PAPER – 3: COST AND MANAGEMENT ACCOUNTING

*Question No. **1** is compulsory.*

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

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

Question 1

Answer the following:

(a) XYZ Ltd. uses two types of raw materials – 'Material A' and 'Material B' in the production process and has provided the following data for the year ended on 31st March, 2021:

Particulars	*Material A (₹)*	*Material B (₹)*
Opening stock as on 01.04.2020	*30,000*	*32,000*
Purchase during the year	*90,000*	*51,000*
Closing stock as on 31.03.2021	*20,000*	*14,000*

(i) You are required to calculate:

(a) The inventory turnover ratio of 'Material A' and 'Material B'.

(b) The number of days for which the average inventory is held for both materials 'A' and 'B'.

(ii) Based on above calculations, give your comments.

(Assume 360 days in a year.)

(b) The Accountant of KPMR Ltd. has prepared the following budget for the coming year 2022 for its two products 'AYE' and 'ZYE':

Particulars	*Product 'AYE'*	*Product 'ZYE'*
Production and Sales (in Units)	*4,000*	*3,000*
	Amount (in ₹)	*Amount (in ₹)*
Selling Price per unit	*200*	*180*
Direct Material per unit	*80*	*70*
Direct Labour per unit	*40*	*35*
Variable Overhead per unit	*20*	*25*
Fixed Overhead per unit	*10*	*10*

After reviewing the above budget, the management has called the marketing team for suggesting some measures for increasing the sales. The marketing team has suggested that by promoting the products on social media, the sales quantity of both the products can be increased by 5%. Also, the selling price per unit will go up by 10%. But this will result in increase in expenditure on variable overhead and fixed overhead by 20% and 5% respectively for both the products.

You are required to prepare flexible budget for both the products:

(i) Before promotion on social media,

(ii) After promotion on social media.

(c) A skilled worker is paid a guaranteed wage rate of ₹ 150 per hour. The standard time allowed for a job is 10 hours. He took 8 hours to complete the job. He has been paid the wages under Rowan Incentive Plan.

You are required to:

(i) Calculate an effective hourly rate of earnings under Rowan Incentive Plan.

(ii) Calculate the time in which he should complete the job, if the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings.

(d) A product passes through Process-I and Process-II.

Particulars pertaining to the Process-I are:

Materials issued to Process-I amounted to ₹ 80,000, Wages ₹ 60,000 and manufacturing overheads were ₹ 52,500. Normal Loss anticipated was 5% of input, 9,650 units of output were produced and transferred out from Process-I to Process-II. Input raw materials issued to Process-I were 10,000 units.

There were no opening stocks.

Scrap has realizable value of ₹ 5 per unit.

You are required to prepare:

(i) Process-I Account

(ii) Abnormal Gain/Loss Account ***(4 x 5 = 20 Marks)***

Answer

(a) (i) Calculation of Inventory Turnover ratios and number of days:

	Material A (₹)	Material B (₹)
Opening stock	30,000	32,000
Add: Purchases	90,000	51,000
	1,20,000	83,000
Less: Closing stock	20,000	14,000

Materials consumed	1,00,000	69,000
Average inventory: (Opening Stock + Closing Stock) ÷ 2	25,000	23,000
(a) Inventory Turnover ratio: (Consumption ÷ Average inventory)	4 times	3 times
(b) Number of days for which the average inventory held (Number of Days in a year/IT ratio)	90 days	120 days

(ii) Comments: Material A is moving faster than Material B. Or Material A has a less holding period.

(b) (i) Flexible Budget (before promotion)

	Particulars	Product 'AYE'	Product 'ZYE'	Total
	Production & Sales (units)	4,000	3,000	
		Amount (₹)	**Amount (₹)**	**Amount (₹)**
A.	Sales Value	8,00,000 (₹ 200×4,000)	5,40,000 (₹ 180×3,000)	13,40,000
B.	Direct Materials	3,20,000 (₹ 80 × 4,000)	2,10,000 (₹70 × 3,000)	5,30,000
C.	Direct labour	1,60,000 (₹ 40 × 4,000)	1,05,000 (₹ 35 × 3,000)	2,65,000
D.	Variable Overheads	80,000 (₹ 20 × 4,000)	75,000 (₹ 25 × 3,000)	1,55,000
E.	Total Variable Cost (B+C+D)	5,60,000	3,90,000	9,50,000
F.	Contribution (A-E)	2,40,000	1,50,000	3,90,000
G.	Fixed Overhead	40,000 (₹10 × 4,000)	30,000 (₹10 × 3,000)	70,000
H.	Profit (F-G)	2,00,000	1,20,000	3,20,000
	Profit per unit	50	40	

(ii) Flexible Budget (after promotion)

	Particulars	Product 'AYE'	Product 'ZYE'	Total
	Production & Sales (units)	4,200 (4,000×105%)	3,150 (3,000×105%)	

