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) Following data is available for ABC Ltd.:

Standard working hours	*8 hours per day of 5 days per week*
Maximum Capacity	*60 employees*
Actual working	*50 employees*
Actual hours expected to be worked per four week	*8,000 hours*
Standard hours expected to be earned per four week	*9,600 hours*
Actual hours worked in the four week period	*7,500 hours*
Standard hours earned in the four week period	*8,800 hours*

The related period is of four weeks. Calculate the following Ratios :

(i) Efficiency Ratio

(ii) Activity Ratio

(iii) Standard Capacity Usage Ratio

(iv) Actual Capacity Usage Ratio

(v) Actual Usage of Budgeted Capacity Ratio

(b) M/s Zeba Private Limited allotted a standard time of 40 hours for a job and the rate per hour is ₹75. The actual time taken by a worker is 30 hours.

You are required to calculate the total earnings under the following plans:

(i) Halsey Premium Plan (Rate 50%)

(ii) Rowan Plan

(iii) Time Wage System

(iv) Piece Rate System

(v) *Emerson Plan*

(c) *A Factory is engaged in the production of chemical Bomex and in the course of its manufacture a by-product Cromex is produced which after further processing has a commercial value. For the month of April 2019 the following are the summarised cost data:*

	Joint Expenses (₹)	*Separate Expenses (₹)*	
		Bomex	*Cromex*
Materials	*1,00,000*	*6,000*	*4,000*
Labour	*50,000*	*20,000*	*18,000*
Overheads	*30,000*	*10,000*	*6,000*
Selling Price per unit		*100*	*40*
Estimated profit per unit on sale of Cromex			*5*
Number of units produced		*2,000 units*	*2,000 units*

The factory uses net realisable value method for apportionment of joint cost to by-products.

You are required to prepare statements showing :

(i) *Joint cost allocable to Cromex*

(ii) *Product wise and overall profitability of the factory for April 2019.*

(d) *M/s Abid Private Limited disclosed a net profit of ₹ 48,408 as per cost books for the year ending 31st March 2019. However, financial accounts disclosed net loss of ₹ 15,000 for the same period. On scrutinizing both the set of books of accounts, the following information was revealed:*

Works Overheads under-recovered in Cost Books	*48,600*
Office Overheads over-recovered in Cost Books	*11,500*
Dividend received on Shares	*17,475*
Interest on Fixed Deposits	*21,650*
Provision for doubtful debts	*17,800*
Obsolescence loss not charged in Cost Accounts	*17,200*
Stores adjustments (debited in Financial Accounts)	*35,433*
Depreciation charged in financial accounts	*30,000*
Depreciation recovered in Cost Books	*35,000*

Prepare a Memorandum Reconciliation Account.

(4 x 5 = 20 Marks)

Answer

(a) (i) Efficiency Ratio:

$$= \frac{\text{Standard Hrs}}{\text{Actual Hrs}} \times 100 \qquad = \frac{8{,}800 \text{ hours}}{7{,}500 \text{ hours}} \times 100 \qquad = \mathbf{117.33\%}$$

(ii) Activity Ratio:

$$= \frac{\text{Standard Hrs}}{\text{Budgeted Hrs}} \times 100 \qquad = \frac{8{,}800 \text{ hours}}{8{,}000 \text{ hours}} \times 100 \qquad = \mathbf{110\%}$$

(iii) Standard Capacity Usage Ratio:

$$= \frac{\text{Budgeted Hours}}{\text{Max. possible hours in the budgeted period}} \times 100$$

$$= \frac{8{,}000 \text{ hours}}{9{,}600 \text{ hours}} \times 100 = \mathbf{83.33\%}$$

(iv) Actual Capacity Usage Ratio:

$$= \frac{\text{Actual Hours worked}}{\text{Max. possible working hours in a period}} \times 100$$

$$= \frac{7{,}500 \text{ hours}}{9{,}600 \text{ hours}} \times 100 = \mathbf{78.125\%}$$

(v) Actual Usage of Budgeted Capacity Ratio:

$$= \frac{\text{Actual working Hours}}{\text{Budgeted Hours}} \times 100 \qquad = \frac{7{,}500 \text{ hours}}{8{,}000 \text{ hours}} \times 100 = \mathbf{93.75\%}$$

Working Notes:

1. Maximum Capacity in a budget period
   = 60 Employees × 8 Hrs. × 5 Days × 4 Weeks = 9,600 Hrs.
2. Budgeted Hours (Hrs)
   = 50 Employees × 8 Hrs. × 5 Days × 4 Weeks = 8,000 Hrs.
3. Actual Hrs. = 7,500 Hrs. (given)
4. Standard Hrs. for Actual Output = 8,800 Hrs.

