PAPER – 4:
COST AND MANAGEMENT ACCOUNTING

QUESTIONS

PART I - Case Scenario based MCQs

Standard Costing

1. ALZO Toys Ltd. is an exciting new player in the toy manufacturing industry, founded with a passion for creating high-quality, engaging, and educational toys. The company aims to make a positive impact on the industry and also on the development of young minds through imaginative play.

   The following statement provides a comprehensive analysis of the various cost variances for a particular period, outlining the differences between the expected costs and the actual expenditures incurred.

Cost variances	**(₹)**
Direct material price	25,000F
Direct material usage	3,750A
Direct labour rate	5,000A
Direct labour efficiency	3,750A
Variable overhead expenditure	15,000A
Variable overhead efficiency	1,875A
Fixed overhead expenditure	62,500F

The budget for the same period reflected the following data:

Production volume	7,500 units
Direct materials purchased	3,750kg
Direct materials used	3,750kg
Direct material cost	₹ 1,12,500
Direct labour hours	5,625 hours
Direct labour cost	₹ 1,12,500
Variable overhead cost	₹ 56,250
Fixed overhead cost	₹ 1,12,500

Some other information relating to the same period is provided below:

(i) Stocks of raw materials and finished goods are valued at a predetermined standard cost for easier cost comparison and reporting.

(ii) The actual number of units produced was 7,750.

(iii) The direct materials purchased were 5,000 kg.

From the information given above, you are required to FIGURE OUT the following in actual:

(i) Quantity of materials used and direct material cost-

(a) 3,875 kg and ₹ 1,50,000

(b) 3,875 kg and ₹ 1,25,000

(c) 4,000 kg and ₹ 1,25,000

(d) 4,000 kg and ₹ 1,50,000

(ii) Direct labour hours-

(a) 7,937.50 hours

(b) 6,000 hours

(c) 5,812.50 hours

(d) 5,000 hours

(iii) Direct labour cost-

(a) ₹ 1,16,250

(b) ₹ 1,25,000

(c) ₹ 1,55,000

(d) ₹ 1,63,750

(iv) Variable overhead cost-

(a) ₹ 75,000

(b) ₹ 73,125

(c) ₹ 60,000

(d) ₹ 58,125

(v) Fixed overhead cost-

(a) ₹ 1,75,000

(b) ₹ 1,12,500

(c) ₹ 62,500

(d) ₹ 50,000

Activity based Costing

2. With the rise in carbon dioxide, a greenhouse gas, release in the environment, when fossil fuels are burned, Earth's natural greenhouse effect is becoming too weak causing global warming.

To contribute towards global environment for the betterment, various cars and scooters manufacturing companies are shifting their production towards electric vehicles (EVs) manufacturing. Companies are heavily investing in research, development and production of EVs.

Olay Ltd. is also one the companies belonging to scooter manufacturing industry. Watching its rivalries shifting their production to EVs, the management of Olay Ltd. decided to take the advantage of this open opportunity.

It had been only 4 years since the company started its production of EVs, but last year, the management of the company also decided to expand

its product line to 3 variants of the scooter, viz., Olay EV Max, Olay EV Ultra and Olay EV Pro.

The following information is provided for the current year from the books of Olay Ltd.:

	Olay EV Max	Olay EV Ultra	Olay EV Pro
Average revenue per unit (₹)	84,975	1,15,500	2,17,800
Average cost of goods sold per unit (₹)	82,500	1,10,000	1,98,000

Last year, when the company initially expanded its product line, the sales were not much noticeable comparative to its earlier category of scooters. The company could only sold 528, 330 and 110 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively against the order received of 616, 396 and 165 units respectively. However, with the increasing awareness about the EVs, more people started buying EVs and, during the current year, the company's order and sales jumped to five times the last year.

For earlier years, Olay Ltd. used gross margin percentage method to evaluate the relative profitability for all of its EVs.

However, from current year, company plans to use activity based costing for analysing the profitability.

The Activity analysis of Olay Ltd. is as under:

Activity Area	Cost-allocation base
Customer purchase order processing	Purchase orders by customers
Line-item ordering	Line-items per purchase order
Store delivery	Unit sold
Cartons dispatched to stores	Cartons dispatched to a store per Unit
Shelf-stocking at customer store	Hours of shelf-stocking

All the support costs for the current year amounts to ₹ 66,23,760. These support costs are assigned to all the activity areas. The cost in each area

and the quantity of the cost allocation basis used in that area are as follows:

Activity Area	Total costs (₹)	Total Units of Cost-allocation base
Line-item ordering	14,04,480	66,110 line items
Cartons dispatched to store	16,72,000	3,39,240 cartons
Shelf-stocking at customer store	2,25,280	2,904 hours

The Customer purchase order processing costs ₹ 17,60,000 along with the store delivery cost of ₹ 15,62,000.

Some of the other information is also provided below:

	Olay EV Max	Olay EV Ultra	Olay EV Pro
Average number of line items per order	10	12	14
Average number of cartons shipped per store unit	16	80	300
Average number of hours of shelf-stocking per store delivery	0.1	0.6	3

The company wants you to FIGURE OUT the following to ascertain which of the product line is more profitable:

(i) For the current year, how much is the order received and the units sold for Olay EV Max, Olay EV Ultra and Olay EV Pro respectively?

(a) Order received- 616, 396 and 165 units; sold- 528, 330 and 110 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

(b) Order received- 3,696, 2,376 and 990 units; sold- 3,168, 1,980 and 660 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

(c) Order received- 528, 330 and 110 units; sold- 616, 396 and 165 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

(d) Order received- 3,080, 1,980 and 825 units; sold- 2,640, 1,650 and 550 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

(ii) The total gross-margin percentage and the operating income percentage, for the current year would be:

(a) Gross-margin - 3.72% and Operating income - 4.96%

(b) Gross-margin - 4.96% and Operating income - 3.72%

(c) Gross-margin - 4.96% and Operating income - 4.96%

(d) Gross-margin - 3.72% and Operating income - 3.72%

(iii) The cost driver rate relating to all the five activity areas would be:

(a) Customer purchase order processing- ₹ 363.64 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 265.42 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

(b) Customer purchase order processing- ₹ 299.07 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 322.73 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

(c) Customer purchase order processing- ₹ 299.07 per order, Line item ordering- ₹ 77.58 per line item order, Store delivery- ₹ 322.73 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 21.24 per hour.

(d) Customer purchase order processing- ₹ 322.73 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 299.07 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

(iv) The operating cost of the individual product line, as per the method proposed for the current year w.r.t. profitability analysis, would be:

(a) Olay EV Max- ₹ 16,11,013, Olay EV Ultra- ₹ 23,56,890 and Olay EV Pro- ₹ 26,56,059

(b) Olay EV Max- ₹ 23,56,890, Olay EV Ultra- ₹ 26,56,059 and Olay EV Pro- ₹ 16,11,013

(c) Olay EV Max- ₹ 26,56,059, Olay EV Ultra- ₹ 16,11,013 and Olay EV Pro- ₹ 23,56,890

(d) Olay EV Max- ₹ 26,56,059, Olay EV Ultra- ₹ 23,56,890 and Olay EV Pro- ₹ 16,11,013

(v) Operating income as a percentage of revenues of each product line, namely Olay EV Max, Olay EV Ultra and Olay EV Pro, when all the support costs are allocated using an activity-based costing system would be:

(a) Olay EV Max- 1.73%, Olay EV Ultra- 3.53% and Olay EV Pro- 7.75%

(b) Olay EV Max- 1.18%, Olay EV Ultra- 1.24% and Olay EV Pro- 1.34%

(c) Olay EV Max- 2.91%, Olay EV Ultra- 4.76% and Olay EV Pro- 9.09%

(d) Olay EV Max- 1.78%, Olay EV Ultra- 3.70% and Olay EV Pro- 8.52%

Employee Cost and Direct Expenses

3. Suppose the units of a product are produced at the rate of 4 units per useful direct labour hour. Direct labour idle time is 10% of hours paid for. Sales of 1,000 units are budgeted and finished goods stock is expected to rise by 100 units. The budgeted direct labour hours for the production would be:

(a) 306

(b) 250

(c) 275

(d) 400

Cost Accounting Systems

4. WHICH of the following is the correct journal entry as would appear in the cost books when overhead expenses incurred ₹ 500 (Production ₹ 250 and Administrative ₹ 250)?

