

PAPER – 3: COST AND MANAGEMENT ACCOUNTING

QUESTIONS

Material Cost

1. Rounak Ltd. is the manufacturer of monitors for PCs. A monitor requires 4 units of Part-M. The following are the details of its operation during 20X8:

Average monthly market demand	2,000 Monitors
Ordering cost	₹ 1,000 per order
Inventory carrying cost	20% per annum
Cost of Part	₹ 350 per part
Normal usage	425 parts per week
Minimum usage	140 parts per week
Maximum usage	710 parts per week
Lead time to supply	3-5 weeks

COMPUTE from the above:

- Economic Order Quantity (EOQ). If the supplier is willing to supply quarterly 30,000 units of Part-M at a discount of 5%, is it worth accepting?
- Reorder level
- Maximum level of stock
- Minimum level of stock.

Employee Cost

2. A job can be executed either through workman A or B. A takes 32 hours to complete the job while B finishes it in 30 hours. The standard time to finish the job is 40 hours.

The hourly wage rate is same for both the workers. In addition workman A is entitled to receive bonus according to Halsey plan (50%) sharing while B is paid bonus as per Rowan plan. The works overheads are absorbed on the job at ₹ 7.50 per labour hour worked. The factory cost of the job comes to ₹ 2,600 irrespective of the workman engaged.

INTERPRET the hourly wage rate and cost of raw materials input. Also show cost against each element of cost included in factory cost.

Overheads: Absorption Costing Method

3. Sree Ajeet Ltd. having fifteen different types of automatic machines furnishes information as under for 20X8-20X9
- Overhead expenses: Factory rent ₹ 1,80,000 (Floor area 1,00,000 sq. ft.), Heat and gas ₹ 60,000 and supervision ₹ 1,50,000.

- (ii) Wages of the operator are ₹ 200 per day of 8 hours. Operator attends to one machine when it is under set up and two machines while they are under operation.

In respect of machine B (one of the above machines) the following particulars are furnished:

- (i) Cost of machine ₹1,80,000, Life of machine- 10 years and scrap value at the end of its life ₹ 10,000
- (ii) Annual expenses on special equipment attached to the machine are estimated as ₹ 12,000
- (iii) Estimated operation time of the machine is 3,600 hours while set up time is 400 hours per annum
- (iv) The machine occupies 5,000 sq. ft. of floor area.
- (v) Power costs ₹ 5 per hour while machine is in operation.

ESTIMATE the comprehensive machine hour rate of machine B. Also find out machine costs to be absorbed in respect of use of machine B on the following two work orders

	Work order- 1	Work order-2
Machine set up time (Hours)	15	30
Machine operation time (Hours)	100	190

Activity Based Costing

4. Family Store wants information about the profitability of individual product lines: Soft drinks, Fresh produce and Packaged food. Family store provides the following data for the year 20X7-X8 for each product line:

	Soft drinks	Fresh produce	Packaged food
Revenues	₹ 39,67,500	₹ 1,05,03,000	₹ 60,49,500
Cost of goods sold	₹ 30,00,000	₹ 75,00,000	₹ 45,00,000
Cost of bottles returned	₹ 60,000	₹ 0	₹ 0
Number of purchase orders placed	360	840	360
Number of deliveries received	300	2,190	660
Hours of shelf-stocking time	540	5,400	2,700
Items sold	1,26,000	11,04,000	3,06,000

Family store also provides the following information for the year 20X7-X8:

Activity	Description of activity	Total Cost	Cost-allocation base
Bottles returns	Returning of empty bottles	₹ 60,000	Direct tracing to soft drink line

Ordering	Placing of orders for purchases	₹ 7,80,000	1,560 purchase orders
Delivery	Physical delivery and receipt of goods	₹ 12,60,000	3,150 deliveries
Shelf stocking	Stocking of goods on store shelves and on-going restocking	₹ 8,64,000	8,640 hours of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	₹ 15,36,000	15,36,000 items sold

Required:

- (i) Family store currently allocates support cost (all cost other than cost of goods sold) to product lines on the basis of cost of goods sold of each product line. CALCULATE the operating income and operating income as a % of revenues for each product line.
- (ii) If Family Store allocates support costs (all costs other than cost of goods sold) to product lines using an activity based costing system, CALCULATE the operating income and operating income as a % of revenues for each product line.