		Amount (₹)	Amount (₹)	Amount (₹)
A.	Sales Value	9,24,000 (₹ 220 × 4,200)	6,23,700 (₹ 198 × 3,150)	15,47,700
B.	Direct Materials	3,36,000 (₹ 80 × 4,200)	2,20,500 (₹ 70 × 3,150)	5,56,500
C.	Direct labour	1,68,000 (₹ 40 × 4,200)	1,10,250 (₹ 35 × 3,150)	2,78,250
D.	Variable Overheads	1,00,800 (₹ 24 × 4,200)	94,500 (₹ 30 × 3,150)	1,95,300
E.	Total Variable Cost (B+C+D)	6,04,800	4,25,250	10,30,050
F.	Contribution (A-E)	3,19,200	1,98,450	5,17,650
G.	Fixed Overhead	42,000 (₹ 40,000 × 105%)	31,500 (₹ 30,000 × 105%)	73,500
H.	Profit (F-G)	2,77,200	1,66,950	4,44,150
	Profit per unit	66	53	

(c) (i) Calculation of Effective hourly rate of earnings under Rowan Incentive Plan:

Standard time allowed = 10 hours

Time taken = 8 hours; Time saved = 2 hours

	Particulars	Amount (₹)
A	Basic guaranteed wages (₹150×8 hours)	1,200
B	Add: Bonus for time saved ($\frac{2}{10}$ × 8 × ₹ 150)	240
C	Total earnings (A+B)	1,440
D	Hours worked	8 hours
E	Effective hourly rate (C÷D)	180

(ii) Let the time taken to complete the job is "T" and the time saved is 10-T

Effective hourly rate under the Halsey Incentive scheme

$$= \frac{\text{(Rate × Hours Worked) + (Rate × 50\% of Time Saved)}}{\text{Hours Worked}} = ₹\ 180$$

$$\frac{(₹150 \times T) + ₹150 \times 50\% (10 - T)}{T} = ₹\ 180$$

150T + 750 -75T = 180T

180T-75T = 750

$$T = \frac{750}{105} = 7.14 \text{ hours}$$

(d) (i) Process - I Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Materials	10,000	80,000	By Normal loss (5%of 10,000)	500	2,500
To Wages	-	60,000	By Process-II A/c (₹20*×9,650units)	9,650	1,93,000
To Manufacturing OH		52,500			
To Abnormal Gain A/c (₹20*×150units)	150	3,000			
	10,150	1,95,500		10,150	1,95,500

$$* \frac{(80,000 + 60,000 + 52,500) - 2,500}{10,000 - 500} = ₹\ 20$$

(ii) Abnormal Gain - Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Normal loss A/c	150	750	By Process-I A/c	150	3,000
To Costing P&L A/c	-	2,250			
	150	3,000		150	3,000

Question 2

(a) G Ltd. manufactures leather bags for office and school purposes.

The following information is related with the production of leather bags for the month of September, 2021.

(1) Leather sheets and cotton clothes are the main inputs and the estimated requirement per bag is two metres of leather sheets and one metre of cotton cloth. 2,000 metre of leather sheets and 1,000 metre of cotton cloths are purchased at ₹ 3,20,000 and ₹ 15,000 respectively. Freight paid on purchases is ₹ 8,500.

(2) Stitching and finishing need 2,000 man hours at ₹ 80 per hour.

(3) *Other direct costs of ₹ 10 per labour hour is incurred.*

(4) *G Ltd. have 4 machines at a total cost of ₹ 22,00,000. Machines have a life of 10 years with a scrap value of 10% of the original cost. Depreciation is charged on a straight-line method.*

(5) *The monthly cost of administration and sales office staffs are ₹ 45,000 and ₹ 72,000 respectively. G Ltd. pays ₹ 1,20,000 per month as rent for a 2,400 sq. feet factory premises. The administrative and sales office occupies 240 sq. feet and 200 sq. feet respectively of factory space.*

(6) *Freight paid on delivery of finished bags is ₹ 18,000.*

(7) *During the month, 35 kgs of scrap (cuttings of leather and cotton) are sold at ₹ 150 per kg.*

(8) *There are no opening and closing stocks of input materials. There is a finished stock of 100 bags in stock at the end of the month.*

You are required to prepare a cost sheet in respect of above for the month of September 2021 showing:

(i) *Cost of Raw Material Consumed*

(ii) *Prime Cost*

(iii) *Works/Factory Cost*

(iv) *Cost of Production*

(v) *Cost of Goods Sold*

(vi) *Cost of Sales* ***(10 Marks)***

(b) *AZ company has prepared its budget for the production of 2,00,000 units. The variable cost per unit is ₹ 16 and fixed cost is ₹ 4 per unit. The company fixes its selling price to fetch a profit of 20% on total cost.*

You are required to calculate:

(i) *Present break-even sales (in ₹ and in quantity).*

(ii) *Present profit-volume ratio.*

(iii) *Revised break-even sales in ₹ and the revised profit-volume ratio, if it reduces its selling price by 10%.*

(iv) *What would be revised sales- in quantity and the amount, if a company desires a profit increase of 20% more than the budgeted profit and selling price is reduced by 10% as above in point (iii).* ***(10 Marks)***