(a)	Production Overhead Control A/c	Dr.	₹ 250	
	Administrative Overhead Control A/c	Dr.	₹ 250	
	To Cost Ledger Control A/c			₹ 500
(b)	Production Overhead Control A/c	Dr.	₹ 250	
	Administrative Overhead Control A/c	Dr.	₹ 250	
	To Overhead Expenses A/c			₹ 500
(c)	Cost Ledger Control A/c	Dr.	₹ 500	
	To Production Overhead Control A/c			₹ 250
	To Administrative Overhead Control A/c			₹ 250
(d)	Overhead Expenses A/c	Dr.	₹ 500	
	To Production Overhead Control A/c			₹ 250
	To Administrative Overhead Control A/c			₹ 250

Joint Products and by products

5. In a company's production process, two joint products, A and B, are created simultaneously. The company operates in the manufacturing sector, focusing on producing goods that require multiple stages of production, often resulting in the creation of joint products that share common production costs up until a certain split-off point. For the last month, the following information is provided relating to the inventory and sales:

Product	Sales (units)	Finished Goods (units)	
		Opening stock	Closing stock
A	1,14,000	1,900	5,700
B	76,000	7,600	3,800

Joint production costs for the last month amounted to ₹ 20,90,000. These costs were allocated between both the joint products, A and B, based on the number of units produced. This method of apportioning costs ensures that each product is fairly charged for its share of the overall production expenses.

CALCULATE the joint production costs apportioned to product A for last month?

(a) ₹ 12,12,200

(b) ₹ 12,54,000

(c) ₹ 12,95,800

(d) ₹ 13,58,500

Marginal Costing

6. A company's sales could decrease by 50% before it starts incurring losses. And, for every Re. 1 of sales, it can contribute 40 paise towards fixed costs and generating profit. For the current year, the company's fixed cost amounts to ₹ 5,00,000.

CALCULATE the Projected sales.

(a) ₹ 10,00,000

(b) ₹ 12,50,000

(c) ₹ 20,83,333

(d) ₹ 25,00,000

PART - II Descriptive Questions

Material Cost

7. XYZ Ltd is engaged in the business of manufacturing product "A". The material required for the manufacture of Product A is Material "B". Each unit of Product A requires 2 Kgs of Material B, however the yield of each unit of Material B is 80% of the input.

The Details governing the production requirements for the year is as follows:

a.	Projected sales of product A for the period	-	10,000 units.
b.	Opening stock of product A	-	948 units
c.	Opening stock of Raw Material B	-	2,630 Kgs
d.	Ordering cost per order	-	₹500
e.	Rate of Overdraft	-	12.5%
f.	Obsolescence Rate	-	12.5%
g.	Purchase price of Material B	-	₹ 20 per Kg
h.	Current purchase policy	-	Quarterly
i.	Max usage is more than minimum usage by	-	100 Kgs
j.	Waiting time from date of order	-	4 to 8 days

Based on the above information determine the following:

i. Economic Order Quantity

ii. Re-Order Quantity

iii. Re-Order Level

iv. Maximum Stock

v. Minimum Stock

vi. Profitability analysis on EOQ v. ROQ

vii. If a volume discount of 5% is provided for a quarterly purchase by the supplier, will your answer to (vi) above change?

Employee Cost and Direct Expenses

8. The existing incentive system of Sakshi Limited is as under:

Normal working week	5 days of 8 hours each plus 3 late shifts of 3 hours each
Rate of Payment	Day work: ₹ 160 per hour Late shift: ₹ 225 per hour
Average output per operator for 49-hours week i.e. including 3 late shifts	240 articles

In order to increase output and eliminate overtime, it is decided to switch on to a system of payment by results. The following information is obtained:

Time-rate (as usual)	:	₹ 160 per hour
Basic time allowed for 15 articles	:	2.5 hours
Piece-work rate	:	Add 20% to basic piece-rate
Premium Bonus	:	Add 50% to time.

If during the last week 270 articles are produced in a 40-hour week.

Required:

(i) CALCULATE weekly earnings for one operator under the following systems:

(a) Existing time-rate

(b) Straight piece-work

(c) Rowan system

(d) Halsey premium system

(ii) PREPARE a Statement showing hours worked, weekly earnings, number of articles produced and labour cost per article for one operator under the above systems.

Overheads- Absorption Costing Method

9. SA Ltd. has three production (M_1, M_2 and A_1) and three service departments (Stores, Engineering services and General service). Engineering department serves the M_1 and M_2 only.

The relevant information related with Product X and Y are as follows:

	Product X	Product Y
M_1	10 Machine hours	6 Machine hours
M_2	4 Machine hours	14 Machine hours
A_1	14 Direct labour hours	18 Direct labour hours

The annual budgeted overhead cost for the year is

	Indirect Wages (₹)	Consumable Supplies (₹)
M_1	9,30,400	2,52,000
M_2	8,26,800	3,64,000
A_1	3,24,400	84,000
Stores	1,64,000	56,000
Engineering Service	1,06,800	84,000
General Service	1,50,400	64,000

	(₹)	
– Depreciation on Machinery	7,92,000	
– Insurance of Machinery	1,44,000	
– Insurance of Building	64,800	(Total building insurance cost for M_1 is one third of annual premium)
– Power	1,29,600	
– Light	1,08,000	
– Rent	2,53,500	(The general service deptt. is located in a

		building owned by the company. It is valued at ₹ 1,20,000 and is charged into cost at notional value of 8% per annum. This cost is additional to the rent shown above)
The value of issues of materials to the production departments are in the same proportion as shown above for the Consumable supplies.		

The following data are also available:

Department	Book value Machinery (₹)	Area (Sq. ft.)	Effective H.P. hours %	Production Direct Labour hour	Capacity Machine hour
M_1	24,00,000	5,000	50	2,00,000	40,000
M_2	18,00,000	6,000	35	1,50,000	50,000
A_1	6,00,000	8,000	05	3,00,000	–
Stores	2,40,000	2,000	–	–	–
Engg. Service	7,20,000	2,500	10	–	–
General Service	2,40,000	1,500	–	–	–

Required:

(i) PREPARE an overhead analysis sheet, showing the bases of apportionment of overhead to departments.

(ii) PREPARE a statement allocating service department overheads to production department ignoring the apportionment of service department costs among service departments.

(iii) CALCULATE suitable overhead absorption rate for the production departments.

(iv) CALCULATE the overheads to be absorbed by two products, X and Y.

Cost Sheet

10. The accounts of Ranu Ltd for the year ended 31st March,2025 , shows the following:

Particulars	**(₹)**
Carriage Inward	7,150
Administrative Office Salaries	12,600
Bad debts written off	6,500
Carriage Outward	4,300
GST (ITC Allowed)	10,000
Salaries related to factory office	7,000
Production Wages	1,20,000
Repairs - Plant and Machinery	4,450
Rent, Rates, Taxes, Insurance etc.	
Factory	8,500
Office	2,000
Sales	4,50,000
Stock of Raw materials: 1st April, 2024	50,000
31st March, 2025	64,500
Materials Purchased (excluding GST)	2,00,000
Travelling Expenses	2,100
Manager's Salary (1/4 Office and 3/4 Factory)	10,000
Depreciation on Plant and Machinery	6,500
Depreciation on Office Furniture	500
Director's Fees	6,000
Gas and Water (Factory)	1,500
Gas and Water (Office)	500
General Expenses	3,400

You are required to PREPARE a cost statement for the year ended 31st March, 2025.

Cost Accounting Systems

11. The following figures have been taken from the financial accounts of a manufacturing firm for the year ended 31st March, 2025:

	(₹)
Direct material consumption	20,00,000
Direct wages	12,00,000
Factory overheads	6,40,000
Repair and maintenance (Factory-related)	48,000
Advertisement expenses (for brand building – capital in nature)	40,000
Administrative overheads	2,80,000
Selling and distribution overheads	3,84,000
Bad debts	32,000
Preliminary expenses written off	16,000
Legal charges	4,000
Depreciation on Plant and Machinery	1,20,000
Interest on Loan	60,000
Dividends received	40,000
Interest on fixed deposit	8,000
Sales- 48,000 units	48,00,000
Closing stock:	
- Finished stock- 4,000 units	3,20,000
- Work-in-process	96,000

The cost accounts for the same period reveal that the direct material consumption was ₹ 22,40,000; Factory overhead (including factory related repairs and maintenance and depreciation) is recovered at 20% on prime cost; Administration overhead is recovered @ ₹ 4.8 per unit of

cost of goods sold and selling and distribution overheads are recovered at ₹6.40 per unit sold.

Required:

PREPARE Costing and Financial Profit & Loss Accounts and RECONCILE the difference in the profit as arrived at in the two sets of accounts.