(b) (i) Halsey Premium plan:

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

$= (30 \text{ hours} \times \text{Rs.}75) + (\frac{1}{2} \times 10 \text{ hours} \times \text{Rs.}75)$

= ₹ 2,250 + ₹ 375 = ₹ **2,625**

(ii) Rowan Premium plan:

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

$= (30 \text{ hours} \times ₹ 75) + \left(\frac{10}{40} \times 30 \times ₹ 75 \right)$

= ₹ 2,250 + ₹ 562.5 = ₹ **2,812.5 or** ₹ **2,813**

(iii) Time wage system:

= Time taken × Rate per hour

= 30 × ₹ 75 = ₹ **2,250**

(iv) Piece Rate System:

= Std. Time × Rate per hour

= 40 × ₹ 75 = ₹ **3,000**

(v) Emerson plan:

Efficiency level = 40/30 = 133.33%

Time taken × (120% + 33.33%) of Rate

= 30 hours × 153.33% of ₹ 75

= ₹ **3,450**

(c) (i) Statement Showing Joint Cost Allocation to 'Cromex'

Particulars	Cromex (₹)
Sales (₹ 40 × 2,000 units)	80,000
Less: Post Split Off Costs (4,000+18,000+6,000)	(28,000)
Less: Estimated Profit (₹ 5 × 2,000 units)	(10,000)
Joint cost allocable	**42,000**

(ii) Statement Showing Product Wise and Overall Profitability

Particulars	Bomex (₹)	Cromex (₹)	Total (₹)
Sales	2,00,000	80,000	2,80,000
Less: Share in Joint Expenses	**(1,38,000)***	(42,000)	(1,80,000)
Less: Post Split Off Costs	(36,000)	(28,000)	(64,000)
Profit	**26,000**	**10,000**	**36,000**

(*) 1,80,000 – 42,000

(d) Memorandum Reconciliation Account

Dr. Cr.

Particulars	(₹)	Particulars	(₹)
To Works overheads under recovered in Cost Accounts	48,600	By Net profit as per Costing books	48,408
To Provision for doubtful debts	17,800	By Office overheads over recovered in cost accounts	11,500
To Obsolescence loss	17,200	By Dividend received on shares	17,475
To Store adjustment (Debit)	35,433	By Interest on fixed deposit	21,650
		By Depreciation over-charged	5,000
		By Net loss as per financial accounts	15,000
	1,19,033		1,19,033

[Note: This question may also be solved by taking net loss as per financial accounts as basis.]

Question 2

(a) M/s Areeba Private Limited has a normal production capacity of 36,000 units of toys per annum. The estimated costs of production are as under:

(i) Direct Material ₹40 per unit

(ii) Direct Labour ₹30 per unit (subject to a minimum of ₹48,000 p.m.)

(iii) Factory Overheads:

(a) Fixed ₹3,60,000 per annum

(b) Variable ₹10 per unit

(c) *Semi-variable* ₹ 1,08,000 per annum up to 50% capacity and additional ₹ 46,800 for every 20% increase in capacity or any part thereof.

(iv) *Administrative Overheads ₹5, 18,400 per annum (fixed)*

(v) *Selling overheads are incurred at ₹8 per unit.*

(vi) *Each unit of raw material yields scrap which is sold at the rate of ₹5 per unit.*

(vii) *In year 2019, the factory worked at 50% capacity for the first three months but it was expected that it would work at 80% capacity for the remaining nine months.*

(viii) *During the first three months, the selling price per unit was ₹145.*

You are required to:

(i) *Prepare a cost sheet showing Prime Cost, Works Cost, Cost of Production and Cost of Sales.*

(ii) *Calculate the selling price per unit for remaining nine months to achieve the total annual profit of ₹8,76,600.* ***(10 Marks)***

(b) *KT Ltd. produces a product EMM which passes through two processes before it is completed and transferred to finished stock. The following data relate to May 2019:*

Particulars	*Process*		*Finished stock*
	A (₹)	*B* (₹)	(₹)
Opening Stock	5,000	5,500	10,000
Direct Materials	9,000	9,500	
Direct Wages	5,000	6,000	
Factory Overheads	4,600	2,030	
Closing Stock	2,000	2,490	5,000
Inter-process profit included in opening stock		1,000	4,000

Output of Process A is transferred to Process B at 25% profit on the transfer price and output of Process B is transferred to finished stock at 20% profit on the transfer price. Stock in process is valued at prime cost. Finished stock is valued at the price at which it is received from Process B. Sales during the period are ₹75,000.

Prepare the Process cost accounts and Finished stock account showing the profit element at each stage. ***(10 Marks)***

Answer

(a) (i) Cost Sheet of M/s Areeba Pvt. Ltd. for the year 2019.

Normal Capacity: 36,000 units p.a.

Particulars	3 Months 4,500 Units		9 Months 21,600 units	
	Amount (₹)	Cost per unit (₹)	Amount (₹)	Cost per unit (₹)
Direct material	1,80,000		8,64,000	
Less: Scrap	(22,500)		(1,08,000)	
Materials consumed	1,57,500	35	7,56,000	35
Direct Wages	1,44,000	32	6,48,000	30
Prime Cost	**3,01,500**	67	**14,04,000**	65
Factory overheads:				
- Fixed	90,000		2,70,000	
- Variable	45,000		2,16,000	
- Semi variable	27,000	36	1,51,200	29.50
Works Cost	**4,63,500**	103	**20,41,200**	94.50
Add: Administrative overheads	1,29,600	28.80	3,88,800	18
Cost of Production	**5,93,100**	131.80	**24,30,000**	112.5
Selling Overheads	36,000	8	1,72,800	8
Cost of Sales	**6,29,100**	139.80	**26,02,800**	120.5

Working Notes:

1. Calculation of Costs

Particulars	4,500 units	21,600 units
	Amount (₹)	Amount (₹)
Material	1,80,000 (₹ 40 × 4,500 units)	8,64,000 (₹40 × 21,600 units)
Wages	1,44,000 (Max. of ₹ 30 × 4,500 units = ₹1,35,000 and ₹ 48,000 × 3 months = ₹1,44,000)	6,48,000 (21600 Units×30)
Variable Cost	45,000 (₹10 × 4,500 units)	2,16,000 (₹10 × 21,600 units)
Semi-variable Cost	27,000 ($\frac{₹\,1,08,000}{12\ \text{Months}}$ ×3 Months)	1,51,200[($\frac{₹\ 1,08,000}{12\ \text{Months}}$ ×9 Months)

		+46,800(for 20 % increase) +23,400(for 10% increase)
Selling Overhead	36,000 (₹8 × 4,500 units)	1,72,800(₹ 8 × 21,600 units)

Notes:

1. Alternatively scrap of raw material can also be reduced from Work cost.
2. Administrative overhead may be treated alternatively as a part of general overhead. In that case, Works Cost as well as Cost of Production will be same i.e. ` 4,63,500 and Cost of Sales will remain same as ` 6,29,100.

(ii) Calculation of Selling price for nine months period

Particulars	Amount (₹)
Total Cost of sales ₹ (6,29,100+26,02,800)	32,31,900
Add: Desired profit	8,76,600
Total sales value	41,08,500
Less: Sales value realised in first three months (₹145 × 4,500 units)	(6,52,500)
Sales Value to be realised in next nine months	**34,56,000**
No. of units to be sold in next nine months	21,600
Selling price per unit (₹ 34,56,000 ÷ 21,600 units)	**160**

(b) Process-A A/c

Particulars	Total (₹)	Cost (₹)	Profit (₹)	Particulars	Total (₹)	Cost (₹)	Profit (₹)
Opening stock	5,000	5,000	_	Process B A/c	**28,800**	**21,600**	**7,200**
Direct materials	9,000	9,000	_				
Direct wages	5,000	5,000	_				
	19,000	19,000	_				
Less: Closing stock	(2,000)	(2,000)	_				
Prime Cost	17,000	17,000	_				
Overheads	4,600	4,600	_				
Process Cost	**21,600**	**21,600**	_				

Profit (33.33% of total cost)	**7,200**	**-**	**7,200**				
	28,800	21,600	7,200		28,800	21,600	7,200

Process-B A/c

Particulars	Total (₹)	Cost (₹)	Profit (₹)	Particulars	Total (₹)	Cost (₹)	Profit (₹)
Opening stock	5,500	4,500	1,000	Finished stock A/c	**61,675**	**41,550**	**20,125**
Process A A/c	28,800	21,600	7,200				
Direct materials	9,500	9,500	_				
Direct wages	6,000	6,000	_				
	49,800	41,600	8,200				
Less: Closing stock	**(2,490)**	**(2,080)**	**(410)**				
Prime Cost	**47,310**	**39,520**	7,790				
Overheads	2,030	2,030	_				
Process Cost	49,340	41,550	7,790				
Profit (25% of total cost)	**12,335**	**-**	**12,335**				
	61,675	41,550	20,125		61,675	41,550	20,125

Finished Stock A/c

Particulars	Total (₹)	Cost (₹)	Profit (₹)	Particulars	Total (₹)	Cost (₹)	Profit (₹)
Opening stock	10,000	6,000	4,000	Costing P&L A/c	**75,000**	**44,181**	**30,819**
Process B A/c	61,675	41,550	20,125				
	71,675	47,550	24,125				
Less: Closing stock	**(5,000)**	**(3,369)**	**(1,631)**				
COGS	66,675	44,181	22,494				
Profit	**8,325**	-	**8,325**				
	75,000	44,181	30,819		75,000	44,181	30,819

Question 3

(a) A gang of workers normally consists of 30 skilled workers, 15 semi-skilled workers and 10 unskilled workers. They are paid at standard rate per hour as under:

Skilled ₹ 70

Semi-skilled ₹ 65

Unskilled ₹ 50

In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output. During the week ended 31st March, 2019, the gang consisted of 40 skilled, 10 semi-skilled and 5 unskilled workers. The actual wages paid were at the rate of ₹ 75, ₹ 60 and ₹ 52 per hour respectively. Four hours were lost due to machine breakdown and 1,600 units were produced.

Calculate the following variances showing clearly adverse (A) or favourable (F)

(i) Labour Cost Variance *(ii) Labour Rate Variance*

(iii) Labour Efficiency Variance *(iv) Labour Mix Variance*

(v) Labour Idle Time Variance ***(10 Marks)***

(b) MNO Ltd. manufactures two types of equipment A and B and absorbs overheads on the basis of direct labour hours. The budgeted overheads and direct labour hours for the month of March 2019 are ₹ 15,00,000 and 25,000 hours respectively. The information about the company's products is as follows:

	Equipment	
	A	B
Budgeted Production Volume	3,200 units	3,850 units
Direct Material Cost	₹ 350 per unit	₹ 400 per unit
Direct Labour Cost		
A: 3 hours @ ₹ 120 per hour	₹ 360	
B: 4 hours @ ₹ 120 per hour		₹ 480

Overheads of ₹ 15,00,000 can be identified with the following three major activities:

Order Processing: ₹ 3,00,000

Machine Processing: ₹ 10,00,000

Product Inspection: ₹ 2,00,000

These activities are driven by the number of orders processed, machine hours worked and inspection hours respectively. The data relevant to these activities is as follows:

	Orders processed	Machine hours worked	Inspection hours
A	400	22,500	5,000
B	200	27,500	15,000
Total	600	50,000	20,000

Required:

(i) Prepare a statement showing the manufacturing cost per unit of each product using the absorption costing method assuming the budgeted manufacturing volume is attained.