Answer

(a) No. of bags manufactured = 1,000 units

Cost sheet for the month of September 2021

	Particulars	Total Cost (₹)	Cost per unit (₹)
1.	Direct materials consumed:		
	- Leather sheets	3,20,000	320.00
	- Cotton cloths	15,000	15.00
	Add: Freight paid on purchase	8,500	8.50
	(i) Cost of material consumed	3,43,500	343.50
2.	Direct wages (₹80 × 2,000 hours)	1,60,000	160.00
3.	Direct expenses (₹10 × 2,000 hours)	20,000	20.00
4.	**(ii) Prime Cost**	5,23,500	523.50
5.	Factory Overheads: Depreciation on machines {(₹ 22,00,000 × 90%) ÷ 120 months}	16,500	16.50
	Apportioned cost of factory rent	98,000	98.00
6.	**(iii) Works/ Factory Cost**	6,38,000	638.00
7.	*Less:* Realisable value of cuttings (₹150×35 kg.)	(5,250)	(5.25)
8.	**(iv) Cost of Production**	6,32,750	632.75
9.	*Add:* Opening stock of bags	0	
10.	*Less:* Closing stock of bags (100 bags × ₹632.75)	(63,275)	
11.	**(v) Cost of Goods Sold**	5,69,475	632.75
12.	*Add:* Administrative Overheads:		
	- Staff salary	45,000	50.00
	- Apportioned rent for administrative office	12,000	13.33
13.	*Add:* Selling and Distribution Overheads		
	- Staff salary	72,000	80.00
	- Apportioned rent for sales office	10,000	11.11
	- Freight paid on delivery of bags	18,000	20.00
14.	**(vi) Cost of Sales**	7,26,475	807.19

Apportionment of Factory rent:

To factory building {(₹ 1,20,000 ÷ 2400 sq. feet) × 1,960 sq. feet} = ₹ 98,000

To administrative office {(₹ 1,20,000 ÷ 2400 sq. feet) × 240 sq. feet} = ₹ 12,000

To sale office {(₹ 1,20,000 ÷ 2400 sq. feet) × 200 sq. feet} = ₹ 10,000

(b) Variable Cost per Unit=₹16

Fixed Cost per Unit =₹ 4, Total Fixed Cost= 2,00,000 units x ₹ 4 = ₹8,00,000

Total Cost per Unit =₹20

Selling Price per Unit=Total Cost+ Profit =₹ 20+₹ 4 =₹ 24

Contribution per Unit=₹ 24-₹16=₹ 8

(i) Present Break-even Sales (Quantity) = $\frac{\text{Fixed cost}}{\text{Contribution margin per unit}} = \frac{₹\ 8,00,000}{₹\ 8}$

= 1,00,000 units

Present Break-even Sales (₹) = 1,00,000 units × ₹ 24 = ₹ 24,00,000

(ii) Present P/V Ratio = $\frac{8}{24} \times 100 = 33.33\%$

(iii) Revised Selling Price per Unit = ₹ 24 – 10% of ₹ 24 = ₹ 21.60

Revised Contribution per Unit=₹ 21.60-₹ 16 = ₹ 5.60

Revised P/V Ratio = $\frac{5.60}{21.60} \times 100 = 25.926\%$

Revised Break-even point (₹) = $\frac{\text{Fixed cost}}{\text{P/V ratio}} = \frac{8,00,000}{25.926\%} = ₹\ 30,85,705$

Or

Revised Break-even point (units) = $\frac{\text{Fixed cost}}{\text{Contribution margin per unit}} = \frac{8,00,000}{5.60} = 1,42,857$ units

Revised Break-even point (₹) = 1,42,857 units x ₹ 21.60 = ₹ 30,85,711

(iv) Present profit =₹ 8,00,000

Desired Profit = 120% of ₹ 8,00,000 =₹ 9,60,000

Sales to earn a profit of ₹ 9,60,000

Total contribution required = 8.00.000 + 9,60,000 = ₹ 17,60,000

$$\frac{\text{Fixed cost + Desired profit}}{\text{Contribution per unit}} = \frac{8,00,000 + 9,60,000}{5.60} = 3,14,286 \text{ units}$$

Revised sales (in ₹) = 3,14,286 units x ₹ 21.60 = ₹ 67,88,578

Question 3

(a) Paras Travels provides mini buses to an IT company for carrying its employees from home to office and dropping back after office hours. It runs a fleet of 8 mini buses for this purpose. The buses are parked in a garage adjoining the company's premises. Company is operating in two shifts (one shift in the morning and one shift in the afternoon). The distance travelled by each mini bus one way is 30 kms. The company works for 20 days in a month.

The seating capacity of each mini bus is 30 persons. The seating capacity is normally 80% occupied during the year. The details of expenses incurred for a year are as under:

Particulars	
Driver's salary	*₹ 20,000 per driver per month*
Lady attendant's salary (mandatorily required for each mini bus)	*₹ 10,000 per attendant per month*
Cleaner's salary (One cleaner for 2 mini buses)	*₹ 15,000 per cleaner per month*
Diesel (Avg. 8 kms per litre)	*₹ 80 per litre*
Insurance charges (per annum)	*2% of Purchase Price*
License fees and taxes	*₹ 5,080 per mini bus per month*
Garage rent paid	*₹ 24,000 per month*
Repair & maintenance including engine oil and lubricants (for every 5,760 kms)	*₹ 2,856 per mini bus*
Purchase Price of mini bus	*₹ 15,00,000 each*
Residual life of mini bus	*8 Years*
Scrap value per mini bus at the end of residual life	*₹ 3,00,000*

Paras Travels charges two types of fare from the employees. Employees coming from a distance of beyond 15 kms away from the office are charged double the fare which is charged from employees coming from a distance of up-to 15 kms. away from the office. 50% of employees travelling in each trip are coming from a distance beyond 15 kms. from the office. The charges are to be based on average cost.