Job and Batch Costing

12. Pinku Confectioners (PC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. PC use to bake atleast 50 units of any item at a time. A customer has given an order for 600 cakes. To process a batch of 50 cakes, the following cost would be incurred:

Direct materials-	₹ 5,000
Direct wages-	₹ 500
Oven set- up cost	₹ 750

PC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads.

PC requires a profit margin of 25% of sales value.

Required:

(i) Determine the price to be charged for 600 cakes.

(ii) Calculate cost and selling price per cake.

(iii) What would be selling price per unit If the order is for 605 cakes.

Process & Operation Costing

13. A product passes through three processes – A, B and C. The details of expenses incurred on the three processes during the year 2025 were as under:

Process	A	B	C
Units issued / introduced cost per unit ₹ 100	10,000		

	₹	₹	₹
Sundry Materials	10,000	15,000	5,000
Labour	30,000	80,000	65,000
Direct Expenses	6,000	18,150	27,200
Selling price per unit of output	120	165	250

Management expenses during the year were ₹ 80,000 and selling expenses were ₹ 50,000 these are not allocable to the processes.

Actual output of the three processes was:

A – 9,300 units, B-5,400 units and C-2,100 units. Two third of the output of Process A and one half of the output of Process B was passed on to the next process and the balance was sold. The entire output of process C was sold.

The normal loss of the three processes, calculated on the input of every process was:

Process A-5%; B-15% and C-20%

The Loss of Process A was sold at ₹ 2 per unit, that of B at ₹ 5 per unit and of Process C at ₹ 10 per unit.

Prepare the Three Processes Accounts and the Profit and Loss Account.

Joint Products and By products

14. A company processes a raw material in its Department 1 to produce three products, viz. A, B and X at the same split-off stage. During a period 1,80,000 kgs of raw materials were processed in Department 1 at a total cost of ₹ 12,88,000 and the resultant output of A, B and X were 18,000 kgs, 10,000 kgs and 54,000 kgs respectively. A and B were further processed in Department 2 at a cost of ₹ 1,80,000 and ₹ 1,50,000 respectively.

X was further processed in Department 3 at a cost of ₹1,08,000. There is no waste in further processing. The details of sales affected during the period were as under:

	A	B	X
Quantity Sold (kgs.)	17,000	5,000	44,000
Sales Value (₹)	12,24,000	2,50,000	7,92,000

There were no opening stocks. If these products were sold at split-off stage, the selling prices of A, B and X would have been ₹ 50, ₹ 40 and ₹ 10 per kg respectively. Required:

(i) Prepare a statement showing the apportionment of joint costs to A, B and X.

(ii) Present a statement showing the cost per kg of each product indicating joint cost and further processing cost and total cost separately.

(iii) Prepare a statement showing the product wise and total profit for the period.

(iv) State with supporting calculations as to whether any or all the products should be further processed or not

Service Costing

15. Due to frequent power cuts and inconsistent water supply from the Electricity Board, Anju Manufacturing Pvt. Ltd. — a mid-sized engineering goods manufacturer based in Pune — decided to set up its own captive power generation plant. The plant is critical for ensuring uninterrupted production across its two major units:

- Unit 1: Produces industrial machinery components (highly power-intensive operations)
- Unit 2: Manufactures agricultural equipment parts (moderate power load)

The factory operations heavily depend on continuous electric and water supply for running CNC machines, foundry operations, welding units, and assembly lines. Any electricity failure leads to major production delays, idle labour costs, and penalties from clients due to late deliveries.

After analysing the risk of depending entirely on the electricity board, the company's Board of Directors approved a proposal to invest in a

dedicated steam boiler and power generation plant within the factory premises.

The following information has been taken from the records in connection with the generation of power during the month:

- Coal used 1,800 Tonnes @ ₹ 230 per tonne
- Freight and handling charges: 7% of the value of coal used.
- Oil: 15 Tonnes @ ₹ 4,500 per tonne
- Water: 80,000 litres Re. 0.07 per litre
- Steam boiler cost ₹ 50,00,000 with a residual value of ₹ 2 lakh after a life of 10 years.
- Salaries and wages of the boiler house:
  - 15 skilled workers @ ₹ 1,300 per month each
  - 30 semi-skilled workers @ 1100 per month each
  - 50 unskilled workers @ ₹ 900 per month each
- Recovery on account of sale of ashes: 150 tonnes ₹ 60 per tonne.
- Salary and wages of generating station:
  - 60 skilled workers @ ₹ 1,200 per month each
  - 20 semi-skilled workers @ 1000 per month each
  - 30 unskilled workers @ ₹ 850 per month each
- Repairs and maintenance of generating equipment: ₹ 30,000
- Depreciation of generating equipment: ₹ 75,000
- Insurance premium on generating plant: ₹ 15,000
- Fuel handling and storage expenses: ₹ 8,000
- Rent of generating station premises: ₹ 12,000
- Share of administration charges: ₹ 65,000
- Total number of units generated (before losses): 2,00,000 units
- Normal losses in the process: 3,000 units generated.

— Electricity purchased from grid to meet emergency requirements: 5,000 units @ ₹ 6 per unit.

— 10% of the effective units generated are used internally by the generator department itself

Additional Information:

- The purchased electricity units are not subject to any loss adjustment.
- Emergency purchase units should be added to the effective units available for use.

You are required to CALCULATE the total cost of electricity generated and the cost of generating electricity per unit.

Marginal Costing

16. N.P. Ltd. produces two products P and Q. The draft budget for the next month is as under:

	P	Q
Budgeted Production and Sales (units)	40,000	80,000
Selling Price ₹ / unit	25	50
Total Costs ₹ / unit	20	40
Machine Hours / unit	2	1
Maximum Sales Potential (units)	60,000	1,00,000

The fixed expenses are estimated at ₹ 9,60,000 per month. The company absorbs fixed overheads on the basis of machine hours which are fully utilised by the budgeted production and cannot be further increased.

When the budget was discussed, the Managing Director stated that the product mix should be altered to yield optimum profit.

The Marketing Director suggested that he would introduce a new Product-C, each unit of which will take 1.5 machine hours. However, a new machine involving a capital outlay of ₹ 2,00,000 is to be installed for processing Product-C. The additional fixed overheads relating to the

new machine was estimated at ₹ 60,000 per month. The variable cost of Product- C was estimated at ₹ 21 per Unit.

Required:

(i) Calculate the profit as per draft budget for the next month.

(ii) Revise the product mix based on data given for P and Q to yield optimum profit.

(iii) The company decides to discontinue either Product- P or Q whichever is giving lower profit and proposes to substitute Product- C instead. Fix the selling price of product- C in such a way as to yield 15% return on additional capital employed besides maintaining the same overall profit as envisaged in (ii) above.

Budgets and budgetary control

17. X Ltd. has carefully analyzed market trends and consumer behaviour to project its sales figures for the upcoming year as follows:

Quarter	Sales (Units)
I	45,000
II	56,250
III	61,875
IV	67,500

Information regarding production and finished goods stock is as follows:	
Opening Stock of Finished Goods	11,250 Units
Expected Closing Stock of Finished Goods at the end of the year	18,375 Units
Production Pattern	75% of Current Quarter Sales
	Plus 25% of Next Quarter Sales
Closing Stock of current quarter to be maintained	25% of Next Quarter Sales

Further information regarding stock of raw materials is as follows:	
Opening Stock of Raw Materials	15,000 Units
Required Closing Stock of Raw Materials at the end of the year	7,500 Units

Each unit of finished output requires 4 kg. of raw materials.

The company plans to acquire its total annual requirement of raw materials during the first three quarters, in the specified proportions and at the prices detailed below:

Quarter	Purchase of raw materials % to total annual requirement in quantity	Price per kg. (₹)
I	25%	12
II	50%	13
III	25%	14

You are required to PREPARE the following for the next year, quarter wise:

(i) Production budget (in units).

(ii) Raw material consumption budget (in quantity).

(iii) Raw material purchase budget (in quantity).

(iv) Raw material purchase budget (in value).

Miscellaneous

18. (a) Though Cost Accounting and Management Accounting are used synonymously, but there are a few differences. ENUMERATE any five differences.

(b) A manufacturing company based in India is planning to transition from its traditional costing system to Activity-Based Costing (ABC) in order to improve cost accuracy and gain better insights into product profitability. Given the company's diverse product portfolio and the complexity of its production processes, the

implementation of ABC is expected to provide a more precise allocation of overheads.

You are required to SUGGEST the key practical stages involved in successfully implementing an Activity-Based Costing system.