Cost Sheet

5. From the following data of Arnav Metallic Ltd., CALCULATE Cost of production:

		Amount (₹)
(i)	Repair & maintenance paid for plant & machinery	9,80,500
(ii)	Insurance premium paid for inventories	26,000
(iii)	Insurance premium paid for plant & machinery	96,000
(iv)	Raw materials purchased	64,00,000
(v)	Opening stock of raw materials	2,88,000
(vi)	Closing stock of raw materials	4,46,000
(vii)	Wages paid	23,20,000
(viii)	Value of opening Work-in-process	4,06,000
(ix)	Value of closing Work-in-process	6,02,100
(x)	Quality control cost for the products in manufacturing process	86,000
(xi)	Research & development cost for improvement in production process	92,600
(xii)	Administrative cost for:	
	- Factory & production	9,00,000

	- Others	11,60,000
(xiii)	Amount realised by selling scrap generated during the manufacturing process	9,200
(xiv)	Packing cost necessary to preserve the goods for further processing	10,200
(xv)	Salary paid to Director (Technical)	8,90,000

Cost Accounting System

6. The financial books of a company reveal the following data for the year ended 31st March, 20X8:

Opening Stock:	(₹)
Finished goods 625 units	53,125
Work-in-process	46,000
01.04.20X7 to 31.03.20X8	
Raw materials consumed	8,40,000
Direct Labour	6,10,000
Factory overheads	4,22,000
Administration overheads (Production related)	1,98,000
Dividend paid	1,22,000
Bad Debts	18,000
Selling and Distribution Overheads	72,000
Interest received	38,000
Rent received	46,000
Sales 12,615 units	22,80,000
Closing Stock: Finished goods 415 units	45,650
Work-in-process	41,200

The cost records provide as under:

- Factory overheads are absorbed at 70% of direct wages.
- Administration overheads are recovered at 15% of factory cost.
- Selling and distribution overheads are charged at ₹ 3 per unit sold.
- Opening Stock of finished goods is valued at ₹ 120 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

- (i) PREPARE a statements for the year ended 31st March, 20X8. Show
 - the profit as per financial records
 - the profit as per costing records.
- (ii) PREPARE a statement reconciling the profit as per costing records with the profit as per Financial Records.

Contract Costing

7. A construction company undertook a contract at an estimated price of ₹ 108 lakhs, which includes a budgeted profit of ₹ 18 lakhs. The relevant data for the year ended 31.03.20X8 are as under:

	(₹ '000)
Materials issued to site	5,000
Direct wages paid	3,800
Plant hired	700
Site office costs	270
Materials returned from site	100
Direct expenses	500
Work certified	10,000
Work not certified	230
Progress payment received	7,200

A special plant was purchased specifically for this contract at ₹ 8,00,000 and after use on this contract till the end of 31.02.20X8, it was valued at ₹ 5,00,000. This cost of materials at site at the end of the year was estimated at ₹ 18,00,000 Direct wages accrued as on 31.03.20X8 was ₹ 1,10,000.

Required

PREPARE the Contract Account for the year ended 31st March, 20X8.

Job Costing

8. A company has been asked to quote for a job. The company aims to make a net profit of 30% on sales. The estimated cost for the job is as follows:
 - Direct materials 10 kg @ ₹10 per kg
 - Direct labour 20 hours @ ₹5 per hour
 - Variable production overheads are recovered at the rate of ₹ 2 per labour hour.

Fixed production overheads for the company are budgeted to be ₹1,00,000 each year and are recovered on the basis of labour hours.

There are 10,000 budgeted labour hours each year. Other costs in relation to selling, distribution and administration are recovered at the rate of ₹50 per job.

DETERMINE quote for the job by the Company.

Process Costing

9. From the following information for the month of January, 20X9, PREPARE Process-III cost accounts.

Opening WIP in Process-III	1,600 units at ₹ 24,000
Transfer from Process-II	55,400 units at ₹ 6,23,250
Transferred to warehouse	52,200 units
Closing WIP of Process-III	4,200 units
Units Scrapped	600 units
Direct material added in Process-III	₹ 2,12,400
Direct wages	₹ 96,420
Production overheads	₹ 56,400

Degree of completion:

	Opening Stock	Closing Stock	Scrap
Material	80%	70%	100%
Labour	60%	50%	70%
Overheads	60%	50%	70%

The normal loss in the process was 5% of the production and scrap was sold @ ₹ 5 per unit.

(Students may treat material transferred from Process – II as Material – A and fresh material used in Process – III as Material B)

Joint Products & By Products

10. In an Oil Mill four products emerge from a refining process. The total cost of input during the quarter ending March 20X8 is ₹1,48,000. The output, sales and additional processing costs are as under:

Products	Output in Litres	Additional processing cost after split off (₹)	Sales value (₹)
ACH	8,000	43,000	1,72,500

BCH	4,000	9,000	15,000
CSH	2,000	–	6,000
DSH	4,000	1,500	45,000

In case these products were disposed-off at the split off point that is before further processing, the selling price per litre would have been:

ACH (₹)	BCH (₹)	CSH (₹)	DSH (₹)
15.00	6.00	3.00	7.50

PRODUCE a statement of profitability based on:

- (i) If the products are sold after further processing is carried out in the mill.
- (ii) If they are sold at the split off point.