(ii) Determine cost driver rates and prepare a statement showing the manufacturing cost per unit of each product using activity based costing, assuming the budgeted manufacturing volume is attained.

(iii) MNO Ltd.'s selling prices are based heavily on cost. By using direct labour hours as an application base, calculate the amount of cost distortion (under costed or over costed) for each equipment. ***(10 Marks)***

Answer

(a) (i) Labour Cost Variance = Standard Cost – Actual Cost

= ₹1,14,400 – ₹1,54,400

= **40,000 (A)**

(1,600*75+400*60+200*52= ₹1,54,400)

Or

Types of workers	Standard Cost – Actual Cost	**Amount (₹)**
Skilled Workers	(30x40x70/2,000x1,600)- (40x40x75) 67,200-1,20,000	52,800 (A)
Semi- Skilled	(15x40x65/2,000x1,600)- (10x40x60) 31,200-24,000	7,200 (F)
Un-Skilled Workers	(10x40x50/2,000x1,600)- (5x40x52) 16,000-10,400	5,600 (F)
Total	1,14,400-1,54,400	**40,000 (A)**

(ii) Labour Rate Variance

Types of workers	**Actual Hours × (Standard Rate - Actual Rate)**	**Amount (₹)**
Skilled Workers	1,600 hours × (₹70.00 – ₹75.00)	8,000 (A)
Semi- Skilled	400 hours × (₹65.00 – ₹60.00)	2,000 (F)
Un-Skilled Workers	200 hours × (₹50.00 – ₹52.00)	400 (A)
Total	₹8,000 (A) + ₹2,000 (F) + ₹400 (A)	**6,400 (A)**

(iii) Labour Efficiency Variance

Types of workers	Standard Rate × (Standard Hours – Actual Hours)	**Amount (₹)**
Skilled Workers	₹70.00 × (960 hours – 1,440 hours)	33,600 (A)
Semi- Skilled	₹65.00 × (480 hours – 360 hours)	7,800 (F)
Un-Skilled Workers	₹50.00 × (320 hours – 180 hours)	7,000 (F)
Total	33,600 (A) + 7,800 (F) + 7,000 (F)	**18,800 (A)**

Alternatively labour efficiency can be calculated on basis of labour hours paid

Types of workers	**Standard Rate × (Standard Hours – Actual Hours)**	**Amount (₹)**
Skilled Workers	70.00 × (960 hours – 1600 hours)	44,800 (A)
Semi- Skilled	65.00 × (480 hours – 400 hours)	5,200 (F)
Un-Skilled Workers	50.00 × (320 hours – 200 hours)	6,000 (F)
Total	33,600 (A) + 7,800 (F) + 7,000 (F)	**33,600 (A)**

(iv) Labour Mix Variance

= Total Actual Time *Worked* (hours) × {*Average* Standard Rate *per hour* of Standard Gang Less *Average* Standard Rate *per hour* of Actual Gang}

@on the basis of hours worked

$$= 1{,}980 \text{ hours} \times \left(\frac{₹1{,}14{,}400}{1{,}760 \text{ hrs.}} - \frac{1{,}440\text{hrs.} \times ₹70 + 360\text{hrs.} \times ₹65 + 180\text{hrs.} \times ₹50}{1{,}980 \text{ hrs.}} \right)$$

= **₹ 4,500 (A)**

Or

Labour Mix Variance

Types of workers	Std. Rate × (Revised Actual Hours *Worked*- *Actual Hours Worked*)	**Amount (₹)**
Skilled Workers	₹70 × (1,080 hrs. – 1440 hrs.)	25,200 (A)
Semi- Skilled	₹65 × (540 hrs. – 360 hrs.)	11,700 (F)
Un Skilled Workers	₹50 × (360 hrs. – 180 hrs.)	9,000 (F)
Total	₹25,200 (A) + ₹11,700 (F) + ₹9,000 (F)	**4,500 (A)**

(v) Labour Idle Time Variance

Types of workers	Standard Rate × (Hours Paid – Hours Worked)	Amount (₹)
Skilled Workers	₹70.00 × (1,600 hours – 1,440 hours)	11,200 (A)
Semi- Skilled	₹65.00 × (400 hours – 360 hours)	2,600 (A)
Un-Skilled Workers	₹50.00 × (200 hours – 180 hours)	1,000 (A)
Total	11,200 (A) + 2,600 (A) + 1,000 (A)	**14,800 (A)**

Verification:

Labour Cost Variance

= Labour Rate Variance + Labour Efficiency Variance + Labour Idle Time Variance

= 6,400 (A) + 18,800 (A) + 14,800 (A) = ₹ 40,000 (A)

Labour Cost Variance

= Labour Rate Variance + Labour Efficiency Variance

= 6400(A) + 33600(A)= ₹40000(A)

In this case, labour idle time variance is a part of labour efficiency variance.