(c) Fixed Budget does not change with actual volume of activity achieved, however, Flexible Budget can be re-casted on the basis of activity level to be achieved. DISCUSS other differences between these two type of budget classified based on their capacity.

(d) DESCRIBE cost unit and give EXAMPLE(S) of cost unit for the following Industry or Product:

Industry or Product
Construction
Transport
Technology
Oil
Gas
Electricity

SUGGESTED ANSWERS/HINTS

1. (i) (c) Calculation of actual quantity of materials used:

Standard quantity of material used per units of output

$$= \left(\frac{\text{budgeted usage}}{\text{budgeted production}}\right)$$

$$= \left(\frac{3{,}750 \text{ kg}}{7{,}500 \text{ units}}\right) = 0.5 \text{ kg}$$

$$\text{Standard price} = \left(\frac{\text{budgeted material cost}}{\text{budgeted usage}}\right)$$

$$= \left(\frac{₹\ 1{,}12{,}500}{3{,}750 \text{ kg}}\right) = ₹\ 30$$

Material usage variance	= (Std. qty. for actual output - Actual qty.) × Std. price
₹ 3,750A	= [(7,750 x 0.5kg) - AQ] x ₹ 30
- ₹ 3,750	= ₹ 1,16,250 - 30AQ
30AQ	= ₹ 1,20,000
AQ	= 4,000 kg

Actual quantity of materials used = **4,000 kg**

Calculation of actual direct material cost:

Material Price Variance	= Actual Quantity purchased (AQ) x {Std. Price (SP) – Actual Price(AP)}
₹ 25,000F	= 5,000 kg x (₹ 30 - AP)
₹ 25,000	= ₹ 1,50,000 - 5,000 AP
5,000 AP	= ₹ 1,25,000
AP	= ₹ 25

Actual direct material cost = 5,000 kg x ₹ 25 = ₹ **1,25,000**

(ii) (b) Standard hours per unit of output = $\left(\frac{\text{Budgeted hours}}{\text{Budgeted output}}\right)$

$= \left(\frac{5{,}625 \text{ hours}}{7{,}500 \text{ units}}\right) = 0.75$ hours

Standard wage rate $= \left(\frac{\text{budgeted labour cost}}{\text{budgeted hours}}\right)$

$= \left(\frac{₹\ 1{,}12{,}500}{5{,}625 \text{ hours}}\right) = ₹\ 20$

Labour Efficiency Variance	= Std. Rate (SR) x {Std. Hours (SH) – Actual Hours (AH)}
₹ 3,750A	= ₹ 20 x [(7,750 x 0.75 hours) - AH]
- ₹ 3,750	= ₹ 1,16,250 - 20AH

20AH = ₹ 1,20,000

AH = 6,000

Actual Hours = **6,000**

(iii) (b) Labour Cost Variance = [Standard Labour Cost – Actual Labour Cost]

Labour Rate Variance + Labour Efficiency Variance = [Standard Labour Cost – Actual Labour Cost]

₹ 5,000A + ₹ 3,750A = (7,750 x 0.75 hours x ₹ 20) - Actual Labour Cost

- ₹ 5,000 - ₹ 3,750 = ₹ 1,16,250 - Actual Cost

Actual Labour Cost = ₹ 1,16,250 + ₹ 8,750

Actual Labour Cost = ₹ **1,25,000**

(iv) (a) Standard variable overhead per unit

$$= \left(\frac{\text{Budgeted variable overheads cost}}{\text{Budgeted output}}\right)$$

$$= \left(\frac{₹\ 56,250}{7,500\ \text{units}}\right) = ₹\ 7.50$$

Total Variable Overhead Variance = [Standard Variable Overhead – Actual Variable Overhead]

Variable Overhead Expenditure Variance + Variable Overhead Efficiency Variance = [Standard Variable Overhead – Actual Variable Overhead]

₹ 15,000A + ₹ 1,875A = (7,750 x ₹ 7.50) - Actual Variable Overhead

- ₹ 15,000 - ₹ 1,875 = ₹ 58,125 - Actual Variable Overhead

Actual Variable Overhead = ₹ 58,125 + ₹ 16,875

Actual Variable Overhead = ₹ **75,000**

(v) (d) Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads - Actual Fixed Overheads

₹ 62,500 F = ₹ 1,12,500 - Actual Fixed Overheads

Actual Fixed Overheads **= ₹ 50,000**

Summary

(i) (d) 4,000 kg and ₹ 1,25,000

(ii) (b) 6,000 hours

(iii) (b) ₹ 1,25,000

(iv) (a) ₹ 75,000

(v) (d) ₹ 50,000

2. (i) (d)

Particulars	**Olay EV Max (units)**	**Olay EV Ultra (units)**	**Olay EV Pro (units)**	**Total (units)**
Previous year order received	616	396	165	1177
Current Year order (5 times the last year)	**3,080**	**1,980**	**825**	**5,885**
Previous year sales	528	330	110	968
Current Year sales (5 times the last year)	**2,640**	**1,650**	**550**	**4,840**

(ii) (b) Statement of gross margin percentage and operating income percentage

Particulars	**Olay EV Max**	**Olay EV Ultra**	**Olay EV Pro**	**Total**
Revenues (A) (₹)	22,43,34,000	19,05,75,000	11,97,90,000	53,46,99,000
	(2,640 × ₹ 84,975)	(1,650 × ₹ 1,15,500)	(550 × ₹ 2,17,800)	

Less: Cost of goods sold (B) (₹)	21,78,00,000 (2,640 × ₹ 82,500)	18,15,00,000 (1,650 × ₹ 1,10,000)	10,89,00,000 (550 × ₹ 1,98,000)	50,82,00,000
Gross Margin (A - B) (₹)	65,34,000	90,75,000	1,08,90,000	2,64,99,000
Less: Operating costs (₹)				66,23,760
Operating income (₹)				1,98,75,240
Gross Margin %				4.96%
Operating income %				3.72%

(iii) (b) Computation of cost driver rate relating to all the activity areas

Particulars	**(₹)**
Customer purchase order processing (₹ 17,60,000/ 5,885 orders)	299.07 per order
Line item ordering (₹ 14,04,480/ 66,110 line items)	21.24 per line item order
Store delivery (₹ 15,62,000/ 4,840 unit sold)	322.73 per unit sold
Cartons dispatched (₹ 16,72,000/ 3,39,240 dispatches)	4.93 per dispatch
Shelf-stocking at customer store (₹ 2,25,280/ 2,904 hours)	77.58 per hour

(iv) (d) Computation of operating cost

	Olay EV Max (₹)	Olay EV Ultra (₹)	Olay EV Pro (₹)	Total (₹)
Customer purchase order processing	9,21,136 (₹ 299.07 × 3,080 orders)	5,92,159 (₹ 299.07 × 1,980 orders)	2,46,733 (₹ 299.07 × 825 orders)	17,60,027
Line item ordering	6,54,192 (₹ 21.24 × 10 x 3,080 orders)	5,04,662 (₹ 21.24 × 12 x 1,980 orders)	2,45,322 (₹ 21.24 × 14 × 825 orders)	14,04,176
Store delivery	8,52,007 (₹ 322.73 × 2,640 unit sold)	5,32,505 (₹ 322.73 × 1,650 unit sold)	1,77,502 (₹ 322.73 × 550 unit sold)	15,62,013
Cartons dispatched	2,08,243 (₹ 4.93 × 16 cartons × 2,640 units)	6,50,760 (₹ 4.93 × 80 cartons × 1,650 units)	8,13,450 (₹ 4.93 × 300 cartons × 550 units)	16,72,453
Shelf stocking	20,481 (₹ 77.58 × 2,640 deliveries × 0.1 Av. hrs.)	76,804 (₹ 77.58 × 1,650 deliveries × 0.6 Av. hrs)	1,28,007 (₹ 77.58 × 550 deliveries × 3 Av. hrs)	2,25,292
Operating cost	**26,56,059**	**23,56,890**	**16,11,013**	**66,23,962***

*Difference due to rounding off.