Service Costing

11. Sanziet Lifecare Ltd. operates in life insurance business. Last year it has launched a new term insurance policy for practicing professionals ‘Professionals Protection Plus’. The company has incurred the following expenditures during the last year for the policy:

Policy development cost	₹11,25,000
Cost of marketing of the policy	₹45,20,000
Sales support expenses	₹11,45,000
Policy issuance cost	₹10,05,900
Policy servicing cost	₹35,20,700
Claims management cost	₹1,25,600
IT cost	₹74,32,000
Postage and logistics	₹10,25,000
Facilities cost	₹15,24,000
Employees cost	₹ 5,60,000
Office administration cost	₹16,20,400

Number of policy sold- 528

Total insured value of policies- ₹1,320 crore

Required:

- (i) CALCULATE total cost for Professionals Protection Plus’ policy segregating the costs into four main activities namely (a) Marketing and Sales support, (b) Operations, (c) IT and (d) Support functions.
- (ii) CALCULATE cost per policy.
- (iii) CACULATE cost per rupee of insured value.

Standard Costing

12. Aaradhya Ltd. manufactures a commercial product for which the standard cost per unit is as follows:

	(₹)
Material:	
5 kg. @ ₹ 4 per kg.	20.00
Labour:	
3 hours @ ₹10 per hour	30.00
Overhead	
Variable: 3 hours @ ₹1	3.00
Fixed: 3 hours @ ₹0.50	1.50
Total	54.50

During Jan. 20X8, 600 units of the product were manufactured at the cost shown below:

	(₹)
Materials purchased:	
5,000 kg. @ ₹4.10 per kg.	20,500
Materials used:	
3,500 kg.	
Direct Labour:	
1,700 hours @ ₹ 9	15,300
Variable overhead	1,900
Fixed overhead	900
Total	38,600

The flexible budget required 1,800 direct labour hours for operation at the monthly activity level used to set the fixed overhead rate.

COMPUTE:

(a) Material price variance, (b) Material Usage variance; (c) Labour rate variance; (d) Labour efficiency variance; (e) Variable overhead expenditure variance; (f) Variable overhead efficiency variance; (g) Fixed overhead expenditure variance; (h) Fixed overhead volume variance; (i) Fixed overhead capacity variance; and (j) Fixed overhead efficiency variance.

Also RECONCILE the standard and actual cost of production.

Marginal Costing

13. A company sells its product at ₹ 15 per unit. In a period, if it produces and sells 8,000 units, it incurs a loss of ₹ 5 per unit. If the volume is raised to 20,000 units, it earns a profit of ₹ 4 per unit. CALCULATE break-even point both in terms of rupees as well as in units.

Budget and Budgetary Control

14. Gaurav Ltd. is drawing a production plan for its two products Minimax (MM) and Heavyhigh (HH) for the year 20X8-X9. The company’s policy is to hold closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month. The following are the estimated data for two products:

	Minimax (MM)	Heavyhigh (HH)
Budgeted Production units	1,80,000	1,20,000
	(₹)	(₹)
Direct material cost per unit	220	280
Direct labour cost per unit	130	120
Manufacturing overhead	4,00,000	5,00,000

The estimated units to be sold in the first four months of the year 20X8-X9 are as under

	April	May	June	July
Minimax	8,000	10,000	12,000	16,000
Heavyhigh	6,000	8,000	9,000	14,000

PREPARE production budget for the first quarter in month-wise

Miscellaneous

15. (a) DISCUSS the essential features of a good cost accounting system.
 (b) EXPLAIN the difference between Cost Control and Control Reduction.
 (c) DEFINE Controllable Cost and Uncontrollable Cost.
 (d) DISTINGUISH between job and batch costing.

SUGGESTED HINTS/ANSWERS

1. (1) A = Annual usage of parts = Monthly demand for monitors × 4 parts × 12 months
= 2,000 monitors × 4 parts × 12 months = 96,000 units

O = Ordering cost per order = ₹ 1,000/- per order

C₁ = Cost per part = ₹ 350/-

iC₁ = Inventory carrying cost per unit per annum
= 20% × ₹ 350 = ₹ 70/- per unit, per annum

Economic order quantity (EOQ):

$$\text{E.O.Q} = \sqrt{\frac{2AO}{iC_1}} = \sqrt{\frac{2 \times 96,000 \text{ units} \times ₹ 1,000}{₹ 70}}$$

= 1,656 parts (approx.)