Working Notes:

Category	Standard Cost			Actual (1600 units)			Revised Actual Hours
	Hrs.	Rate	Amt. (₹)	Hrs.	Rate	Amt. (₹)	
Skilled	960 (30Wx40x1,600/2,000)	70.00	67,200	1,440 (40Wx36)	75.00	1,08,000	1,080 (1,980x6/11)
Semi-Skilled	480 (15Wx40 x1,600/2,000)	65.00	31,200	360 (10Wx36)	60.00	21,600	540 (1,980x3/11)
Unskilled	320 (10Wx40 x1,600/2,000)	50.00	16,000	180 (5Wx36)	52.00	9,360	360 (1,980x2/11)
Total	1,760	65	1,14,400	1,980		1,38,960	1,980

(b) (i) Overheads application base: Direct labour hours

	Equipment A (₹)	Equipment B (₹)
Direct material cost	350	400
Direct labour cost	360	480

Overheads*	**180**	**240**
	890	**1120**

*Pre-determined rate = $\frac{\text{Budgeted overheads}}{\text{Budgeted direct labour hours}} = \frac{₹\ 15,00,000}{25,000 \text{ hours}} = ₹60$

(ii) Estimation of Cost-Driver rate

Activity	**Overhead cost**	**Cost-driver level**	**Cost driver rate**
	(₹)		**(₹)**
Order processing	3,00,000	600 Orders processed	500
Machine processing	10,00,000	50,000 Machine hours	20
Inspection	2,00,000	15,000 Inspection hours	10

	Equipment	**Equipment**
	A (₹)	**B (₹)**
Direct material cost	350	400
Direct labour cost	360	480
Prime Cost(A)	710	880
Overhead Cost		
Order processing 400: 200	**2,00,000**	**1,00,000**
Machine processing 22,500: 27,500	**4,50,000**	**5,50,000**
Inspection 5,000: 15,000	**50,000**	**1,50,000**
Total overhead cost	7,00,000	8,00,000

(Overheads cost per unit for each overhead can also be calculated)

Per unit cost	**A (₹)**	**B (₹)**
7,00,000 /3,200 **(B)-A**	218.75	
8,00,000/ 3,850 **(B)-B**		207.79
Unit manufacturing cost **(A+B)**	**928.75**	**1,087.79**

(iii) Calculation of Cost Distortion

	Equipment A (₹)	Equipment B (₹)
Unit manufacturing cost–using direct labour hours as an application base	890.00	1,120.00
Unit manufacturing cost-using activity based costing	928.75	1,087.79
Cost distortion	**-38.75**	**32.21**

Question 4

(a) X Ltd. distributes' its goods to a regional dealer using single lorry. The dealer premises are 40 kms away by road. The capacity of the lorry is 10 tonnes. The lorry makes the journey twice a day fully loaded on the outward journey and empty on return journey. The following information is available:

Diesel Consumption	*8 km per litre*
Diesel Cost	*₹60 per litre*
Engine Oil	*₹200 per week*
Driver's Wages (fixed)	*₹2,500 per week*
Repairs	*₹600 per week*
Garage Rent	*₹800 per week*
Cost of Lorry (excluding cost of tyres)	*₹9,50,000*
Life of Lorry	*1,60,000 kms*
Insurance	*₹18,200 per annum*
Cost of Tyres	*₹52,500*
Life of Tyres	*25,000 kms*
Estimated sale value of the lorry at end of its life is	*₹1,50,000*
Vehicle License Cost	*₹7,800 per annum*
Other Overhead Cost	*₹41,600 per annum*

The lorry operates on a 5 day week.

Required:

(i) A statement to show the total cost of operating the vehicle for the four week period analysed into Running cost and Fixed cost.

(ii) *Calculate the vehicle operating cost per km and per tonne km. (Assume 52 weeks in a year)* ***(10 Marks)***

(b) *The following are the details of receipt and issue of material 'CXE' in a manufacturing Co. during the month of April 2019:*

Date	*Particulars*	*Quantity (kg)*	*Rate per kg*
April 4	*Purchase*	*3,000*	*₹16*
April8	*Issue*	*1,000*	
April15	*Purchase*	*1,500*	*₹18*
April 20	*Issue*	*1,200*	
April 25	*Return to supplier out of purchase made on April 15*	*300*	
April 26	*Issue*	*1,000*	
April 28	*Purchase*	*500*	*₹17*

Opening stock as on 01-04-2019 is 1,000 kg @ ₹15 per kg.

On 30th April, 2019 it was found that 50 kg of material 'CXE' was fraudulently misappropriated by the store assistant and never recovered by the Company.

Required:

(i) *Prepare a store ledger account under each of the following method of pricing the issue:*

(a) *Weighted Average Method*

(b) *LIFO*

(ii) *What would be the value of material consumed and value of closing stock as on 30-04-2019 as per these two methods?* ***(10 Marks)***

Answer

(a) Working Notes:

Particulars	**For 4 weeks**	**For 1 week (by dividing by 4)**
Total distance travelled (40 k.m × 2 × 2 trips × 5 days × 4 weeks)	3,200 km	800 km
Total tonne km (40 k.m × 10 tonnes × 2 × 5 days × 4 weeks)	16,000 tonne km	4,000 tonne km

(i) Statement showing Operating Cost

Amount (₹)