(v) (a) Operating Income Statement

(using the Activity based Costing system)

	Olay EV Max	Olay EV Ultra	Olay EV Pro
Revenues (₹) (A)	22,43,34,000 (2,640 × ₹ 84,975)	19,05,75,000 (1,650 × ₹ 1,15,500)	11,97,90,000 (550 × ₹ 2,17,800)
Less: Cost of goods sold (₹) (B)	21,78,00,000 (2,640 × ₹ 82,500)	18,15,00,000 (1,650 × ₹ 1,10,000)	10,89,00,000 (550 × ₹ 1,98,000)
Gross Margin (₹) (C) (A - B)	65,34,000	90,75,000	1,08,90,000
Operating cost (₹) (D) (Refer to (iv) part of the answer)	26,56,059	23,56,890	16,11,013

Operating income (₹) (E) (C–D)	38,77,941	67,18,110	92,78,987
Operating income (in %) (Operating income/ Revenue) × 100	**1.73%**	**3.53 %**	**7.75 %**

Summary

(i) (d) Order received- 3,080, 1,980 and 825 units; sold- 2,640, 1,650 and 550 units of Olay EV Max, Olay EV Ultra and Olay EV Pro respectively.

(ii) (b) Gross-margin - 4.96% and Operating income - 3.72%

(iii) (b) Customer purchase order processing- ₹ 299.07 per order, Line item ordering- ₹ 21.24 per line item order, Store delivery- ₹ 322.73 per unit sold, Cartons dispatched- ₹ 4.93 per dispatch and Shelf-stocking at customer store- ₹ 77.58 per hour.

(iv) (d) Olay EV Max- ₹ 26,56,059, Olay EV Ultra- ₹ 23,56,890 and Olay EV Pro- ₹ 16,11,013

(v) (a) Olay EV Max- 1.73%, Olay EV Ultra- 3.53% and Olay EV Pro- 7.75%

3. (a) 306

Total production required = Budgeted sales + Increase in finished goods stock

= 1,000+100=1,100 units

Production rate = 4 units per useful direct labour hour

Useful hours $= \frac{1{,}100 \text{ units}}{4 \text{ units/hour}} = 275$ hours

Useful hours = 90% of paid hours:

Paid hours = 275/90% = 305.55 = 306 hours

4. (a)

Production Overhead Control A/c	Dr.	₹ 250	
Administrative Overhead Control A/c	Dr.	₹ 250	
To Cost Ledger Control A/c			₹ 500

5. (c) ₹ 12,95,800

Product	Sales (units) (A)	Finished Goods (units)		Production (units) (D) = (A) + (C) - (B)
		Opening stock (B)	Closing stock (C)	
A	1,14,000	1,900	5,700	1,17,800
B	76,000	7,600	3,800	72,200
Total				1,90,000

$$\text{Apportioned to A} = \left(\frac{1,17,800 \text{ units}}{1,90,000 \text{ units}} \times ₹\ 20,90,000\right)$$

= ₹ **12,95,800**

6. (d) ₹ 25,00,000

Margin of Safety = 50%

P/V ratio = 40%

Fixed Cost = ₹ 5,00,000

$$\text{Break-even Sales (BES)} = \frac{\text{Fixed Cost}}{\text{P/V ratio}}$$

$$= \frac{₹\ 5,00,000}{0.40}$$

BES = ₹ 12,50,000

Margin of Safety = Projected sales(S) – Break Even Sales(BES)

S = BES + Margin of Safety

S = ₹ 12,50,000 + (0.50 x S)

Or, S – 0.50S = ₹ 12,50,000

Or, S = ₹ **25,00,000**

7. Projected sales of product A - 10,000

Unit Requirement of Material B - 2 Kgs of B per unit of A

Yield of Material B - 80%

Hence the revised requirement of Material B - 2.5 Kgs (2/80%)

Opening stock of Product A	-	948
Product A to be produced	-	9,052
Material B Required @ 2.5 Kgs per unit of A	-	22,630 Kgs
Less: Opening stock of Material B	-	2,630 Kgs
Purchase Requirement (A) of Material B	-	20,000 Kgs
Order cost per order	-	₹ 500
Purchase price per unit	-	₹ 20
Carrying Cost (Interest + Obsolescene)	-	25% of 20 = ₹ 5

(i) EOQ = $\sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 20,000 \text{ units} \times ₹500}{₹5}}$ - **2,000 Kgs**

(ii) ROQ (Quarterly Purchase policy) - **5,000 Kgs**

Material Requirement	-	22,630
Average Consumption	-	62 Kgs

Max usage – Min Usage = 100Kgs

Max usage + Min Usage = 124Kgs (Formulating average usage with max & min)

Hence Minimum Usage = 12 Kgs and Maximum Usage = 112 Kgs

Lead time – 4 to 8 days

(iii) Re-Order level = Max Usage x Max Lead Time

= 112 Kgs x 8 Days = **896 Kgs**

(iv) Maximum Stock = Re-order Level + Economic order Quantity – (Min Use x Min Lead time)

= 896 + 2000 – (12x4) = **2,848 Kgs**

(If ROQ is assumed as 5,000 the answer will be different)

Maximum Stock = Re-order Level + Re-order Quantity – (Min Use x Min Lead time)

= 896 + 5,000 – (12x4) **= 5,848 Kgs**

(v) Minimum Stock = Re-Order level – (Average Use x Average Lead)

= 896 – (62x6) **= 524 Kgs**

(vi) Profitability analysis on EOQ v. ROQ

Particulars	EOQ	ROQ
Annual Requirement (A)	20,000	20,000
Quantity Ordered(B)	2,000	5,000
No. of Orders (C) = (A)/(B)	10	4
Order cost @ ₹500	5,000	2,000
Average Inventory	1,000	2,500
Carrying Cost @ ₹5	5,000	12,500
Associated Costs	10,000	14,500
Savings in EOQ		4,500

(vii) After 5% Discount

Particulars	EOQ	ROQ
Annual Requirement (A)	20,000	20,000
Quantity Ordered(B)	2,000	5,000
No of Orders (C) = (A)/(B)	10	4
Order cost @ ₹500	5,000	2,000
Average Inventory	1,000	2,500
Carrying Cost @ ₹5 & 4.75	5,000	11,875
Discount	0	-20000
Net Costs	10,000	-6,125
Benefit of ROQ over EOQ		16,125

8. (i) (a) Existing time rate

Weekly wages:

Normal shift	(40 hours × ₹160):	₹ 6,400
Late shift	(9 hours × ₹225)	₹ 2,025
		₹ 8,425

(b) Piece Rate System

15 articles are produced in 2.5 hours

Therefore, to produce 270 articles, hours required is $\frac{2.5 \text{ hours}}{15 \text{ articles}} \times 270 \text{ articles} = 45 \text{ hours}$.

Cost of producing 270 articles:

At basic time rate (45 hours × ₹160)	=	₹ 7,200
Add: Bonus @ 20% on basic Piece rate		₹ 1,440
Earning for the week		₹ 8,640

(c) Rowan Premium System

(i) Time allowed for producing 270 articles $\left(\frac{2.5 \text{ hours}}{15 \text{ articles}} \times 270 \text{ articles} \times 150\%\right) = 67.5 \text{ hours}$

(ii) Time taken to produce 270 articles = 40.0 hours

(iii) Time Saved = 67.5 – 40 = 27.5 hours

Earnings under Rowan Premium system:

$= (\text{Time taken} \times \text{Rate per hour}) + \left(\frac{\text{Time saved}}{\text{Time allowed}} \times \text{Time taken} \times \text{Rate per hour}\right)$

$= (40 \text{ hours} \times ₹ 160) + \left(\frac{27.5 \text{ hours}}{67.5 \text{ hours}} \times 40 \text{ hours} \times ₹ 160\right)$

=₹ 6,400 + ₹ 2,607.41 ₹ 9,007.41

(d) Halsey Premium System

$$= (\text{Time taken} \times \text{Rate per hour}) + (\frac{1}{2} \times \text{Time saved} \times \text{Rate per hour})$$

$$= (40 \text{ hours} \times ₹160) + \left(\frac{1}{2} \times 27.5 \text{ hours} \times ₹160\right)$$

= ₹ 6,400 + ₹ 2,200 = ₹ 8,600

(ii) Statement showing hours worked, weekly earnings, number of articles produced and cost per article

Method of Payment	Hours worked	Weekly earnings (₹)	Number of articles produced	Labour cost per article (₹)
Existing time rate	49	8,425.00	240	35.10
Straight piece rate system	40	8,640.00	270	32.00
Rowan Premium System	40	9,007.41	270	33.36
Halsey Premium System	40	8,600.00	270	31.85

9. (i) Summary of Apportionment of Overheads **(₹)**

Items	Basis of Apportionment	Total Amount	Production Deptt.			Service Deptt.		
			M_1	M_2	A_1	Store Service	Engineering Service	General Service
Indirect wages	Allocation given	25,02,800	9,30,400	8,26,800	3,24,400	1,64,000	1,06,800	1,50,400
Consumable supplies	Allocation given	9,04,000	2,52,000	3,64,000	84,000	56,000	84,000	64,000
Depreciation	Capital value of machine (20:15:5:2:6:2)	7,92,000	3,16,800	2,37,600	79,200	31,680	95,040	31,680
Insurance of Machine	Capital value of machine (20:15:5:2:6:2)	1,44,000	57,600	43,200	14,400	5,760	17,280	5,760
Insurance on Building	1/3rd to M_1 Balance area basis (-:12:16:4:5:3)	64,800	21,600	12,960	17,280	4,320	5,400	3,240
Power	HP Hr% (10:7:1:-:2:-)	1,29,600	64,800	45,360	6,480	–	12,960	–
Light	Area (10:12:16:4:5:3)	1,08,000	21,600	25,920	34,560	8,640	10,800	6,480
Rent*	Area (10:12:16:4:5:-)	2,53,500	53,940	64,720	86,300	21,580	26,960	--
Total		48,98,700	17,18,740	16,20,560	6,46,620	2,91,980	3,59,240	2,61,560

*Rent to be apportioned among the departments which actually use the rented building. The notional rent is imputed cost and is not included in the calculation.