The supplier is willing to supply 30,000 units at a discount of 5%, therefore cost of each part shall be ₹ 350 – 5% of 350 = ₹ 332.5

Total cost (when order size is 30,000 units):

= Cost of 96,000 units + Ordering cost + Carrying cost.

$$= (96,000 \text{ units} \times ₹ 332.50) + \left(\frac{96,000 \text{ units}}{30,000 \text{ units}} \times ₹ 1,000 \right) + \frac{1}{2} (30,000 \text{ units} \times 20\% \times ₹ 332.50)$$

$$= ₹ 3,19,20,000 + ₹ 3,200* + ₹ 9,97,500 = ₹ 3,29,20,700$$

Total cost (when order size is 1,656 units):

$$= (96,000 \text{ units} \times ₹ 350) + \left(\frac{96,000 \text{ units}}{1,656 \text{ units}} \times ₹ 1,000 \right) + \frac{1}{2} (1,656 \text{ units} \times 20\% \times ₹ 350)$$

$$= ₹ 3,36,00,000 + ₹ 57,970* + ₹ 57,960 = ₹ 3,37,15,930$$

Since, the total cost under the supply of 30,000 units with 5% discount is lower than that when order size is 1,656 units, therefore the offer should be accepted.

Note: While accepting this offer consideration of capital blocked on order size of 30,000 units has been ignored.

*Order size can also be taken in absolute figure.

- (2) Reorder level

= Maximum consumption × Maximum re-order period

= 710 units × 5 weeks = 3,550 units

(3) Maximum level of stock

= Re-order level + Reorder quantity – (Min. usage × Min. reorder period)
 = 3,550 units + 1,656 units – (140 units × 3 weeks) = 4,786 units.

(4) Minimum level of stock

= Re-order level – Normal usage × Average reorder period
 = 3,550 units – (425 units × 4 weeks) = 1,850 units.

2. Calculation of :

1. Time saved and wages:

Workmen	A	B
Standard time (hrs.)	40	40
Actual time taken (hrs.)	32	30
Time saved (hrs.)	8	10
Wages paid @ ₹ x per hr. (₹)	32x	30x

2. Bonus Plan:

	Halsey	Rowan
Time saved (hrs.)	8	10
Bonus (₹)	4x	7.5x
	$\left[\frac{8 \text{ hrs} \times ₹ x}{2} \right]$	$\left[\frac{10 \text{ hrs}}{40 \text{ hrs}} \times 30 \text{ hrs} \times ₹ x \right]$

3. Total wages:

Workman A: 32x + 4x = ₹ 36x

Workman B: 30x + 7.5x = ₹ 37.5x

Statement of factory cost of the job

Workmen	A (₹)	B (₹)
Material cost (assumed)	y	y
Wages (shown above)	36x	37.5x
Works overhead	240	225
Factory cost (given)	2,600	2,600

The above relations can be written as follows:

$36x + y + 240 = 2,600$ (i)

$$37.5x + y + 225 = 2,600 \quad (ii)$$

Subtracting (i) from (ii) we get

$$1.5x - 15 = 0$$

$$\text{Or, } 1.5x = 15$$

$$\text{Or, } x = ₹ 10 \text{ per hour}$$

On substituting the value of x in (i) we get $y = ₹ 2,000$

Hence the wage rate per hour is ₹ 10 and the cost of raw material is ₹ 2,000 on the job.

3.

Sree Ajeet Ltd.**Statement showing comprehensive machine hour rate of Machine B**

	(₹)
Standing Charges:	
Factory rent {(₹ 1,80,000/1,00,000 sq. ft.) × 5,000 Sq. ft.}	9,000
Heat and Gas (₹ 60,000/15 machines)	4,000
Supervision (₹ 1,50,000/ 15 machines)	10,000
Depreciation [(₹ 1,80,000 – ₹ 10,000)/ 10 years]	17,000
Annual expenses on special equipment	12,000
	52,000
Fixed cost per hour (₹ 52,000/ 4,000 hrs.)	13/-

	Set up rate Per hour (₹)	Operational rate Per hour (₹)
Fixed cost	13.00	13.00
Power	--	5.00
Wages	25.00	12.50
Comprehensive machine hour rate per hr.	38.00	30.50

Statement of 'B' machine costs

to be absorbed on the two work orders

	Work order-1			Work order-2		
	Hours	Rate	Amount	Hours	Rate	Amount
		₹	₹	₹	₹	₹
Set up time cost	15	38	570	30	38	1,140
Operation time cost	100	30.5	3,050	190	30.5	5,795
Total cost			3,620			6,935

4. (i) **Statement of Operating income and Operating income as a percentage of revenues for each product line**

(When support costs are allocated to product lines on the basis of cost of goods sold of each product)

	Soft Drinks (₹)	Fresh Produce (₹)	Packaged Foods (₹)	Total (₹)
Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost of Goods sold (COGS): (B)	30,00,000	75,00,000	45,00,000	1,50,00,000
Support cost (30% of COGS): (C) (Refer working notes)	9,00,000	22,50,000	13,50,000	45,00,000
Total cost: (D) = {(B) + (C)}	39,00,000	97,50,000	58,50,000	1,95,00,000
Operating income: E = {(A)-(D)}	67,500	7,53,000	1,99,500	10,20,000
Operating income as a percentage of revenues: (E/A) × 100	1.70%	7.17%	3.30%	4.97%