You are required to:

(i) Prepare a statement showing expenses of operating a single mini bus for a year,

(ii) *Calculate the average cost per employee per month in respect of:*

(a) *Employees coming from a distance upto 15 kms. from the office.*

(b) *Employees coming from a distance beyond 15 kms. from the office.* ***(10 Marks)***

(b) *A Drug Store is presently selling three types of drugs namely 'Drug A', 'Drug B' and 'Drug C'. Due to some constraints, it has decided to go for only one product line of drugs. It has provided the following data for year 2020-21 for each product line:*

	Drugs Types		
	A	B	C
Revenues (in ₹)	74,50,000	1,11,75,000	1,86,25,000
Cost of goods sold (in ₹)	41,44,500	68,16,750	1,20,63,750
Number of purchase orders placed (in nos.)	560	810	630
Number of deliveries received	950	1,000	850
Hours of shelf-stocking time	900	1,250	2,350
Units sold (in Nos.)	1,75,200	1,50,300	1,44,500

Following additional information is also provided:

Activity	Description of activity	Total Cost (₹)	Cost-allocation base
Drug Licence fee	Drug Licence fee	5,00,000	To be distributed in ratio 2:3:5 between A, B and C
Ordering	Placing of orders for purchases	8,30,000	2,000 purchase orders
Delivery	Physical delivery and receipt of foods	18,20,000	2,800 deliveries
Shelf stocking	Stocking of goods	32,40,000	4,500 hours of shelf-stocking time
Customer Support	Assistance provided to customers	28,20,000	4,70,000 units sold

You are required to:

(i) *Calculate the operating income and operating income as a percentage (%) of revenue of each product line if:*

(a) *All the support costs (Other than cost of goods sold) are allocated in the ratio of cost of goods sold.*

(b) All the support costs (Other than cost of goods sold) are allocated using activity-based costing system.

(ii) Give your opinion about choosing the product line on the basis of operating income as a percentage (%) of revenue of each product line under both the situations as above. ***(10 Marks)***

Answer

(a) (i) Statement of Expenses of operating a mini bus in a year

Particulars		Rate (₹)	Per Bus per annum (₹)
(A)	**Standing Charges:**		
	Driver's salary	20,000 p.m	2,40,000
	Lady attendant's salary	10,000 p.m	1,20,000
	Average Cleaner's salary (50%)	15,000 p.m	90,000
	Insurance charge	30,000 p.a.	30,000
	License fee, taxes etc.	5,080 p.m.	60,960
	Average Garage Rent	24,000 p.m	36,000
	Depreciation {(15,00,000 – 3,00,000) ÷ 8}	1,50,000 p.a.	1,50,000
(B)	**Maintenance Charges:**		
	Repairs & maintenance including engine oil and lubricants (Working Note 1)	28,560 p.a.	
(C)	**Operating Charges:**		
	Diesel (Working Note 2)		5,76,000
	Total Cost (A + B + C)		13,31,520
	Cost per month		1,10,960

(ii) Average cost per employee per month:

A. Employee coming from distance of upto 15 km

$$= \frac{\text{Total cost per month}}{\text{Total no. of equivalent employee}} = \frac{1,10,960}{72^*} = ₹\ 1,541.11$$

B. Employee coming from a distance beyond 15 km

= 1541.11 × 2 = ₹ 3,082.22

*** Considering half fare employees as a base**

Full fare employees (12 × 2) 24 employees

Add: Half fare employees (Working Note 3)	12 employees
Total Equivalent number of employees per month	36 employees
Total Equivalent number of employees per month (morning + afternoon shift of company)	72 employees

Working Notes:

1. Calculation of Repairs and maintenance cost of a bus :

Distance travelled in a year:

(4 trip × 2 shifts × 30 km. × 20 days × 12 months)

Distance travelled p.a.: 57,600 km.

Repairs and maintenance cost per Bus per annum:

$$= \frac{57,600 \text{ km.}}{5,760 \text{ km}} \times ₹ 2,856 \text{ per bus}$$

= ₹ 28,560 per annum

2. Calculation of diesel cost per bus per annum:

Distance travelled in a year = 57,600 km

Diesel cost per Bus per annum:

$$= \frac{57,600 \text{ km.}}{8 \text{ Km}} \times ₹ 80$$

= 5,76,000

3. Calculation of equivalent number of employees per bus:

Seating capacity of a bus	30 employees
Occupancy (80% of capacity)	24 employees
Half fare employees (50% of 24 employees)	12 employees
Full fare employees (50% of 24 employees)	12 employee

[**Note**: Total Equivalent number of employees per month (morning + afternoon shift of company can also be calculated considering full fare employees as a base. In that case the number will be 36. Then fare for employees coming from distance beyond 15km will be $\frac{1,10,960}{36}$ = ₹ 3,082.22 and employees coming from distance upto 15 km will be 3,082.22 / 2 = ₹ 1,541.11]