	Particulars	For 4 weeks	For 1 week (by dividing by 4)
A.	**Fixed Charges:**		
	Drivers' wages (₹2,500 × 4 weeks)	10,000	2,500
	Garage rent (₹800 × 4 weeks)	3,200	800
	Insurance {(₹18,200 ÷ 52 weeks) × 4 weeks}	1,400	350
	Vehicle license {(₹7,800 ÷ 52 weeks) × 4 weeks}	600	150
	Other overheads cost {(₹41,600 ÷ 52 weeks) × 4 weeks}	3,200	800
	Total (A)	**18,400**	**4,600**
B.	**Running Cost:**		
	Cost of diesel {(3,200 ÷ 8 kms) × ₹60}	24,000	6,000
	Engine Oil (₹200 × 4 weeks)*	800	200
	Repairs (₹600 × 4 weeks)*	2,400	600
	Depreciation on vehicle $\left(\frac{₹9,50,000 - ₹1,50,000}{1,60,000\,km} \times 3,200\,km\right)$	16,000	4,000
	Depreciation on tyres $\left(\frac{₹52,500}{25,000\,km} \times 3,200\,km\right)$	6,720	1,680
	Total (B)	**49,920**	**12,480**
C.	**Total Cost (A + B)**	**68,320**	**17,080**

*Cost of engine oil & repairs may also be treated as fixed cost, as the question relates these with time i.e. in weeks instead of running of vehicle.

(ii) Calculation of vehicle operating cost:

Operating cost per k.m. = $\frac{₹\ 68,320}{3,200\ kms}$ **or** $\frac{₹\ 17,080}{800\ Kms}$ = **₹ 21.35**

Operating cost per Tonne-k.m. = $\frac{₹\ 68,320}{16,000}$ or $\frac{₹\ 17,080}{4,000}$ = **₹ 4.27**

(b) (i) (a) Stores Ledger Account for the month of April, 2019 (Weighted Average Method)

	Receipt			Issue			Balance		
Date	Qty Units	Rate (₹)	Amount (₹)	Qty Units	Rate (₹)	Amount (₹)	Qty Units	Rate (₹)	Amount (₹)
1-4-19	_	_	_	_	_	_	1,000	15.00	15,000
4-4-19	3,000	16.00	48,000	_	_	_	4,000	15.75	63,000
8-4-19	_	_	_	1,000	15.75	15,750	3,000	15.75	47,250
15-4-19	1,500	18.00	27,000	_	_	_	4,500	16.50	74,250
20-4-19	_	_	_	1,200	16.50	19,800	3,300	16.50	54,450
25-4-19	_	_	_	300	18.00	5,400	3,000	16.35	49,050
26-4-19	_	_	_	1,000	16.35	16,350	2,000	16.35	32,700
28-4-19	500	17.00	8,500	_	_	_	2,500	16.48	41,200
30-4-19	_	_	_	50	16.48	824	2,450	16.48	40,376

(b) Stores Ledger Account for the month of April, 2019 (LIFO)

	Receipt			Issue			Balance		
Date	Qty Units	Rate (₹)	Amount (₹)	Qty Units	Rate (₹)	Amount (₹)	Qty Units	Rate (₹)	Amount (₹)
1-4-19	_	_	_	_	_	_	1,000	15	15,000
4-4-19	3,000	16	48,000	_	_	_	1,000 3,000	15 16	15,000 48,000
8-4-19	_	_	_	1,000	16	16,000	1,000 2,000	15 16	15,000 32,000
15-4-19	1,500	18	27,000	_	_	_	1,000 2,000 1,500	15 16 18	15,000 32,000 27,000
20-4-19	_	_	_	1,200	18	21,600	1,000 2,000 300	15 16 18	15,000 32,000 5,400
25-4-19	_	_	_	300	18	5,400	1,000 2,000	15 16	15,000 32,000
26-4-19	_	_	_	1,000	16	16,000	1,000 1,000	15 16	15,000 16,000
28-4-19	500	17	8,500	_	_	_	1,000	15	15,000

							1,000 500	16 17	16,000 8,500
30-4-19	_	_	_	50	17	850	1,000 1,000 450	15 16 17	15,000 16,000 7,650

(ii) Value of Material Consumed and Closing Stock

	Weighted Average method (₹)	LIFO method (₹)
Opening stock as on 01-04-2019	15,000	15,000
Add: Purchases	83,500	83,500
	98,500	98,500
Less: Return to supplier	5,400	5,400
Less: Abnormal loss	824	850
Less: Closing Stock as on 30-04-2019	**40,376**	**38,650**
Value of Material Consumed	**51,900**	**53,600**

Question 5

(a) M/s Gaurav Private Limited is manufacturing and selling two products:

'BLACK' and 'WHITE' at selling price of ₹20 and ₹30 respectively.

The following sales strategy has been outlined for the financial year 2019-20:

(i) Sales planned for the year will be ₹ 81,00,000 in the case of 'BLACK' and ₹54,00,000 in the case of 'WHITE'.

(ii) The selling price of 'BLACK' will be reduced by 10% and that of 'WHITE' by 20%.

(iii) Break-even is planned at 70% of the total sales of each product.

(iv) Profit for the year to be maintained at ₹ 8,26,200 in the case of 'BLACK' and ₹ 7,45,200 in the case of 'WHITE'. This would be possible by reducing the present annual fixed cost of ₹ 42,00,000 allocated as ₹ 22,00,000 to 'BLACK' and ₹20,00,000 to 'WHITE'.

You are required to calculate:

(1) Number of units to be sold of 'BLACK' and 'WHITE' to Break even during the financial year 2019-20.