Working notes:

1. **Total support cost:**

	(₹)
Bottles returns	60,000
Ordering	7,80,000
Delivery	12,60,000
Shelf stocking	8,64,000
Customer support	15,36,000
Total support cost	45,00,000

2. **Percentage of support cost to cost of goods sold (COGS):**

$$= \frac{\text{Total support cost}}{\text{Total cost of goods sold}} \times 100$$

$$= \frac{₹45,00,000}{₹1,50,00,000} \times 100 = 30\%$$

3. **Cost for each activity cost driver:**

Activity (1)	Total cost (₹) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Ordering	7,80,000	1,560 purchase orders	₹500 per purchase order

Delivery	12,60,000	3,150 deliveries	₹400 per delivery
Shelf-stocking	8,64,000	8,640 hours	₹100 per stocking hour
Customer support	15,36,000	15,36,000 items sold	₹1 per item sold

(ii) **Statement of Operating income and Operating income as a percentage of revenues for each product line**

(When support costs are allocated to product lines using an activity-based costing system)

	Soft drinks (₹)	Fresh Produce (₹)	Packaged Food (₹)	Total (₹)
Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost & Goods sold	30,00,000	75,00,000	45,00,000	1,50,00,000
Bottle return costs	60,000	0	0	60,000
Ordering cost* (360:840:360)	1,80,000	4,20,000	1,80,000	7,80,000
Delivery cost* (300:2190:660)	1,20,000	8,76,000	2,64,000	12,60,000
Shelf stocking cost* (540:5400:2700)	54,000	5,40,000	2,70,000	8,64,000
Customer Support cost* (1,26,000:11,04,000:3,06,000)	1,26,000	11,04,000	3,06,000	15,36,000
Total cost: (B)	35,40,000	1,04,40,000	55,20,000	1,95,00,000
Operating income C: {(A)- (B)}	4,27,500	63,000	5,29,500	10,20,000
Operating income as a % of revenues	10.78%	0.60%	8.75%	4.97%

* Refer to working note 3

5. **Calculation of Cost of Production of Arnav Metallic for the period.....**

Particulars	Amount (₹)
Raw materials purchased	64,00,000
Add: Opening stock	2,88,000
Less: Closing stock	(4,46,000)
Material consumed	62,42,000
Wages paid	23,20,000

Prime cost	85,62,000
Repair and maintenance cost of plant & machinery	9,80,500
Insurance premium paid for inventories	26,000
Insurance premium paid for plant & machinery	96,000
Quality control cost	86,000
Research & development cost	92,600
Administrative overheads related with factory and production	9,00,000
	1,07,43,100
<i>Add:</i> Opening value of W-I-P	4,06,000
<i>Less:</i> Closing value of W-I-P	(6,02,100)
	1,05,47,000
<i>Less:</i> Amount realised by selling scrap	(9,200)
<i>Add:</i> Primary packing cost	10,200
Cost of Production	1,05,48,000

Notes:

- (i) Other administrative overhead does not form part of cost of production.
(ii) Salary paid to Director (Technical) is an administrative cost.

6. (i) **Statement of Profit as per Financial records**
(for the year ended March 31, 20X8)

	(₹)		(₹)
To Opening stock of Finished Goods	53,125	By Sales	22,80,000
To Work-in-process	46,000	By Closing stock of finished Goods	45,650
To Raw materials consumed	8,40,000	By Work-in-Process	41,200
To Direct labour	6,10,000	By Rent received	46,000
To Factory overheads	4,22,000	By Interest received	38,000
To Administration overheads	1,98,000		
To Selling & distribution overheads	72,000		
To Dividend paid	1,22,000		

To Bad debts	18,000		
To Profit	69,725		
	24,50,850		24,50,850

Statement of Profit as per Costing records
(for the year ended March 31, 20X8)

	(₹)
Sales revenue (A) (12,615 units)	22,80,000
Cost of sales:	
Opening stock (625 units × ₹ 120)	75,000
Add: Cost of production of 12,405 units (Refer to working note 2)	21,63,350
Less: Closing stock (₹174.39 × 415 units)	(72,372)
Cost of goods sold (12,615 units)	21,65,978
Selling & distribution overheads (12,615 units × ₹ 3)	37,845
Cost of sales: (B)	22,03,823
Profit: {(A) – (B)}	76,177

(ii)

Statement of Reconciliation

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

	(₹)	(₹)
Profit as per Cost Accounts		76,177
Add: Administration overheads over absorbed (₹2,81,550 – ₹1,98,000)	83,550	
Opening stock overvalued (₹75,000 – ₹53,125)	21,875	
Interest received	38,000	
Rent received	46,000	

Factory overheads over recovered (₹4,27,000 – ₹4,22,000)	5,000	1,94,425
		2,70,602
Less: Selling & distribution overheads under recovery (₹72,000 – ₹37,845)	34,155	
Closing stock overvalued (₹72,372 – ₹45,650)	26,722	
Dividend	1,22,000	
Bad debts	18,000	(2,00,877)
Profit as per financial accounts		69,725

