Cost of YSPP Ltd.

for the year ended 31st March:

S. No.	Particulars	(₹)	(₹)
(I)	Material consumed:		
	Raw materials purchased	35,00,00,000	
	Freight inwards	39,22,100	
	Add: opening stock of raw materials	63,00,000	
	Less: closing stock of raw materials	(33,60,000)	35,68,62,100
(II)	Direct employee (labour) cost:		
	Wages paid to factory workers	1,02,20,000	

	Contribution made towards employees' PF & ESIS	12,60,000	1,14,80,000
(III)	Direct expenses:		
	Hire charges paid for hiring specific equipment	8,40,000	
	Amount paid for power & fuel	16,17,000	
	Amortised cost of moulds and patterns	7,84,000	
	Job charges paid to job workers	28,42,000	60,83,000
	Prime cost		37,44,25,100
(IV)	Works/ factory overheads:		
	Lease rent paid for production assets	3,92,000	
	Depreciation on factory building	2,94,000	
	Depreciation on plant & machinery	4,41,000	
	Repairs & maintenance paid for plant & machinery	1,68,000	
	Insurance premium paid for plant & machinery	1,09,200	
	Insurance premium paid for factory building	63,350	
	Insurance premium paid for stock of raw materials & WIP	1,26,000	
	Salary paid to supervisors	4,41,000	20,34,550
	Gross factory cost		37,64,59,650
	Add: opening value of w-i-p		32,20,000
	Less: closing value of w-i-p		(30,45,000)
	Factory cost		37,66,34,650

(V)	Quality control cost:		
	Expenses paid for quality control check activities	68,600	
	Salary paid to quality control staffs	3,36,700	4,05,300
(VI)	Research & development cost paid for improvement in production process		63,700
(VII)	Administration cost related with production:		
	- Expenses paid for administration of factory work	4,15,100	
	- Salary paid to production control manager	33,60,000	37,75,100
(VIII)	Add: primary packing cost		3,36,000
	Cost of production		38,12,14,750
	Add: opening stock of finished goods		38,50,000
	Less: closing stock of finished goods		(63,00,000)
	Cost of goods sold		37,87,64,750
(IX)	Administrative overheads:		
	Depreciation on office building	1,96,000	
	Salary paid to manager- finance & accounts	32,13,000	
	Salary paid to general manager	43,96,000	
	Fee paid to auditors	6,30,000	
	Fee paid to independent directors	7,70,000	92,05,000

(X)	Selling overheads:		
	Repairs & maintenance paid for sales office building	63,000	
	Salary paid to manager- sales & marketing	35,42,000	36,05,000
(XI)	Distribution overheads:		
	Depreciation on delivery vehicles	3,01,000	
(XII)	Packing cost paid for re-distribution of finished goods	3,92,000	6,93,000
	Cost of sales		39,22,67,750

Note: Demurrage is a type of penalty, thus will not form part of cost.

11. (A) Costing books

Stores Control Account

Particulars	(₹)	Particulars	(₹)
To Balance b/d	32,000	By W.I.P. Control A/c	1,60,000
To General ledger adjustment A/c	1,58,000	By Work overhead control A/c	20,000
To Work in progress control A/c	80,000	By Costing Profit and Loss A/c	6,000
		By Balance c/d	84,000
	2,70,000		2,70,000

W.I.P. Control Account

Particulars	(₹)	Particulars	(₹)
To Balance b/d	60,000	By Stores control A/c	80,000
To Stores control A/c	1,60,000	By Costing profit and loss A/c (Cost of sales)	4,00,000
To Direct wages control A/c	65,000		

To Works overhead control A/c	2,40,000	By Balance c/d	45,000
	5,25,000		5,25,000

Works Overhead Control Account

Particulars	(₹)	Particulars	(₹)
To General ledger adjustment A/c	2,50,000	By W.I.P. Control A/c	2,40,000
To Store ledger control A/c	20,000	By Costing profit & loss A/c (under recovery)	30,000
	2,70,000		2,70,000