(2) Amount of reduction in fixed cost product-wise to achieve desired profit mentioned at (iv) above. ***(5 Marks)***

(b) *M/s Zaina Private Limited has purchased a machine costing ₹ 29,14,800 and it is expected to have a salvage value of ₹ 1,50,000 at the end of its effective life of 15 years. Ordinarily the machine is expected to run for 4,500 hours per annum but it is estimated that 300 hours per annum will be lost for normal repair & maintenance. The other details in respect of the machine are as follows :*

(i) *Repair & Maintenance during the whole life of the machine are expected to be ₹ 5,40,000.*

(ii) *Insurance premium (per annum) 2% of the cost of the machine.*

(iii) *Oil and Lubricants required for operating the machine (per annum) ₹ 87,384.*

(iv) *Power consumptions: 10 units per hour @ ₹ 7 per unit. No power consumption during repair and maintenance.*

(v) *Salary to operator per month ₹ 24,000. The operator devotes one third of his time to the machine.*

You are required to calculate comprehensive machine hour rate. ***(5 Marks)***

(c) *A contractor prepares his accounts for the year ending 31st March each year. He commenced a contract on 1st September, 2018. The following information relates to contract as on 31st March, 2019:*

Material sent to site	*₹ 18,75,000*
Wages paid	*₹ 9,28,500*
Wages outstanding at end	*₹ 84,800*
Sundry expenses	*₹ 33,825*
Material returned to supplier	*₹ 15,000*
Plant purchased	*₹ 3,75,000*
Salary of supervisor	*₹ 15,000 per month*
(Devotes 1/3rd of his time on contract)	
Material at site as on 31-03-2019	*₹ 2,16,800*

Some of material costing ₹ 10,000 was found unsuitable and was sold for ₹ 11,200. On 31-12-2018 plant which costs ₹ 25,000 was transferred to some other contract and on 31-01-2019 plant which costs ₹ 32,000 was returned to stores. The plant is subject to annual depreciation @ 15% on written down value method.

The contract price is ₹ 45,00,000. On 31st March, 2019 two-third-of the contract was completed. The architect issued certificate covering 50% of the contract price.

Prepare Contract A/c and show the notional profit or loss as on 31st March, 2019.

(10 Marks)

Answer

(a) (i) Statement showing Break Even Sales

Particulars	Black	White
Sales Planned	81,00,000	54,00,000
Selling Price (₹)	18	24
Number of Units to be sold	4,50,000	2,25,000
Break Even sales (in Units),70% of total sales	**3,15,000**	**1,57,500**
Or		
Break Even sales (in ₹),70% of total sales	**56,70,000**	**37,80,000**

(ii) Statement Showing Fixed Cost Reduction

Profit to be maintained (₹)	8,26,200	7,45,200
Margin of Safety (70% of Sales) (₹)	24,30,000	16,20,000
PVR (Profit/ Margin of Safety) x 100	34%	46%
Contribution (Sales x 34% or 46%) (₹)	27,54,000	24,84,000
Less: Profit (₹)	8,26,200	7,45,200
Revised Fixed Cost (₹)	**19,27,800**	**17,38,800**
Present Fixed Cost (₹)	22,00,000	20,00,000
Reduction in Fixed Cost	**2,72,200**	**2,61,200**

(b) Effective machine hour = 4,500 – 300 = 4,200 hours

Calculation of Comprehensive machine hour rate

Elements of Cost and Revenue	**Amount (₹) Per Annum**
Repair and Maintenance (₹5,40,000 ÷15 years)	36,000
Power (4,200 hours × 10 units × ₹7)	2,94,000
Depreciation $\left(\frac{₹29,14,800 - ₹1,50,000}{15 \text{ years}}\right)$	1,84,320
Insurance (₹29,14,800 × 2%)	58,296
Oil and Lubricant	87,384
Salary to Operator {(₹24,000×12)/3}	96,000

Total Cost	7,56,000
Effective machine hour	4,200
Total Machine Rate Per Hour	**180**

(c) Contract Account as on 31-03-2019

	Particulars	(₹)		Particulars	(₹)
To	Materials sent to site	18,75,000	By	Material returned to Supplier	15,000
To	Wages paid 9,28,500		By	Material sold	11,200
	Add: Outstanding 84,800	10,13,300	By	Plant transferred to other contract	23,750
To	Plant purchased	3,75,000	By	Plant returned to stores	30,000
To	Sundry Expenses	33,825	By	Plant at site c/d	2,90,175
To	Salary of Supervisor {1/3rd (₹15,000 × 7 month)}	35,000	By	Material at site c/d	2,16,800
To	Costing P & L A/c ('11,200-10,000)	1,200	By	Works Cost	**27,46,400**
		33,33,325			**33,33,325**
To	Works Cost	27,46,400	By	Work-in-progress c/d Work certified	**22,50,000**
			By	Work uncertified	**6,86,600**
To	**Notional profit (Profit for the year)**	**1,90,200**			
		29,36,600			29,36,600

Working Notes:

1. Value of plant transferred to other contract:
   ₹ 25,000 less Depreciation for 4 months
   = ₹ 25,000-(₹ 25,000×15%×4/12) = ₹ 23,750
2. Value of plant returned to stores:
   ₹ 32,000 less Depreciation for 5 months
   = ₹ 32,000-(₹ 32,000×15%×5/12) = ₹ 30,000
3. Value for work uncertified:

The cost of 2/3rd of the contract is ₹27,46,400

$\therefore$ Cost of 100% " " " " $\frac{₹\,27,46,400}{2} \times 3$ = ₹41,19,600

$\therefore$ Cost of 50% of the contract which has been certified by the architect is ₹ 41,19,600 /2= ₹ 20,59,800. Also, the cost of 1/3rd of the contract, which has been completed but not certified by the architect is ₹ (27,46,400- 20,59,800) = ₹ 6,86,600/-

Question 6

Answer any four of the following:

(a) Differentiate between cost control and cost reduction.