Working notes:**1. Number of units produced**

	Units
Sales	12,615
Add: Closing stock	415
Total	13,030
Less: Opening stock	(625)
Number of units produced	12,405

2. Cost Sheet

	(₹)
Raw materials consumed	8,40,000
Direct labour	6,10,000
Prime cost	14,50,000
Factory overheads (70% of direct wages)	4,27,000
Factory cost	18,77,000
Add: Opening work-in-process	46,000
Less: Closing work-in-process	41,200
Factory cost of goods produced	18,81,800
Administration overheads (15% of factory cost)	2,81,550
Cost of production of 12,405 units (Refer to working note 1)	21,63,350

Cost of production per unit:	
$= \frac{\text{Total Cost of Production}}{\text{No. of units produced}} = \frac{\text{₹ 21,63,350}}{12,405 \text{ units}} = \text{₹ 174.39}$	

7. Contract Account for the year ended 31st March, 20X8

	(₹'000)		(₹' 000)
To Material issued to site	5,000	By Material at site	1,800
To Direct wages 3,800		By Material returned	100
Add: Outstanding wages <u>110</u>	3,910	By Work-in-progress:	
To Plant hire	700	- Value of work certified	10,000
To Site office cost	270	- Work uncertified	230
To Direct expenses	500		
To Depreciation (special plant)	300		
To Notional profit c/d	1,450		
	12,130		12,130

8. Determination of quotation price for the job

Cost	(₹)
Direct Material (10kg × ₹10)	100
Direct Labour (20hrs × ₹5)	100
Variable production overhead (20hrs × ₹2)	40
Fixed Overhead $\left(\frac{\text{₹1,00,000}}{10,000 \text{ budgeted hours}} \times 20 \text{ hours} \right)$	200
Other costs	50
Total costs	490

Net profit is 30% of sales, therefore total costs represent 70% ($\text{₹ } 490 \times 100 \div 70 = \text{₹ } 700$) price to quote for job.

To check answer is correct; profit achieved will be ₹ 210 ($\text{₹ } 700 - \text{₹ } 490$)

$= \text{₹ } 210 \div \text{₹ } 700 = 30\%$

9. Statement of Equivalent Production

Process III

Input Details	Units	Output Particulars	Units	Equivalent Production					
				Material-A		Material-B		Labour & Overhead	
				%	Units	%	Units	%	Units
Opening WIP	1,600	Work on Op. WIP	1,600	-	-	20	320	40	640
Process-II Transfer	55,400	Introduced & completed during the month	50,600	100	50,600	100	50,600	100	50,600
		Normal loss (5% of 52,800 units)	2,640	-	-	-	-	-	-
		Closing WIP	4,200	100	4,200	70	2,940	50	2,100
		Abnormal Gain	(2,040)	100	(2,040)	100	(2,040)	100	(2,040)
	57,000		57,000		52,760		51,820		51,300

Working note:

$$\begin{aligned}
 \text{Production units} &= \text{Opening units} + \text{Units transferred from Process-II} - \text{Closing Units} \\
 &= 1,600 \text{ units} + 55,400 \text{ units} - 4,200 \text{ units} \\
 &= 52,800 \text{ units}
 \end{aligned}$$

Statement of Cost

	Cost (₹)	Equivalent units	Cost per equivalent units (₹)
Material A (Transferred from previous process)	6,23,250		
Less: Scrap value of normal loss (2,640 units × ₹ 5)	(13,200)		
	6,10,050	52,760	11.5627
Material B	2,12,400	51,820	4.0988
Labour	96,420	51,300	1.8795
Overheads	56,400	51,300	1.0994
	9,75,270		18.6404

Statement of apportionment of Process Cost

		Amount (₹)	Amount (₹)
Opening WIP	Material A		24,000
Completed opening WIP units-1600	Material B (320 units × ₹ 4.0988)	1311.62	
	Wages (640 units × ₹ 1.8795)	1202.88	
	Overheads (640 units × ₹ 1.0994)	703.62	3,218.12
Introduced & Completed- 50,600 units	50,600 units × ₹ 18.6404		9,43,204.24
Total cost of 52,200 finished goods units			9,70,422.36
Closing WIP units-4,200	Material A (4,200 units × ₹ 11.5627)		48,563.34
	Material B (2,940 units × ₹ 4.0988)		12,050.47
	Wages (2,100 units × ₹ 1.8795)		3,946.95
	Overheads (2,100 units × ₹ 1.0994)		2,308.74
			66,869.50
Abnormal gain units - 2,040	(2,040 units × ₹ 18.6404)		38026.42

Process III A/c

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Balance b/d	1,600	24,000	By Normal loss	2,640	13,200
To Process II A/c	55,400	6,23,250	By Finished goods	52,200	9,70,422.36
To Direct material		2,12,400	By Closing WIP	4,200	66,874.06*
To Direct wages		96,420			
To Production overheads		56,400			
To Abnormal gain	2,040	38,026.42			
	59,040	10,50,496.42		59,040	10,50,496.42

* Difference in figure due to rounding off has been adjusted with closing WIP

10. (i) Statement of profitability of the Oil Mill (after carrying out further processing) for the quarter ending 31st March 20X8.