Costing Profit & Loss Account

Particulars	(₹)	Particulars		(₹)
To W.I.P. control A/c (Cost of sales)	4,00,000	By General ledger adjustment A/c		
To Works overhead control A/c	30,000	Cost of sales	4,00,000	
To Stores control A/c (shortage)	6,000	10% profit	<u>40,000</u>	4,40,000
To Profit	4,000			
	4,40,000			4,40,000

(B)
Financial Books
Profit & Loss Account

Particulars		(₹)	Particulars		(₹)
To Opening stock			By Sales		4,40,000
Stores	32,000		By Closing stock:		
W.I.P.	<u>60,000</u>	92,000	Stores	84,000	
			W.I.P.	<u>45,000</u>	1,29,000
To Purchases		1,58,000	By Income from investment		10,000
To Wages incurred		70,000	By Loss		11,000
To Overheads incurred		2,50,000			

To Loss on sale of capital assets		20,000			
		5,90,000			5,90,000

Reconciliation statement

	(₹)	(₹)
Profit as per Cost Accounts		4,000
Add: Income from investment recorded in Financial accounts		10,000
		14,000
Less: Under absorption of wages in Cost accounts	5,000	
Loss on sales of capital asset only included in Financial accounts	20,000	25,000
Loss as per Financial accounts		11,000

12. (a) Variable Cost per Running Hour of Machine XR1

Cost Component	Calculation	₹
Variable cost per running hour	₹ 27,500 ÷ 1,100 hours	25.00
Fixed cost per running hour	₹ 20,000 ÷ 1,100 hours	18.18

Cost of Brain Scan on Machine XR1

Cost Component	Calculation	₹
Variable machine cost	4 hours × ₹ 25	100.00
X-ray plates		40.00
Total variable cost		140.00
Fixed machine cost	4 hours × ₹ 18.182	72.73
Total cost of a scan		212.73
Total cost of a satisfactory scan	₹ 212.73 ÷ 0.9	236.37

(b) Relevant Costs for an Additional Scan

Machine	Cost Component	Calculation	₹
XR1	Variable cost per scan		140.00
	Variable cost per satisfactory scan	₹ 140 ÷ 0.9	155.56
XR50	Variable machine cost per scan	(₹ 64,000 ÷ 2,000 hours) × 1.8 hours = ₹ 32 × 1.8	57.60
	X-ray plates		55.00
	Variable cost per scan		112.60
	Variable cost per satisfactory scan	₹ 112.60 ÷ 0.94	119.79

The relevant costs per satisfactory scan are cheaper on Machine XR50 and therefore brain scans should be undertaken on this machine.

13.

Process I
Statement of Equivalent Production and Cost

Input (Units)	Particulars	Output Units	Equivalent Production					
			Materials		Labour		Overheads	
			(%)	Units	(%)	Units	(%)	Units
40,000	Completed	30,000	100	30,000	100	30,000	100	30,000
	Closing WIP	10,000	100	10,000	50	5,000	50	5,000
40,000		40,000		40,000		35,000		35,000

Particulars	Materials	Labour	Overhead	Total
Cost incurred (₹)	15,000	18,000	12,000	45,000
Equivalent units	40,000	35,000	35,000	
Cost per equivalent unit (₹)	0.3750	0.5143	0.3428	1.2321

Process- I Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Materials	40,000	15,000	By Process-II A/c	30,000	36,964

			(30,000 units × ₹ 1.2321)		
To Labour		18,000	By Closing WIP	10,000	8,036*
To Overhead		12,000			
	40,000	45,000		40,000	45,000

* (Material 10,000 units × ₹ 0.3750) + (Labour 5,000 units × ₹ 0.5143) + (Overheads 5,000 units × ₹0.3428) = ₹ 3,750 + ₹ 2,572 + ₹ 1,714 = ₹ 8,036

Process II

Statement of Equivalent Production and Cost

Input (Units)	Particulars	Output Units	Equivalent Production					
			Materials		Labour		Overheads	
			(%)	Units	(%)	Units	(%)	Units
30,000	Completed	28,000	100	28,000	100	28,000	100	28,000
	Normal loss	200		--		--		--
	WIP	1,800	100	1,800	25	450	25	450
30,000		30,000		29,800		28,450		28,450

Particulars	Materials	Labour	Overhead	Total
Process-I Cost	36,964	--	--	36,964
Cost incurred (₹)	--	3,500	4,500	8,000
Equivalent units	29,800	28,450	28,450	
Cost per equivalent unit (₹)	1.2404	0.1230	0.1582	1.5216

Process- II Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-I A/c	30,000	36,964	By Normal loss A/c	200	--
To Packing Material	--	4,000	By Finished Goods Stock A/c	28,000*	46,605
To Direct Wages	--	3,500	By Closing WIP	1,800**	2,359

To Factory Overhead	--	4,500			
	30,000	48,964		30,000	48,964

* $28,000 \times ₹ 1.5216 = ₹ 42,605 + ₹ 4,000$ (Packing Material Cost) = ₹46,605

** $1,800 \text{ units} \times ₹ 1.2404 + 450 \text{ units} \times (₹ 0.1230 + ₹ 0.1582) = ₹ 2,359$

14. (i) (a) Statement of Joint Cost allocation of inventories of X, Y and Z

(By using Net Realisable Value Method)

	Products			Total
	X	Y	Z	
	(₹)	(₹)	(₹)	(₹)
Final sales value of total production (Working Note 1)	10,98,000 (366 × ₹3,000)	13,20,750 (587 × ₹2,250)	11,41,500 (761 × ₹1,500)	35,60,250
Less: Additional cost	--	--	(6,20,000)	(6,20,000)
Net realisable value (at split-off point)	10,98,000	13,20,750	5,21,500	29,40,250
Joint cost allocated (Working Note 2)	4,66,797	5,61,496	2,21,707	12,50,000

Cost of goods sold as on March 31, 2025

(By using Net Realisable Value Method)

	Products			Total
	X	Y	Z	
	(₹)	(₹)	(₹)	(₹)
Allocated joint cost	4,66,797	5,61,496	2,21,707	12,50,000
Additional costs	--	--	6,20,000	6,20,000
Cost of goods available for sale (CGAS)	4,66,797	5,61,496	8,41,707	18,70,000

Less: Cost of ending inventory (Working Note 1)	2,29,571 (CGAS × 49.18%)	57,385 (CGAS × 10.22%)	27,692 (CGAS × 3.29%)	3,14,648
Cost of goods sold	2,37,226	5,04,111	8,14,015	15,55,352

Working Notes

1. Total production of three products for the year 2024-25

Products	Quantity sold in tones	Quantity of ending inventory in tons	Total production	Ending inventory percentage (%)
(1)	(2)	(3)	(4) = [(2) + (3)]	(5) = (3)/ (4)
X	186	180	366	49.18
Y	527	60	587	10.22
Z	736	25	761	3.29

2. Joint cost apportioned to each product:

$$\frac{\text{Total Joint cost}}{\text{Total Net Realisable Value}} \times \text{Net Realisable Value of each product}$$

$$\text{Total cost of Product X} = \frac{\text{₹ 12,50,000}}{\text{₹ 29,40,250}} \times \text{₹ 10,98,000} = \text{₹ 4,66,797}$$

$$\text{Total cost of Product Y} = \frac{\text{₹ 12,50,000}}{\text{₹ 29,40,250}} \times \text{₹ 13,20,750} = \text{₹ 5,61,496}$$

$$\text{Total cost of Product Z} = \frac{\text{₹ 12,50,000}}{\text{₹ 29,40,250}} \times \text{₹ 5,21,500} = \text{₹ 2,21,707}$$

15. (i) Material Variances

Budget			Std. for actual			Actual		
Quantity (Meter)	Price (₹)	Amount (₹)	Quantity (Meter)	Price (₹)	Amount (₹)	Quantity (Meter)	Price (₹)	Amount (₹)
1	60	60	10,000	60	6,00,000	11,400	58	6,61,200

$$\text{Material Cost Variance} = (\text{SQ} \times \text{SP} - \text{AQ} \times \text{AP})$$

$$= 6,00,000 - 6,61,200 = \text{₹ 61,200 (A)}$$

$$\text{Material Price Variance} = (\text{SP} - \text{AP}) \text{AQ}$$

$$= (60 - 58) 11,400 = ₹ 22,800 (F)$$

$$\text{Material Usage Variance} = (SQ - AQ) SP$$

$$= (10,000 - 11,400) 60 = ₹ 84,000 (A)$$

(ii) **Variable Overheads variances**

Variable overhead cost Variance

$$= \text{Standard variable overhead} - \text{Actual Variable Overhead}$$

$$= (10,000 \text{ units} \times 2 \text{ hours} \times ₹ 10) - 2,24,400 = ₹ 24,400 (A)$$

Variable overhead Efficiency Variance

$$= (\text{Standard Hours} - \text{Actual Hours}) \times \text{Standard Rate per Hour}$$

Let Actual Hours be 'X', then:

$$(20,000 - X) \times 10 = 4,000 (A)$$

$$2,00,000 - 10X = - 4,000$$

$$X = 2,04,000 \div 10$$

$$\text{Therefore, Actual Hours (X)} = 20,400$$

Variable overhead Expenditure Variance

$$= \text{Variable Overhead at Actual Hours} - \text{Actual Variable Overheads}$$

$$= 20,400 \times ₹ 10 - 2,24,400 = ₹ 20,400 (A)$$

(iii) **Labour variances**

Budget			Std. for actual			Actual		
Hours	Rate (₹)	Amount (₹)	Hours	Rate (₹)	Amount (₹)	Hours	Rate (₹)	Amount (₹)
2	20	40	20,000	20	4,00,000	20,400	22*	4,48,800

$$*\text{Actual Rate} = ₹ 4,48,800 \div 20,400 \text{ hours} = ₹ 22$$

$$\text{Labour Cost Variance} = (SH \times SR) - (AH \times AR)$$

$$= 4,00,000 - 4,48,800 = ₹ 48,800 (A)$$

$$\text{Labour Rate Variance} = (SR - AR) \times AH$$

$$= (20 - 22) \times 20,400 = ₹ 40,800 \text{ (A)}$$

$$\text{Labour Efficiency Variance} = (\text{SH} - \text{AH}) \times \text{SR}$$

$$= (20,000 - 20,400) \times 20 = ₹ 8,000 \text{ (A)}$$

16. Statement showing Total Cost per annum

Particulars	Amount (₹)
Rent (1,00,000 × 12)	12,00,000
Depreciation on Gym Equipment (30,00,000 / 5)	6,00,000
Licenses & Permits (86,000 × 2)	1,72,000
Insurance	12,000
Salary to the instructors	7,48,000
Utilities (75,000 × 4)	3,00,000
Cleaning supplies	1,44,000
AMC of Equipment & Machinery (1,20,000 × 12)	14,40,000
Marketing expenses	3,00,000
Electricity Expenses April to July (25 days × 16 Hrs × 4 Month × 60 units × 14)	13,44,000
Electricity Expenses August to March (25 days × 16 Hrs × 8 Month × 25 units × 14)	11,20,000
Total cost per annum	73,80,000
Add: Profit 25% on sale or 1/3 on cost	24,60,000
Total amount to be charged	98,40,000

Calculation of per member per month Subscription charges:

Total amount to be charged = ₹ 98,40,000

Equivalent Bronze membership = 9,840

Rate per Bronze membership per month

$$= 98,40,000 / 9,840 = ₹ 1,000$$

Rate per Silver membership per month

$$= 1,000 \times 2 = ₹ 2,000$$

Rate per Gold membership per month

$$= 2,000 \times 1.5 = ₹ 3,000$$

Working note:

Calculation of equivalent Bronze membership:

Type of Membership	April to July	August to March
Gold	$200 \times 100\% = 200$	$200 \times 80\% = 160$
Silver	$200 \times 70\% = 140$	$200 \times 50\% = 100$
Bronze	$200 \times 50\% = 100$	$200 \times 30\% = 60$

Equivalent membership:

Type of Membership	April to July	August to March
Gold	$3 \times 200 = 600$	$3 \times 160 = 480$
Silver	$2 \times 140 = 280$	$2 \times 100 = 200$
Bronze	$1 \times 100 = 100$	$1 \times 60 = 60$
Total	$980 \times 4 = 3,920$	$740 \times 8 = 5,920$

$$\text{Total} = 3,920 + 5,920 = 9,840$$

17. (a) Following cost would influence managerial decisions:

- 1. Pre-determined Cost** - A cost which is computed in advance before production or operations start, on the basis of specification of all the factors affecting cost, is known as a pre-determined cost.
- 2. Differential Cost** - (Incremental and decremental costs). It represents the change (increase or decrease) in total cost (variable as well as fixed) due to change in activity level, technology, process or method of production, etc. For example, if any change is proposed in the existing level or in the existing method of production, the increase or decrease in total cost or in specific elements of cost as a result of this decision will be known as incremental cost or decremental cost.

3. **Product Costs** - These are the costs which are associated with the purchase and sale of goods (in the case of merchandise inventory). In the production scenario, such costs are associated with the acquisition and conversion of materials and all other manufacturing inputs into finished product for sale. Hence, under marginal costing, variable manufacturing costs and under absorption costing, total manufacturing costs (variable and fixed) constitute inventoriable or product costs.
4. **Out-of-pocket Cost** - It is that portion of total cost, which involves cash outflow. This cost concept is a short-run concept and is used in decisions relating to fixation of selling price in recession, make or buy, etc. Out-of-pocket costs can be avoided or saved if a particular proposal under consideration is not accepted.
5. **Shut down Costs** - Those costs, which continue to be, incurred even when a plant is temporarily shut-down e.g. rent, rates, depreciation, etc. These costs cannot be eliminated with the closure of the plant. In other words, all fixed costs, which cannot be avoided during the temporary closure of a plant, will be known as shut down costs.
6. **Sunk Costs** - Historical costs incurred in the past are known as sunk costs. They play no role in decision making in the current period. For example, in the case of a decision relating to the replacement of a machine, the written down value of the existing machine is a sunk cost and therefore, not considered.
7. **Implicit Costs** - These costs do not involve any immediate cash payment. They are not recorded in the books of account. They are also known as economic costs.

(b) **Difference between Scrap and Defectives**

Scrap	Defectives
1. It is the loss connected with the output	1. This type of loss is connected with the output as well as the input.

2. Scraps are not intended but cannot be eliminated due to the nature of material or process itself.	2. Defectives also are not intended but can be eliminated through a proper control system.
3. Generally, scraps are not used or rectified.	3. Defectives can be used after rectification.
4. Scraps have insignificant recoverable value.	4. Defectives are sold at a lower value from that of the good one.

Treatment of Scrap

Normal- The cost of scrap is borne by good units and income arises on account of realisable value is deducted from the cost.

Abnormal- The scrap account should be charged with full cost. The credit is given to the job or process concerned. The profit or loss in the scrap account, on realisation, will be transferred to the Costing Profit and Loss Account.

Treatment of Defectives:

Normal- An amount equal to the cost less realisable value on sale of defectives are charged to material cost of good production.

Abnormal- Material cost of abnormal defectives are not included in material cost but treated as loss after giving credit to the realisable value of such defectives. The material cost of abnormal loss is transferred to costing profit and loss account.