(b) What are the cases when a flexible budget is found suitable?

(c) Explain integrated accounting system and state its advantages.

(d) Explain Direct Expenses and how these are measured and their treatment in cost accounting.

(e) What are the limitations of marginal costing? ***(4 x 5 = 20 Marks)***

Answer

(a) Difference between Cost Control and Cost Reduction

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.

(b) Flexible budgeting may be resorted to under following situations:

(i) In the case of new business venture due to its typical nature it may be difficult to forecast the demand of a product accurately.

(ii) Where the business is dependent upon the mercy of nature e.g., a person dealing in wool trade may have enough market if temperature goes below the freezing point.

(iii) In the case of labour-intensive industry where the production of the concern is dependent upon the availability of labour.

Suitability for flexible budget:

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

(c) Integrated Accounting System: Integrated Accounts is the name given to a system of accounting, whereby cost and financial accounts are kept in the same set of books. Obviously, then there will be no separate sets of books for Costing and Financial records. Integrated accounts provide or meet out fully the information requirement for Costing as well as for Financial Accounts. For Costing it provides information useful for ascertaining the cost of each product, job, and process, operation of any other identifiable activity and for carrying necessary analysis. Integrated accounts provide relevant information which is necessary for preparing profit and loss account and the balance sheets as per the requirement of law and also helps in exercising effective control over the liabilities and assets of its business.

Advantages of Integrated Accounting System

The main advantages of Integrated Accounts are as follows:

(i) **No need for Reconciliation** - The question of reconciling costing profit and financial profit does not arise, as there is only one figure of profit.

(ii) **Less efforts** - Due to use of one set of books, there is a significant saving in efforts made.

(iii) **Less time consuming** - No delay is caused in obtaining information as it is provided from books of original entry.

(iv) **Economical process** - It is economical also as it is based on the concept of "Centralisation of Accounting function".

(d) Direct Expense: Expenses other than direct material cost and direct employee cost, which are incurred to manufacture a product or for provision of service and can be directly traced in an economically feasible manner to a cost object. The following costs are examples for direct expenses:

(i) Royalty paid/ payable for production or provision of service;

(ii) Hire charges paid for hiring specific equipment;

(iii) Cost for product/ service specific design or drawing;

(iv) Cost of product/ service specific software;

(v) Other expenses which are directly related with the production of goods or provision of service.

The above list of expenses is not exhaustive; any other expenses which are directly attributable to the production or service are also included as direct expenses.

Measurement of Direct Expenses

The direct expenses are measured at invoice or agreed price net of rebate or discount but includes duties and taxes (for which input credit not available), commission and other directly attributable costs.

In case of sub-contracting, where goods are get manufactured by job workers independent of the principal entity, are measured at agreed price. Where the principal supplies some materials to the job workers, the value of such materials and other incidental expenses are added with the job charges paid to the job workers.

Treatment of Direct Expenses

Direct Expenses forms part the prime cost for the product or service to which it can be directly traceable and attributable. In case of lump-sum payment or one time payment, the cost is amortised over the estimated production volume or benefit derived. If the expenses incurred are of insignificant amount i.e. not material, it can be treated as part of overheads.

(e) Limitations of Marginal Costing

(i) **Difficulty in classifying fixed and variable elements:** It is difficult to classify exactly the expenses into fixed and variable category. Most of the expenses are neither totally variable nor wholly fixed. For example, various amenities provided to workers may have no relation either to volume of production or time factor.

(ii) **Dependence on key factors:** Contribution of a product itself is not a guide for optimum profitability unless it is linked with the key factor.

(iii) **Scope for Low Profitability:** Sales staff may mistake marginal cost for total cost and sell at a price; which will result in loss or low profits. Hence, sales staff should be cautioned while giving marginal cost.

(iv) **Faulty valuation:** Overheads of fixed nature cannot altogether be excluded particularly in large contracts, while valuing the work-in- progress. In order to show the correct position fixed overheads have to be included in work-in-progress.

(v) **Unpredictable nature of Cost:** Some of the assumptions regarding the behaviour of various costs are not necessarily true in a realistic situation. For example, the assumption that fixed cost will remain static throughout is not correct. Fixed cost may change from one period to another. For example, salaries bill may go up because of annual increments or due to change in pay rate etc. The variable costs do not remain constant per unit of output. There may be changes in the prices of raw materials, wage rates etc. after a certain level of output has been reached due to shortage of material, shortage of skilled labour, concessions of bulk purchases etc.

(vi) **Marginal costing ignores time factor and investment:** The marginal cost of two jobs may be the same but the time taken for their completion and the cost of machines used may differ. The true cost of a job which takes longer time and uses costlier machine would be higher. This fact is not disclosed by marginal costing.

(vii) **Understating of W-I-P:** Under marginal costing stocks and work in progress are understated.