Products	Sales Value after further processing	Share of Joint cost	Additional processing cost	Total cost after processing	Profit (loss)
ACH	1,72,500	98,667	43,000	1,41,667	30,833
BCH	15,000	19,733	9,000	28,733	(13,733)
CSH	6,000	4,933	--	4,933	1,067
DSH	45,000	24,667	1,500	26,167	18,833
	2,38,500	1,48,000	53,500	2,01,500	37,000

- (ii) Statement of profitability at the split off point

Products	Selling price of split off	Output in units	Sales value at split off point	share of joint cost	profit at split off point
ACH	15.00	8,000	1,20,000	98,667	21,333
BCH	6.00	4,000	24,000	19,733	4,267
CSH	3.00	2,000	6,000	4,933	1,067
DSH	7.50	4,000	30,000	24,667	5,333
			1,80,000	1,48,000	32,000

Note: Share of Joint Cost has been arrived at by considering the sales value at split off point.

11. (i) Calculation of total cost for 'Professionals Protect Plus' policy

	Particulars	Amount (₹)	Amount (₹)
1.	Marketing and Sales support:		
	- Policy development cost	11,25,000	
	- Cost of marketing	45,20,000	
	- Sales support expenses	11,45,000	67,90,000
2.	Operations:		
	- Policy issuance cost	10,05,900	
	- Policy servicing cost	35,20,700	
	- Claims management cost	1,25,600	46,52,200
3.	IT Cost		74,32,000
4.	Support functions		
	- Postage and logistics	10,25,000	
	- Facilities cost	15,24,000	

- Employees cost	5,60,000	
- Office administration cost	16,20,400	47,29,400
Total Cost		2,36,03,600

$$(ii) \text{ Calculation of cost per policy} = \frac{\text{Total cost}}{\text{No. of policies}} = \frac{\text{₹}2,36,03,600}{528} = \text{₹}44,703.79$$

$$(iii) \text{ Cost per rupee of insured value} = \frac{\text{Total cost}}{\text{Total insured value}} = \frac{\text{₹}2.36 \text{ crore}}{\text{₹}1,320 \text{ crore}} = \text{₹}0.0018$$

12. (a) **Material price variance:**

$$= (\text{Standard price} - \text{Actual Price}) \times \text{Actual quantity}$$

$$= (\text{₹}4 - \text{₹}4.10) \times 5,000 = \text{₹}500 \text{ Adv.}$$

(b) **Material usage variance:**

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

$$= (600 \times 5 - 3,500) \times 4 = \text{₹}2,000 \text{ Adv.}$$

(c) **Labour Rate Variance:**

$$= (\text{Standard rate} - \text{Actual rate}) \times \text{Actual hours}$$

$$= (\text{₹}10 - \text{₹}9) \times 1,700 = \text{₹}1,700 \text{ Fav.}$$

(d) **Labour Efficiency Variance:**

$$= (\text{Standard hours for actual output} - \text{Actual hours}) \times \text{Standard rate}$$

$$= (600 \times 3 - 1,700) \times \text{₹}10$$

$$= \text{₹}1,000 \text{ Fav.}$$

(e) **Variable Overhead Expenditure Variance**

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

$$= (1,700 \times \text{₹}1) - \text{₹}1,900$$

$$= \text{₹}200 \text{ Adv.}$$

(f) **Variable Overhead Efficiency Variance:**

$$= \text{Std. hours for actual output} - \text{Actual hours}) \times \text{Std. rate}$$

$$= (600 \times 3 - 1,700) \times \text{₹}1 = \text{₹}100 \text{ Fav.}$$

(g) **Fixed Overhead Expenditure Variance:**

$$= (\text{Budgeted overhead} - \text{Actual overhead})$$

$$= (1,800 \times 0.50 - 900) = \text{Nil}$$

(h) Fixed Overhead Volume Variance:

$$= (\text{Std. hours for actual output} - \text{Budgeted hours}) \times \text{Std. rate}$$

$$= (600 \times 3 - 1,800) \times ₹ 0.50 = \text{Nil}$$

(i) Fixed Overhead Capacity Variance:

$$= (\text{Budgeted hours} - \text{Actual Hours}) \times \text{Standard rate}$$

$$= (1,800 - 1,700) \times ₹ 0.50 = ₹ 50 \text{ Adv.}$$

(j) Fixed Overhead Efficiency Variance:

$$= (\text{Std. hours for actual output} - \text{Actual hours}) \times \text{Standard rate}$$

$$= (600 \times 3 - 1,700) \times ₹ 0.50 = ₹ 50 \text{ Fav.}$$

Verification:	(₹)	(₹)
Overhead recovered: 600 units @ ₹4.50		2,700
Actual Overhead:		
Variable	1,900	
Fixed	900	2,800
		100 Adv.
Variable expenditure variance		200 Adv
Variable Efficiency variance		100 Fav.
Fixed expenditure variance		Nil
Fixed overhead volume variance		Nil
		100 Adv.