(ii) Allocation of service departments overheads

Service Deptt.	Basis of Apportionment	Production Deptt.			Service Deptt.		
		M_1	M_2	A_1	Store Service	Engineering Service	General Service
Store	Ratio of consumable value (126 : 182 : 42)	1,05,120	1,51,820	35,040	(2,91,980)	–	–
Engineering service	In Machine hours Ratio of M_1 and M_2 (4 : 5)	1,59,660	1,99,580	–	–	(3,59,240)	–
General service	Labour hour Basis (20 : 15 : 30)	80,480	60,360	1,20,720	–	–	(2,61,560)
Production Department allocated in (i)		17,18,740	16,20,560	6,46,620			
Total		20,64,000	20,32,320	8,02,380			

(iii) Overhead Absorption rate

	M_1	M_2	A_1
Total overhead allocated	20,64,000	20,32,320	8,02,380
Machine hours	40,000	50,000	–
Labour hours	–	–	3,00,000
Rate per machine hour	51.60	40.65	–
Rate per Direct labour	–	–	2.67

(iv) Statement showing overhead absorption for Product X and Y

Machine Deptt.	Absorption Rate	Product X		Product Y	
		Hours	(₹)	Hours	(₹)
M_1	51.60	10	516.00	6	309.60
M_2	40.65	4	162.60	14	569.10
A_1	2.67	14	37.38	18	48.06
			715.98		926.76

10. Ranu Ltd.

Cost Statement for the year ended 31st March, 2025

Particular	(₹)	(₹)
Raw Materials Consumed:		
Stock of Raw Materials as on 1st Apr, 2024	50,000	
Add: Materials Purchased	2,00,000	
Add: Carriage Inward	7,150	
Less: Stock of Raw Materials as on 31st March, 2025	(64,500)	
Raw Materials Consumed		1,92,650
Production Wages		1,20,000
Prime Cost		3,12,650
Add: Works/Factory Overheads:		
Salaries related to factory office	7,000	

Repairs to Plant and Machinery	4,450	
Rent, Rates, Taxes, Insurance etc. – Factory	8,500	
Depreciation on Plant and Machinery	6,500	
Gas and Water (Factory)	1,500	
Manager's Salary (3/4)	7,500	
Works or Factory Overheads		35,450
Works/Factory Cost		3,48,100
Add: Office and Administration Overheads:		
Administrative Office Salaries	12,600	
Rent, Rates, Taxes, Insurance etc. – Office	2,000	
Depreciation on Office Furniture	500	
Director's Fees	6,000	
Gas and Water (Office)	500	
Manager's Salary (1/4)	2,500	
General Expenses	3,400	
Office and Administration Overheads		27,500
Cost of Production/Cost of Goods Sold		3,75,600
Add: Selling and Distribution Overheads		
Carriage Outward	4,300	
Travelling Expenses	2,100	
Selling and Distribution Overheads		6,400
Total Cost of Sales		3,82,000
Add: Profit (Balancing Figure)		68,000
Sales		4,50,000

11. **Statement of Cost and Profit**

(As per Cost Records)

		(₹)
	Direct Material	22,40,000

	Direct Wages	12,00,000
	Prime Cost	**34,40,000**
	Factory Overhead (20% of ₹ 34,40,000)	6,88,000
		41,28,000
Less:	Closing Stock (WIP)	-96,000
	Works Cost or Cost of production (52,000 units)	**40,32,000**
Less:	Finished Goods (4,000 units @ ₹77.5385)	-3,10,154
	Cost of Goods Sold (48,000 units)	**37,21,846**
	Administrative Overhead (48,000 units @ ₹ 4.8 p.u.)	2,30,400
	Selling and Distribution Overhead (48,000 @ ₹ 6.40 p.u.)	3,07,200
	Cost of Sales	**42,59,446**
	Net profit (Balancing figure)	5,40,554
	Sales Revenue	**48,00,000**

Profit and Loss Account

(*As per financial records*)

Particulars	**Amount (₹)**	**Particulars**	**Amount (₹)**
To Direct Material consumed	20,00,000	By Sales	48,00,000
To Direct Wages	12,00,000	By Closing Work-in-process	96,000
To Factory overheads	6,40,000	By Closing Finished stock	3,20,000
To Depreciation on Plant and Machinery	1,20,000		
To Repairs & Maintenance (Factory)	48,000		
To Gross Profit c/d	12,08,000		
	52,16,000		52,16,000

To	Administrative overheads	2,80,000	BY	Gross Profit b/d	12,08,000
To	Selling & distribution overheads	3,84,000	By	Dividend received	40,000
To	Bad debts	32,000	By	Interest on deposit	8,000
To	Preliminary expenses	16,000			
To	Interest on Loan	60,000			
To	Legal charges	4,000			
To	Net profit (balancing figure)	4,80,000			
		12,56,000			12,56,000

Reconciliation Statement

	Particulars	Amount (₹)	Amount (₹)
	Net profit as per Financial Profit & Loss A/c		**4,80,000**
Add:	Administrative overheads (2,80,000 - 2,30,400)	49,600	
	Selling & Distribution overheads (3,84,000 - 3,07,200)	76,800	
	Bad debts	32,000	
	Preliminary expenses	16,000	
	Interest on loan	60,000	
	Legal charges	4,000	
	Factory overheads (6,40,000 + 1,20,000 + 48,000 - 6,88,000)	1,20,000	3,58,400
			8,38,400
Less:	Difference in value of materials consumed	2,40,000	
	Dividend received	40,000	

Interest on deposit	8,000	
Closing stock (3,20,000 - 3,10,154)	9,846	-2,97,846
Profit as per Costing Profit & Loss A/c		**5,40,554**

Note: Since advertisement expense is capital in nature, it is not considered in profit and loss account.

12. Statement of cost per batch and per order

No. of batch = 600 units ÷ 50 units = 12 batches

	Particulars	**Cost per batch (₹)**	**Total Cost (₹)**
	Direct Material Cost	5,000.00	60,000
	Direct Wages	500.00	6,000
	Oven set-up cost	750.00	9,000
	Add: Production Overheads (20% of Direct wages)	100.00	1,200
	Total Production cost	6,350.00	76,200
	Add: S&D and Administration overheads (10% of Total production cost)	635.00	7,620
	Total Cost	6,985.00	83,820
	Add: Profit (1/3rd of total cost)	2,328.33	27,940
(i)	**Sales price**	**9,313.33**	**1,11,760**
	No. of units in batch	50 units	
(ii)	**Cost per unit** (₹6,985 ÷ 50 units)	**139.70**	
	Selling price per unit (9,313.33 ÷ 50 units)	**186.27**	

(iii) If the order is for 605 cakes, then selling price per cake would be as below:

Particulars	**Total Cost (₹)**
Direct Material Cost	60,500

Direct Wages	6,050
Oven set-up cost	9,750
Add: Production Overheads (20% of Direct wages)	1,210
Total Production cost	77,510
Add: S&D and Administration overheads (10% of Total production cost)	7,751
Total Cost	85,261
Add: Profit (1/3rd of total cost)	28,420
Sales price	**1,13,681**
No. of units	605 units
Selling price per unit (₹ 1,13,681 ÷ 605 units)	**187.90**

13. **Process A Account**

Dr.					**Cr.**
Particulars	**Units**	**₹**	**Particulars**	**Units**	**₹**
To Units brought in (₹ 100 × 10,000)	10,000	10,00,000	By Normal Loss (5% of 10,000 units @ ₹ 2/- p.u.)	500	1,000
To Sundry Materials		10,000	By Abnormal loss (Working note 1)	200	22,000
To Labour		30,000	Process B A/c	6,200	6,82,000
To Direct expenses		6,000	(Output to be transferred ₹ 110 × 6,200) (W. Note 1)		
			By Profit & Loss A/c (₹ 110 × 3,100 units) (W. Note 1)	3,100	3,41,000
	10,000	10,46,000		10,000	10,46,000

Process B Account

Dr.					Cr.
Particulars	**Units**	**₹**	**Particulars**	**Units**	**₹**
To Process A A/c	6,200	6,82,000	By Normal Loss	930	4,650
To Sundry Materials		15,000	(15% of 6,200 Units = 930 units @ ₹ 5 p.u.)		
To Labour		80,000	By Process C A/c	2,700	4,05,000
To Direct expenses		18,150	(Output to be transferred)		
To Abnormal gain (Working Note 2)	130	19,500	₹ 150 × 2,700 (Working Note 2)		
			By Profit & Loss A/c (₹ 150 × 2,700)	2,700	4,05,000
	6,330	8,14,650		6,330	8,14,650

Process C Account

Dr.					Cr.
Particulars	**Units**	**₹**	**Particulars**	**Units**	**₹**
To Process B A/c	2,700	4,05,000	By Normal Loss (20% of 2,700 units = 540 units @ ₹ 10/- p.u.)	540	5,400
To Sundry Materials		5,000			
To Labour		65,000			
To Direct expenses		27,200			
			By Abnormal Loss (Working Note 3)	60	13,800
			By Profit & Loss A/c (₹ 230 × 2,100 units) (Working Note 3)	2,100	4,83,000
	2,700	5,02,200		2,700	5,02,200

Profit & Loss Account

Dr.					Cr.
Particulars	**Units**	**₹**	**Particulars**	**Units**	**₹**
To Process A A/c	3,100	3,41,000	By Sale	3,100	3,72,000
To Process B A/c	2,700	4,05,000	(Process A's Output		
To Process C A/c	2,100	4,83,000	@ ₹ 120/- p.m.)		
To Management			By Sale	2,700	4,45,500
Expenses		80,000	(Process B's Output		
To Selling Expenses		50,000	@ ₹ 165/- p.u.)		
To Abnormal Loss A/c		34,800	By Sale	2,100	5,25,000
(Working Note 4)			(Process C's Output @ ₹ 250/- p.u.)		
			By Abnormal gain A/c (Working Note 5)		18,850
			By Net Loss		32,450
	7,900	13,93,800		7,900	13,93,800

Working Notes

1. (i) Per unit cost of normal production under process A:

$$= \frac{\text{Normal cost of normal output}}{\text{Normal production output}}$$

$$= \frac{₹\,10,46,000 - ₹\,1,000}{9,500 \text{ units}} = ₹\ 110$$

(ii) Value of Abnormal loss under process A:

Abnormal loss units = Normal production – Actual production

= 9,500 – 9,300 = 200 units

Value of Abnormal Loss

= Per unit cost of normal production × Abnormal loss units

= ₹ 110 × 200 – ₹ 22,000.

2. (i) Per unit cost of normal production under process B:

$$= \frac{(₹\,7,95,150 - ₹\,4,650)}{5,270} = \frac{₹\,7,90,500}{5,270} = ₹\,150$$

(ii) Value of Abnormal gain under process B:

Abnormal gain units = Normal loss – Actual loss

= 930 – 800 = 130 units

= Per unit cost of normal production × Abnormal gain units

= ₹ 150 × 130 units = ₹ 19,500.

3. (i) Per unit cost of normal production under process C:

$$= \frac{(₹\,5,02,200 - ₹\,5,400)}{2,160\,\text{units}} = \frac{₹\,4,96,800}{2,160\ \text{units}} = ₹\,230$$

(ii) Value of Abnormal loss under process C:

Abnormal loss units

= Normal production – Actual production

= 2,160 units – 2,100 units = 60 units

= ₹ 230 × 60 units = ₹ 13,800

4. **Abnormal Loss Account**

Dr.							**Cr.**
	Units	**Cost p.u.** ₹	**Amount** ₹	**Particulars**	**Units**	**Cost p.u.** ₹	**Amount** ₹
To Process A A/c	200	110	22,000	By Sale proceeds of Process A Loss	200	2	400
To Process C A/c	60	230	13,800	By Sale proceeds of Process C loss	60	10	600
				By Profit & Loss A/c			34,800
	260		**35,800**		**260**		**35,800**

5. **Abnormal Gain Account**

Dr.							Cr.
	Units	Cost p.u.	Amount	Particulars	Units	Cost p.u.	Amount
		₹	₹			₹	₹
To Normal loss shortfall	130	5	650	By Process B	130	150	19,500
To Profit & Loss A/c			18,850				
			19,500				19,500

14. (i) Statement showing the apportionment of joint costs to A, B and X

Products	A	B	X	Total
Output (kg)	18,000	10,000	54,000	
Sales value at the point of split off (₹)	9,00,000 (₹ 50 x 18,000)	4,00,000 (₹ 40 x 10,000)	5,40,000 (₹ 10 x 54,000)	18,40,000
Joint cost apportionment on the basis of sales value at the point of split off (₹)	6,30,000 $\left(\frac{₹\ 12,88,000}{₹\ 18,40,000} \times ₹\ 9,00,000\right)$	2,80,000 $\left(\frac{₹\ 12,88,000}{₹\ 18,40,000} \times ₹\ 4,00,000\right)$	3,78,000 $\left(\frac{₹\ 12,88,000}{₹\ 18,40,000} \times ₹\ 5,40,000\right)$	12,88,000

(ii) Statement showing the cost per kg. of each product

(indicating joint cost; further processing cost and total cost separately)

Products	A	B	X
Joint costs apportioned (₹): (I)	6,30,000	2,80,000	3,78,000
Production (kg): (II)	18,000	10,000	54,000
Joint cost per kg (₹): (I ÷ II)	35	28	7

Further processing Cost per kg. (₹)	10 (₹ 1,80,000 / 18,000 kg)	15 (₹ 1,50,000 / 10,000 kg)	2 (₹ 1,08,000 / 54,000 kg)
Total cost per kg (₹)	45	43	9

(iii) Statement showing the product wise and total profit for the period

Products	A	B	X	Total
Sales value (₹)	12,24,000	2,50,000	7,92,000	
Add: Closing stock value (₹) (Refer to Working note 2)	45,000	2,15,000	90,000	
Value of production (₹)	12,69,000	4,65,000	8,82,000	26,16,000
Apportionment of joint cost (₹)	6,30,000	2,80,000	3,78,000	
Add: Further processing cost (₹)	1,80,000	1,50,000	1,08,000	
Total cost (₹)	8,10,000	4,30,000	4,86,000	17,26,000
Profit (₹)	4,59,000	35,000	3,96,000	8,90,000

Working Notes

1.

Products	A	B	X
Sales value (₹)	12,24,000	2,50,000	7,92,000
Quantity sold (Kgs.)	17,000	5,000	44,000
Selling price ₹/kg	72 (₹ 12,24,000 / 17,000 kg)	50 (₹ 2,50,000 / 5,000 kg)	18 (₹ 7,92,000 / 44,000 kg)

2. Valuation of closing stock:

Since the selling price per kg of products A, B and X is more than their total costs, therefore closing stock will be valued at cost.

Products	A	B	X	Total
Closing stock (kgs.)	1,000	5,000	10,000	
Cost per kg (₹)	45	43	9	
Closing stock value (₹)	45,000 (₹ 45 x 1,000 kg)	2,15,000 (₹ 43 x 5,000 kg)	90,000 (₹ 9 x 10,000 kg)	3,50,000

(iv) Calculations for processing decision

Products	A	B	X
Selling price per kg at the point of split off (₹)	50	40	10
Selling price per kg after further processing (₹) (Refer to working Note 1)	72	50	18
Incremental selling price per kg (₹)	22	10	8
Less: Further processing cost per kg (₹)	(10)	(15)	(2)
Incremental profit (loss) per kg (₹)	12	(5)	6

Product A and X has an incremental profit per unit after further processing, hence, these two products may be further processed. However, further processing of product B is not profitable hence, product B shall be sold at split off point.

15. Operating Cost Sheet

Particulars		Amount (₹)
Boiler House Cost		
Coal consumed (1,800 tonnes @ ₹ 230)	4,14,000	
Freight, loading and unloading charges (7% of coal cost)	28,980	
Oil consumed (15 tonnes @ ₹ 4,500)	67,500	

Water consumed (80,000 litres @ Re. 0.07)	5,600	
Depreciation of steam boiler $(\frac{50,00,000-2,00,000}{10 \times 12})$	40,000	
Salaries and wages of boiler house workers:		
Skilled workers (15 @ ₹ 1,300)	19,500	
Semi-skilled workers (30 @ 1,100)	33,000	
Unskilled workers (50 @ ₹ 900)	45,000	
Less: Recovery from sale of ash (150 tonnes @ ₹ 60)	(9,000)	
Total Cost (I)		**6,44,580**
Generating Station Costs		
Salaries and wages of generating station staff:		
Skilled workers (60 @ ₹ 1,200)	72,000	
Semi-skilled workers (20 @ 1,000)	20,000	
Unskilled workers (30 @ ₹ 850)	25,500	
Repairs and maintenance of generating equipment	30,000	
Depreciation of generating equipment	75,000	
Insurance premium on generating plant	15,000	
Fuel handling and storage expenses	8,000	
Rent of generating station premises	12,000	
Share of administration and general expenses	65,000	
Total Cost (II)		**3,22,500**
Other Costs		
Electricity purchased from grid (5,000 units @ ₹ 6)	30,000	
Total Cost (III)		**30,000**

Total Cost of Electricity Generated and Purchased (I+II+III)		**9,97,080**
Units Available (W.N.)		**1,81,800 units**
Cost per unit		**5.48 per unit**

Working Note: Units Available

Particulars	**Units**
Total Units Generated	2,00,000
Less: Normal loss in generation	(3,000)
Net Own Units Generated	1,97,000
Add: Units purchased from grid	5,000
Total Effective Units Available	**2,02,000**
Less: 10% Units used by generating department	(20,200)
Units Available for Factory Operations	**1,81,800**

16. (i) Profit as per Draft Budget for the Next Month:

	Products				
	P		**Q**		**Total**
Budgeted Production and Sales	40,000 units		80,000 units		1,20,000 units
	Per Unit (₹)	**Total (₹)**	**Per unit (₹)**	**Total (₹)**	**(₹)**
Sales	25	10,00,000	50	40,00,000	50,00,000
Less: Total Costs	20	8,00,000	40	32,00,000	40,00,000
Profit	5	2,00,000	10	8,00,000	10,00,000

(ii) Basic Calculations:

(a)	Machine Hrs.	P: 40,000 units x 2 hrs. Q: 80,000 units x 1 hr.	1,60,000 hrs.
(b)	Fixed Overhead Rate *per machine hr.*	₹ 9,60,000 / 1,60,000 hrs.	₹ 6
(c)	Fixed Overhead *per unit*	P: 2 hrs. x ₹ 6 Q: 1 hr. x ₹ 6	₹ 12 ₹ 6
(d)	Contribution *per unit*	P: ₹ 12 + ₹ 5 Q: ₹ 6 + ₹ 10	₹ 17 ₹ 16
(e)	Product-wise Contribution *per machine hr.*	P: ₹ 17/2hrs. Q: ₹ 16/1 hr.	₹ 8.50 ₹ 16.00

Revised Product Mix to Yield Optimum Profit:

Product Q has higher contribution per machine hour. Since machine hour is a limiting factor hence maximum units of product Q should be produced. However, maximum sales potentiality of Product Q is 1,00,000 units. This will take 1,00,000 machine hour. The balance 60,000 hours should be used to produce 30,000 units of P.

The Revised Product Mix to Yield Optimum Profit will be as follows:

Product Q	(1,00,000 units × ₹ 16)	₹ 16,00,000
Product P	(30,000 units × ₹ 17)	₹ 5,10,000
Total Contribution		₹ 21,10,000
Less: Fixed Expenses		₹ 9,60,000
Profit		₹ 11,50,000

(iii) Product - P gives lower contribution per machine hour, hence, it will be discontinued and Product - C will be manufactured in its place. The discontinuance of Product - P will make available 60,000 machine hours to produce 40,000 units of Product - C.

The computation of selling price of Product - C can be done as follows:

Computation of Selling Price of Product- C

	(₹)
Variable Cost (40,000 units × ₹ 21)	8,40,000
Additional Fixed Cost *per month*	60,000
Return on Capital (₹ 2,00,000 × 1.25%)	2,500
Present Contribution from Product P	5,10,000
Total Sales Value *to be recovered*	14,12,500
Selling Price *per unit* of C (₹ 14,12,500/40,000 units)	35.31

17. Working Note:

Calculation of total annual production

Particulars	**(Units)**
Sales in 4 quarters	2,30,625
Add: Closing balance	18,375
	2,49,000
Less: Opening balance	(11,250)
Total number of units to be produced in the next year	**2,37,750**

(i) Production Budget (in units)

Quarters	**I (Units)**	**II (Units)**	**III (Units)**	**IV (Units)**	**Total (Units)**
Sales	45,000	56,250	61,875	67,500	2,30,625
Production in current quarter (75% of the sale of current quarter)	33,750	42,188	46,406	50,625	
Production for next quarter (25% of the sale of next quarter)	14,063	15,469	16,875	18,375	
Total production	**47,813**	**57,656**	**63,281**	**69,000**	**2,37,750**

(ii) Raw material consumption budget in quantity

Quarters	I	II	III	IV	Total
Units to be produced in each quarter: (A)	47,813	57,656	63,281	69,000	2,37,750
Raw material consumption p.u. (kg.): (B)	4	4	4	4	
Total raw material consumption (Kg.) : (A × B)	1,91,250	2,30,625	2,53,125	2,76,000	9,51,000

(iii) Raw material purchase budget (in quantity)

Particulars	Qty. (kg.)
Raw material required for production	9,51,000
Add: Closing balance of raw material	7,500
	9,58,500
Less: Opening balance	(15,000)
Material to be purchased	9,43,500

(iv) Raw material purchase budget (in value)

Quarters	% of annual requirement	Qty. of material	Rate per kg. (₹)	Amount (₹)
(1)	**(2)**	**(3)**	**(4)**	**(5) = (3×4)**
I	25	2,35,875 (9,43,500 kg. x 25%)	12	28,30,500
II	50	4,71,750 (9,43,500 kg. x 50%)	13	61,32,750
III	25	2,35,875 (9,43,500 kg. x 25%)	14	33,02,250
Total		**9,43,500**		**1,22,65,500**

18. (a) Difference between Cost Accounting and Management Accounting

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

(b) A number of distinct practical stages that are required in the ABC implementation are given below:

(1) Staff Training: The co-operation of the workforce is critical to the successful implementation of ABC. Staff training should be done to create an awareness on the purpose of ABC.

(2) **Process Specification:** Informal, but structured interviews with key members of personnel will identify the different stages of the production process, the commitment of resources to each, processing times and bottlenecks.

(3) **Activity Definition:** The activities must be defined clearly in the early stage in order to manage the problems, if any, effectively. There might be overloading of information from the new data, but the same is needed in codification.

(4) **Activity Driver Selection:** Cost driver for each activity shall be selected.

(5) **Assigning Cost:** A single representative activity driver can be used to assign costs from the activity pools to the cost objects.

(c) **Difference between Fixed and Flexible Budgets:**

Sl. No.	Fixed Budget	Flexible Budget
1.	It operates on one level of activity and under one set of conditions. It assumes that there will be no change in the prevailing conditions, which is unrealistic.	It consists of various budgets for different levels of activity.
2.	Here as all costs like - fixed, variable and semi-variable are related to only one level of activity so variance analysis does not give useful information.	Here analysis of variance provides useful information as each cost is analysed according to its behaviour.
3.	If the budgeted and actual activity levels differ significantly, then the aspects like cost ascertainment and price fixation do not give a correct picture.	Flexible budgeting at different levels of activity facilitates the ascertainment of cost, fixation of selling price and tendering of quotations.

4.	Comparison of actual performance with budgeted targets will be meaningless specially when there is a difference between the two activity levels.	It provides a meaningful basis of comparison of the actual performance with the budgeted targets.

(d) **Cost unit** is a unit of product, service or time (or combination of these) in relation to which costs may be ascertained or expressed. These are usually the units of physical measurement like number, weight, area, volume, length, time and value.

Industry or Product	Cost unit(s)
Construction	Square meter, cubic meter
Transport	Passenger- kilometer, tonne-kilometer
Technology	Software license, hardware component
Oil	Barrel, tonne, litre
Gas	Cubic feet
Electricity	Kilowatt-hour (kWh)