(b) (i) (a) 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)

	Drug A (₹)	Drug B (₹)	Drug C (₹)	Total (₹)
Revenues: (A)	74,50,000	1,11,75,000	1,86,25,000	3,72,50,000
Cost of Goods sold (COGS): (B)	41,44,500	68,16,750	1,20,63,750	2,30,25,000
Support cost (40% of COGS): (C) (Refer working notes)	16,57,800	27,26,700	48,25,500	92,10,000
Total cost: (D) = {(B) + (C)}	58,02,300	95,43,450	1,68,89,250	3,22,35,000
Operating income: E = {(A)-(D)}	16,47,700	16,31,550	17,35,750	50,15,000
Operating income as a % of revenues: (E/A) × 100)	22.12%	14.60%	9.32%	13.46%

Working notes:

1. Total support cost:

	(₹)
Drug Licence Fee	5,00,000
Ordering	8,30,000
Delivery	18,20,000
Shelf stocking	32,40,000
Customer support	28,20,000
Total support cost	92,10,000

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

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

$$= \frac{₹\ 92,10,000}{₹\ 2,30,25,000} \times 100 = 40\%$$

3. Cost for each activity cost driver:

Activity (1)	Total cost (₹) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Ordering	8,30,000	2,000 purchase orders	₹ 415 per purchase order

Delivery	18,20,000	2,800 deliveries	₹ 650 per delivery
Shelf-stocking	32,40,000	4,500 hours	₹ 720 per stocking hour
Customer support	28,20,000	4,70,000 units sold	₹ 6 per unit sold

(b) 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)

	Drug A (₹)	Drug B (₹)	Drug C (₹)	Total (₹)
Revenues: (A)	74,50,000	1,11,75,000	1,86,25,000	3,72,50,000
Cost & Goods sold	41,44,500	68,16,750	1,20,63,750	2,30,25,000
Drug Licence Fee	1,00,000	1,50,000	2,50,000	5,00,000
Ordering cost* (560:810:630)	2,32,400	3,36,150	2,61,450	8,30,000
Delivery cost* (950:1000:850)	6,17,500	6,50,000	5,52,500	18,20,000
Shelf stocking cost* (900:1250:2350)	6,48,000	9,00,000	16,92,000	32,40,000
Customer Support cost* (175200:150300:144500)	10,51,200	9,01,800	8,67,000	28,20,000
Total cost: (B)	67,93,600	97,54,700	1,56,86,700	3,22,35,000
Operating income C: {(A) - (B)}	6,56,400	14,20,300	29,38,300	50,15,000
Operating income as a % of revenues	8.81%	12.71%	15.78%	13.46%

** Refer to working note 3*

(ii) Comparison on the basis of operating income as per the percentage (%) of revenue:

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

	Drug A (₹)	Drug B (₹)	Drug C (₹)	Total (₹)
Operating income as a % of revenues	22.12%	14.60%	9.32%	13.46%

On comparing the operating income as a % of revenue of each product, Drug A is the most profitable product line, though its revenue is least but with highest units sold.

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

	Drug A (₹)	Drug B (₹)	Drug C (₹)	Total (₹)
Operating income as a % of revenues	8.81%	12.71%	15.78%	13.46%

On comparing the operating income as a % of revenue of each product, Drug C is the most profitable product line, though its unit sold is least but with highest revenue.

Question 4

(a) A construction company has obtained a contract of ₹ 30 lakhs contract price.

The following details are available in respect of this contract for the year ended March 31, 2021:

Particulars	*(₹)*
Materials purchased	*2,00,000*
Materials issued from stores	*8,00,000*
Wages paid	*1,50,000*
Plant Supervisor Salary	*2,40,000*
Drawing and maps	*50,000*
Sundry expenses	*30,000*
Electricity charges	*40,000*
Plant hire expenses paid	*75,000*
Sub-contract cost	*40,000*
Materials returned to stores	*35,000*
Materials returned to suppliers	*50,000*

The following balances related to the contract for the year ended on March 31, 2020 and March 31, 2021 are available:

	As on 31st March, 2020 (₹)	*As on 31st March, 2021 (₹)*
Work certified	*2,50,000*	*70% of Contract Price*
Work uncertified	*10,000*	*?*
Materials at site	*35,000*	*25,000*
Wages outstanding	*15,000*	*22,000*
Plant hire charges outstanding	*20,000*	*15,000*

Further informations are as under:

1. *An additional plant was used for 270 days costing ₹ 5,00,000 with a residual value of ₹ 20,000 having life of 4 years.*
2. *During the year, material costing ₹ 40,000 was sold for ₹ 20,000.*
3. *Plant supervisor has devoted 1/3rd of his time to this contract.*
4. *As on 31.03-2021, 80% of the contract was completed.*

You are required to prepare Contract Account and show the notional profit or loss as on 31st March, 2021 (Assume 360 days in a year). ***(10 Marks)***

(b) *R Ltd. showed a Net Profit of ₹ 3,60,740 as per their cost accounts for the year ended 31st March, 2021.*

The following information was revealed as a result of scrutiny of the figures from the both sets of accounts:

Sr. No.	*Particulars*	*(₹)*
i.	*Over recovery of selling overheads in cost accounts*	*10,250*
ii.	*Over valuation of closing stock in cost accounts*	*7,300*
iii.	*Rent received credited in financial accounts*	*5,450*
iv.	*Bad debts provided in financial accounts*	*3,250*
v.	*Income tax provided in financial accounts*	*15,900*
vi.	*Loss on sale of capital asset debited in financial accounts*	*5,800*
vii.	*Under recovery of administration overheads in cost accounts*	*3,600*

Required:

Prepare a reconciliation statement showing the profit as per financial records. ***(5 Marks)***

(c) *What is Bill of Material? Describe the uses of Bill of Material in following departments:*

(i) Purchases Department

(ii) Production Department

(iii) Stores Department

(iv) Cost/Accounting Department ***(5 Marks)***

Answer

(a) **Contract A/c**

Dr. Cr.

Particulars		Amount (₹)	Particulars	Amount (₹)
To Opening Work in progress			By Material returned to store	35,000
- Work certified	2,50,000		By Material returned to suppliers	50,000
- Work uncertified	10,000	2,60,000	By Costing P&L (Loss on sale of material)	20,000
To Material at site		35,000	By Material Sold	20,000
To Material purchased		2,00,000	By Material at site	25,000
To Stores		8,00,000	By Works cost (Bal. fig.)	17,02,000
To Wages	1,50,000			
Add: Closing O/s wages	22,000			
Less: Opening O/s wages	(15,000)	1,57,000		
To Plant supervisor salary (2,40,000 × 1/3)		80,000		
To Drawing and maps		50,000		
To Sundry expenses		30,000		
To Electricity charges		40,000		
To Plant hire expenses	75,000			
Add: O/s at end	15,000			
Less: O/s at beginning	(20,000)	70,000		
To Sub-contract		40,000		
To Depreciation $\left[\frac{5,00,000-20,000}{4} \times \frac{270}{360}\right]$		90,000		
		18,52,000		18,52,000
To works cost		17,02,000	By work in progress:	
To Costing P& L (Notional profit)		6,10,750	Work certified 21,00,000	
			Work uncertified 2,12,750	23,12,750
		23,12,750		23,12,750

Working Note:

Calculation of Value of work uncertified

Cost incurred till date	17,02,000
Estimate total cost $\left[\frac{17,02,000}{80\%}\right]$	21,27,500
Cost of work certified till date (21,27,500 × 70%)	14,89,250
Cost of uncertified work (17,02,000 – 14,89,250)	2,12,750

(b) Statement of Reconciliation

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

	(₹)	(₹)
Net Profit as per Cost Accounts		3,60,740
Add:		
Over recovery of selling overheads in cost accounts	10,250	
Rent received credited in financial accounts	5,450	15,700
		376,440
Less:		
Over valuation of closing stock in cost accounts	7,300	
Bad debts provided in financial accounts	3,250	
Income tax provided in financial accounts	15,900	
Loss on sale of capital asset debited in financial accounts	5,800	
Under recovery of administration overheads in cost accounts	3,600	35,850
Profit as per Financial Accounts		3,40,590

(c) Bill of Material: It is a detailed list specifying the standard quantities and qualities of materials and components required for producing a product or carrying out of any job.

Uses of Bill of Material in different department:

Purchase Department	Production Department	Stores Department	Cost/ Accounting Department
Materials are procured (purchased) on the basis of specifications mentioned in it.	Production is planned according to the nature, volume of the materials required to be used. Accordingly, material requisition lists are prepared.	It is used as a reference document while issuing materials to the requisitioning department.	It is used to estimate cost and profit. Any purchase, issue and usage are compared/ verified against this document.

Question 5

(a) In a manufacturing company the standard units of production for the year were fixed at 1,20,000 units and overhead expenditures were estimated to be as follows:

Particulars	*Amount (₹)*
Fixed	*12,00,000*
Semi-variable (60% expenses are of fixed nature and 40% are of variable nature)	*1,80,000*
Variable	*6,00,000*

Actual production during the month of April, 2021 was 8,000 units. Each month has 20 working days. During the month there was one public holiday. The actual overheads were as follows:

Particulars	*Amount (₹)*
Fixed	*1,10,000*
Semi-variable (60% expenses are of fixed nature and 40% are of variable)	*19,200*
Variable	*48,000*

You are required to calculate the following variances for the month of April 2021:

i. Overhead Cost variance

ii. Fixed Overhead Cost variance

iii. Variable Overhead Cost variance

iv. Fixed Overhead Volume variance

v. Fixed Overhead Expenditure Variance

vi. Calendar Variance ***(10 Marks)***

(b) XYZ Ltd. manufactures a single product. It recovers factory overheads at a pre-determined rate of ₹ 20 per man-day.

During the year 2020-21, the total factory overheads incurred and the man-days actually worked were ₹ 35.50 lakhs and 1.50 lakh days respectively. Out of the amount of ₹ 35.50 lakhs, ₹ 2.00 lakhs were in respect of wages for stick period and ₹ 1.00 lakh was in respect of expenses of previous year booked in this current year. During the period, 50,000 units were sold. At the end of the period, 12,000 completed units were held in stock but there was no opening stock of finished goods. Similarly, there was no stock of uncompleted units at the beginning of the period but at the end of the period there were 20,000 uncompleted units which may be treated as 65% complete in all respects.

On investigation, it was found that 40% of the unabsorbed overheads were due to factory inefficiency and the rest were attributable to increase in the cost of indirect materials and indirect labour. You are required to:

(i) Calculate the amount of unabsorbed overheads during the year 2020-21.

(ii) Show the accounting treatment of unabsorbed overheads in cost accounts and pass journal entry. ***(10 Marks)***

Answer

(a) Working Notes

Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \frac{₹\,12,00,000}{1,20,000\text{ units}}$	₹ 10
Fixed Overheads element in Semi-Variable Overheads i.e. 60% of ₹1,80,000	₹ 1,08,000
Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \frac{₹\,1,08,000}{1,20,000\text{units}}$	₹ 0.90
Standard Rate of Absorption of Fixed Overheads *per unit* (₹10 + ₹0.90)	₹ 10.90
Fixed Overheads Absorbed on 8,000 units @ ₹ 10.90	₹ 87,200
Budgeted Variable Overheads	₹ 6,00,000
Add: Variable element in Semi-Variable Overheads 40% of ₹ 1,80,000	₹ 72,000
Total Budgeted Variable Overheads	₹ 6,72,000
Standard Variable Cost *per unit* = $\frac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}} = \frac{₹\,6,72,000}{1,20,000\text{ units}}$	₹5.60
Standard Variable Overheads for 8,000 units @ ₹5.60	₹ 44,800
Budgeted Annual Fixed Overheads (₹ 12,00,000 + 60% of ₹ 1,80,000)	₹ 13,08,000
Possible Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Days}} \times \text{Actual Days} = \left[\frac{₹\,1,09,000}{20\text{ Days}} \times 19\text{ Days}\right]$	₹ 1,03,550
Actual Fixed Overheads (₹1,10,000 + 60% of ₹ 19,200)	₹ 1,21,520
Actual Variable Overheads (₹48,000 + 40% of ₹19,200)	₹ 55,680

COMPUTATION OF VARIANCES

i. Overhead Cost Variance = Absorbed Overheads – Actual Overheads

= (₹ 87,200 + ₹ 44,800) – (₹ 1,21,520 + ₹ 55,680)

= ₹ 45,200 (A)

ii. Fixed Overhead Cost Variance = Absorbed Fixed Overheads – Actual Fixed Overheads

= ₹ 87,200 – ₹ 1,21,520

= ₹ 34,320 (A)

iii. Variable Overhead Cost Variance = Standard Variable Overheads for Production– Actual Variable Overheads

= ₹ 44,800 – ₹ 55,680

= ₹ 10,880 (A)

iv. Fixed Overhead Volume Variance = Absorbed Fixed Overheads – Budgeted Fixed Overheads

= ₹ 87,200 – ₹1,09,000

= ₹ 21,800 (A)

v. Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads – Actual Fixed Overheads

= ₹ 10.90 × 10,000 units – ₹ 1,21,520

= ₹ 12,520 (A)

vi. Calendar Variance = Possible Fixed Overheads – Budgeted Fixed Overheads

= ₹ 1,03,550 – ₹ 1,09,000

= ₹ 5,450 (A)

OR

Calendar Variance = (Actual days – Budgeted days) x Standard fixed overhead rate per day

Standard fixed overhead rate per day = 1308000/20*12 = ₹ 5450

Fixed Overhead Calendar Variance = (19-20) x 5450 = 5450(A)

(b) (i) Amount of under-absorption of overheads during the year 2020-21

		(₹)
Total production overheads actually incurred during the year 2020-21		35,50,000
Less: Wages paid during strike period	₹2,00,000	
Wages of previous year booked in current year	₹ 1,00,000	3,00,000
Net production overheads actually incurred: (A)		32,50,000
Production overheads absorbed by 1.50 lakh man-days @ ₹ 20 per man-day: (B)		30,00,000
Amount of under-absorption of production overheads: [(A)–(B)]		2,50,000

(ii) Accounting treatment of under absorption of production overheads: It is given in the statement of the question that 62,000 units (50,000 sold + 12,000 closing stock – 0 opening stock) were completely finished and 20,000 units were 65% complete, 40% of the under-absorbed overheads were due to factory inefficiency and the rest were attributable to increase in cost of indirect materials and indirect labour.

	(₹)
1. (40% of ₹2,50,000) i.e. ₹ 1,00,000 of under – absorbed overheads were due to factory inefficiency. This being abnormal, should be debited to the Costing Profit and Loss A/c	1,00,000
2. Balance (60% of ₹ 2,50,000) i.e. ₹ 1,50,000 of under – absorbed overheads should be distributed over work-in-progress, finished goods and cost of sales by using supplementary rate	1,50,000
Total under-absorbed overheads	2,50,000

Apportionment of unabsorbed overheads of ₹1,50,000 over work-in-progress, finished goods and cost of sales.

	Equivalent Completed units	(₹)
Work-in-progress (13,000 units × ₹ 2) (Refer to Working Note)	20000 * 65% = 13,000	26,000
Finished goods (12,000 units × ₹ 2)	12,000	24,000
Cost of sales (50,000 units × ₹ 2)	50,000	1,00,000
	75,000	1,50,000

Journal entry:

Work-in-progress control A/c	Dr.	₹ 26,000	
Finished goods control A/c	Dr.	₹ 24,000	
Cost of Sales A/c	Dr.	₹ 1,00,000	
Costing Profit & Loss A/c	Dr.	₹ 1,00,000	
To Overhead control A/c			₹ 2,50,000

Working Note:

Supplementary overhead absorption rate $= \frac{₹\ 1,50,000}{75,000 \text{ units}} = ₹\ 2$ per unit

Question 6

Answer any four of the following:

(a) Briefly explain the 'techniques of costing'.

(b) Narrate the terms 'Joint Products' and 'By-Products' with an example of each term.

(c) Discuss the steps involved in setting labour time standards.

(d) What is 'Budgetary Control System' and discuss the components of the same.

(e) Describe the difference between 'Cost Control' and 'Cost Reduction'. ***(4 x 5 = 20 Marks)***

Answer

(a)

Techniques	Description
Uniform Costing	When a number of firms in an industry agree among themselves to follow the same system of costing in detail, adopting common terminology for various items and processes they are said to follow a system of uniform costing. Advantages of such a system are: i. A comparison of the performance of each of the firms can be made with that of another, or with the average performance in the industry. ii. Under such a system, it is also possible to determine the cost of production of goods which is true for the industry as a whole. It is found useful when tax-relief or protection is sought from the Government.
Marginal Costing	It is defined as the ascertainment of marginal cost by differentiating between fixed and variable costs. It is used to ascertain effect of changes in volume or type of output on profit.

Standard Costing and Variance Analysis	It is the name given to the technique whereby *standard costs are pre-determined and subsequently compared with the recorded actual costs.* It is thus a technique of cost ascertainment and cost control. This technique may be used in conjunction with any method of costing. However, it is especially suitable where the manufacturing method involves production of standardised goods of repetitive nature.
Historical Costing	It is the ascertainment of costs after they have been incurred. This type of costing has limited utility. • *Post Costing*: It means ascertainment of cost after production is completed. • *Continuous costing*: Cost is ascertained as soon as the job is completed or even when the job is in progress.
Absorption Costing	It is the practice of charging all costs, both variable and fixed to operations, processes or products. This differs from marginal costing where fixed costs are excluded.
Direct costing	Direct costing is a specialized form of cost analysis that only uses variable costs to make decisions. It does not consider fixed costs, which are assumed to be associated with the time periods in which they are incurred.

(b) (i) **Joint Products** - Joint products represent "two or more products separated in the course of the same processing operation usually requiring further processing, each product being in such proportion that no single product can be designated as a major product".

In other words, two or more products of equal importance, produced, simultaneously from the same process, with each having a significant relative sale value are known as joint products.

For example, in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum. These are known as joint products.

(ii) **By-Products** - These are defined as "products recovered from material discarded in a main process, or from the production of some major products, where the material value is to be considered at the time of severance from the main product." Thus, by-products emerge as a result of processing operation of another product or they are produced from the scrap or waste of materials of a process. In short, a by-product is a secondary or subsidiary product which emanates as a result of manufacture of the main product.

The point at which they are separated from the main product or products is known as split-off point. The expenses of processing are joint till the split –off point.

Examples of by-products are molasses in the manufacture of sugar, tar, ammonia and benzole obtained on carbonisation of coal and glycerine obtained in the manufacture of soap.

(c) Procedure of Setting Labour Time Standards

The following are the steps involved in setting labour standards:

(a) **Standardisation:** Products to be produced are decided based on production plan and customer's order.

(b) **Labour specification:** Types of labour and labour time is specified. Labour time specification is based on past records and it takes into account normal wastage of time.

(c) **Standardisation of methods:** Selection of proper machines to use proper sequence and method of operations.

(d) **Manufacturing layout:** A plan of operation for each product listing the operations to be performed is prepared.

(e) **Time and motion study:** It is conducted for selecting the best way of completing the job or motions to be performed by workers and the standard time which an average worker will take for each job. This also takes into account the learning efficiency and learning effect.

(f) **Training and trial:** Workers are trained to do the work and time spent at the time of trial run is noted down.

(d) **Budgetary Control System:** It is the system of management control and accounting in which all the operations are forecasted and planned in advance to the extent possible and the actual results compared with the forecasted and planned results.

Components of Budgetary Control System: The policy of a business for a defined period is represented by the master budget, the detailed components of which are given in a number of individual budgets called functional budgets. These functional budgets are broadly grouped under the following heads:

1. **Physical budgets:** Those budgets which contain information in quantitative terms such as the physical units of sales, production etc. This may include quantity of sales, quantity of production, inventories, and manpower budgets are physical budgets.

2. **Cost budgets:** Budgets which provides cost information in respect of manufacturing, administration, selling and distribution, etc. for example, manufacturing costs, selling costs, administration cost, and research and development cost budgets are cost budgets.

3. **Profit budgets:** A budget which enables the ascertainment of profit. For example, sales budget, profit and loss budget, etc.

4. **Financial budgets:** A budget which facilitates in ascertaining the financial position of a concern, for example, cash budgets, capital expenditure budget, budgeted balance sheet etc.

(e)

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 improvise 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 and is a continuous process.