Reconciliation Statement

Standard Cost: 600 units @ ₹54.50		32,700	
Actual Cost:	38,600		
Less: Material Stock at standard cost: (1,500 × ₹4)	6,000	(32,600)	100 Fav.
Variances:	Adv. (₹)	Fav. (₹)	
Material price	500		
Material usage	2,000		
Labour rate		1,700	
Labour efficiency		1,000	
Variable expenditure	200		

Variable efficiency		100	
Total	2,700	2,800	100 Fav.

13. We know that $S - V = F + P$ (S - Sales, V - Variable cost, F - Fixed cost and P - Profit/loss)

∴ Suppose variable cost = x per unit

Fixed Cost = y

When sales is 8,000 units, then

$$15 \times 8,000 - 8,000x = y - 40,000 \dots\dots\dots (1)$$

When sales volume raised to 20,000 units, then

$$15 \times 20,000 - 20,000x = y + 80,000 \dots\dots\dots (2)$$

$$\text{Or, } 1,20,000 - 8,000x = y - 40,000 \dots\dots\dots (3)$$

$$\text{And } 3,00,000 - 20,000x = y + 80,000 \dots\dots\dots (4)$$

From (3) & (4) we get $x = ₹ 5$.

Variable cost per unit = ₹ 5

Putting this value in 3rd equation:

$$1,20,000 - (8,000 \times 5) = y - 40,000$$

$$\text{or } y = ₹ 1,20,000$$

Fixed Cost = ₹ 1,20,000

$$P/V \text{ ratio} = \frac{S - V}{S} = \frac{15 - 5}{15} \times 100 = \frac{200}{3} = 66 \frac{2}{3} \%$$

Suppose break-even sales = x

$$15x - 5x = 1,20,000 \text{ (at BEP, contribution will be equal to fixed cost)}$$

$$x = 12,000 \text{ units.}$$

Or Break-even sales in units = 12,000

Break-even sales in rupees = $12,000 \times ₹ 15 = ₹ 1,80,000$

14. Production budget of Product Minimax and Heavyhigh (in units)

	April		May		June		Total	
	MM	HH	MM	HH	MM	HH	MM	HH
Sales	8,000	6,000	10,000	8,000	12,000	9,000	30,000	23,000

Add: Closing Stock (25% of next month's sale)	2,500	2,000	3,000	2,250	4,000	3,500	9,500	7,750
Less: Opening Stock	2,000*	1,500*	2,500	2,000	3,000	2,250	7,500	5,750
Production units	8,500	6,500	10,500	8,250	13,000	10,250	32,000	25,000

*Opening stock of April is the closing stock of March, which is as per company's policy 25% of next months sale.

Production Cost Budget

Element of cost	Rate (₹)		Amount (₹)	
	MM (32,000 units)	HH (25,000 units)	MM	HH
Direct Material	220	280	70,40,000	70,00,000
Direct Labour	130	120	41,60,000	30,00,000
Manufacturing Overhead				
(4,00,000/ 1,80,000 × 32,000)			71,111	
(5,00,000/ 1,20,000 × 25,000)				1,04,167
			1,12,71,111	1,01,04,167

15. (a) The essential features, which a good cost and management accounting system should possess, are as follows:
- (i) **Informative and simple:** Cost and management accounting system should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.
 - (ii) **Accurate and authentic:** The data to be used by the cost and management accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken.
 - (iii) **Uniformity and consistency:** There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for benchmarking and comparability of the results of the system for both horizontal and vertical analysis.
 - (iv) **Integrated and inclusive:** The cost and management accounting system should be integrated with other systems like financial accounting, taxation,

statistics and operational research etc. to have a complete overview and clarity in results.

- (v) **Flexible and adaptive:** The cost and management accounting system should be flexible enough to make necessary amendments and modification in the system to incorporate changes in technological, reporting, regulatory and other requirements.
- (vi) **Trust on the system:** Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflect a strong conviction in using information for decision making

(b)

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

- (c) (i) **Controllable Costs:** - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For example, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management.
- (ii) **Uncontrollable Costs** - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For example, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman.

(d) Distinction between Job and Batch Costing:

Sr. No	Job Costing	Batch Costing
1	Method of costing used for non-standard and non-repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality