Paper 8- Cost Accounting

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Full Marks: 100 **Time allowed: 3 hours**

Section - A

1. Objective Questions

(a) Multiple choice questions: **[1x10=10]**

(i) _____ is the process of charging to the cost units by means of rates.
(a) Cost Apportionment
(b) Cost Allocation
(c) Cost Absorption
(d) None of the above

(ii) _____ is a document prepared by the store keeper to initiate the process of purchase by the purchasing department.
(a) Purchase Order
(b) Purchase Requisition
(c) Material Requisition Note
(d) Material Transfer Note

(iii) _____ refers to the recording of details of work done and the time spent by an employee on each job or process.
(a) Time Booking
(b) Time Keeping
(c) Time Rate System
(d) None of the above

(iv) _____ is the capacity for which plant is designed to operate. It does not give allowance for waiting, delays and shut-down.
(a) Maximum capacity
(b) Idle capacity
(c) Excess capacity
(d) Practical capacity

(v) The objective of _____ is to bring uniformity and consistency in the principles and methods of determining the Research, and Development Costs with reasonable accuracy and presentation of the same.
(a) CAS 20
(b) CAS 17
(c) CAS 19
(d) CAS 18

(vi) _____ is a system of accounting, whereby cost and financial accounts are kept in the same set of books.
(a) Cost control accounts
(b) Non-Integrated accounting system

(c) Integrated accounting system
(d) None of the above

(vii) _____ is one of the basic costing methods applicable to an organization where goods result from a sequence of repetitive operations or processes to which costs are charged before being averaged over the units produced during the period.
(a) Batch Costing
(b) Job Costing
(c) Operating Costing
(d) Process costing

(viii) Fixed cost is ₹50,000 and P/V ratio is 25%. Compute breakeven point in sales value.
(a) ₹2,00,000
(b) ₹1,50,000
(c) ₹1,40,000
(d) ₹1,66,667

(ix) Standard price of material per kg is ₹30, standard usage per unit of production is 6 kg. Actual usage of production 200 units is 1250 kgs, all of which was purchase at the rate of ₹35 per kg. Material cost variance is
(a) ₹4,500 (A)
(b) ₹7,750 (A)
(c) ₹7,750 (F)
(d) ₹4,500 (F)

(x) _____ is the budget which, by recognising the difference in behaviour between fixed and variable costs in relation to fluctuations in output, turnover, or other variable factors, is designed to change appropriately with such fluctuations.
(a) Production Budget
(b) Master Budget
(c) Functional Budget
(d) Flexible Budget

Answer:

(i) – (c)
(ii) – (b)
(iii) – (a)
(iv) – (a)
(v) – (d)
(vi) – (c)
(vii) – (d)
(viii) – (a)
(ix) – (b)
(x) – (d)

(b) Match the following: **[1x5=5]**

	Column 'A'		Column 'B'
1.	Notional Cost	A	CAS 14
2.	Process of classifying Material	B	Direct allocation
3.	Labour turnover	C	Imputed Cost
4.	Royalties	D	Replacement method
5.	Pollution Control Cost	E	FSN Analysis

Answer:

1. – C
2. – E
3. – D
4. – B
5. – A

(c) State whether the following statements are true or false: **[5x1=5]**

(i) A budget manual is the summary of all functional budgets.
(ii) Standard costing is an ideal name given to the estimate making.
(iii) Marginal cost is aggregate of Prime Cost and Variable cost.
(iv) Contact costing is variant of job costing.
(v) The balancing in costing profit and loss account represents under or over absorption of overheads.

Answer:

(i) – False
(ii) – False
(iii) – False
(iv) – True
(v) – False

(d) Fill in the blanks: **[1x5=5]**

(i) The users of _____ information are generally internal management, officials and senior executives of the company.
(ii) _____ is the process of classifying the materials based on their movement from inventory for a specified period.
(iii) Remuneration paid to non-executive directors shall not form part of _____ but shall form part of _____.
(iv) _____ are expenses relating to manufacture of a product or rendering a service, which can be identified or linked with the cost object other than direct material cost and direct employee cost.

(v) _____ is the process of booking costs against a particular Cost Account code under a particular cost center or directly under a cost unit, as the case may be.

Answer:

(i) cost accounting
(ii) FSN analysis
(iii) employee cost, administrative overhead
(iv) Direct expenses
(v) Cost Collection

Section - B

Answer any five from the following. Each question carries 15 marks (5x15=75)

2. (a) The Purchase Department of S Ltd. has received an offer of quantity discounts on its orders of materials as under:

Price per tonne (₹)	Tonnes
1,180	500 and less than 1,000
1,160	1,000 and less than 2,000
1,140	2,000 and above

The annual requirement for the material is 5,000 tonnes. The delivery cost per order is ₹1,000 and the stock holding cost is estimated at 20% of material cost per annum.
You are required to advise the Purchase Department the most economical purchase level. [8]

(b) Ashima Manufacturing Ltd. have three departments which are regarded as production departments. Service departments' costs are distributed to these production departments using the 'Step Distribution Method' of distribution. Estimates of factory overhead costs to be incurred by each department in the forthcoming year as follows. Data required for distribution is also shown against each department.

Department	Factory Overhead (₹)	Direct labour hours	No. of Employees	Area in sq. m.
Production:				
X	93,000	4,000	100	3,000
Y	54,000	3,000	125	1,500
Z	73,000	4,000	85	1,500
Service:				
P	45,000	1,000	10	500
Q	75,000	5,000	50	1,500
R	1,05,000	6,000	40	1,000
S	30,000	3,000	50	1,000

The overhead costs of the four service departments are distributed in the same order, viz. P, Q, R and S respectively on the following basis.

Department	Basis
P	Number of employees
Q	Direct labour hours
R	Area in square metres
S	Direct labour hours

You are required to:

(a) Prepare a schedule showing the distribution of overhead costs of the four service departments to the three production departments; and

(b) Calculate the overhead recovery rate per direct labour hour for each of the three production departments. **[7]**

Answer:

(a) Statement showing the most economic purchase level

1. Order Size (tonne)	**500**	**1,000**	**2,000**
2. No. of orders (Annual requirement ÷ order size)	10	5	2.5
3. Value of order (Order size × Price per tonne) (₹ '000)	590	1,160	2,280
4. Average inventory (Value per order ÷ 2) (₹ '000)	295	580	1,140
5. Ordering Cost (No. of order × ordering cost per order) i.e. (₹1,000)	10,000	5,000	2,500
6. Carrying cost (20% of item 4)	59,000	1,16,000	2,28,000
7. Total (5+6)	69,000	1,21,000	2,30,500
8. Add: Annual Cost of material (Annual demand × Price per tonne)	59,00,000	58,00,000	57,00,000
9. Total annual cost	59,69,000	59,21,000	59,30,500

₹59,21,000 is the total minimum cost at 1,000 order size.
Therefore, the most economical purchase level is 1,000 tonnes.

(b) Overheads Distribution Sheet

Particulars	**Production Dept. (₹)**			**Service Dept. (₹)**			
	X	**Y**	**Z**	**P**	**Q**	**R**	**S**
Factory Overheads	93,000	54,000	73,000	45,000	75,000	1,05,000	30,000
P (100:125:85:50:40:50)	10,000	12,500	8,500	(45,000)	5,000	4,000	5,000
				-	80,000	1,09,000	35,000
Q (4:3:4:6:3)	16,000	12,000	16,000		(80,000)	24,000	12,000
					-	1,33,000	47,000
R (3000:1500:1500:1000)	57,000	28,500	28,500			(1,33,000)	19,000
						-	66,000

S (4:3:4)	24,000	18,000	24,000				(66,000)
Total Factory Overheads	2,00,000	1,25,000	1,50,000				-
Labour Hours	4,000	3,000	4,000				
Labour hour rate	₹50	₹41.67	₹37.5				

3. (a) State the objectives and any five functions of the Cost Accounting Standards Board. [5]

3. (b) From the accounts of A Co. Ltd. the following Manufacturing, Trading and Profit and Loss Account for the year ended 31st December, 2022, is extracted:

Particulars	₹	Particulars	₹
To Raw Materials:		**By Raw Materials:**	
Opening stock	**59,000**	**Closing stock**	**64,000**
Raw Materials Purchases	**3,73,000**		
To Wages paid	**5,62,000**	**By Work-in-Progress:**	
		Materials 8,000	
		Wages 11,000	
		Factory expenses 6,600	**25,600**
To Wages accrued	**34,000**	**By Cost of goods manufactured (18,000 units)**	**13,19,900**
To Factory expenses	**3,81,500**		
	14,09,500		**14,09,500**
To Cost of goods manufactured	**13,19,900**	**By Sales (15,200 units)**	**18,24,000**
To Administration expenses	**2,45,000**	**By Finished Stock (2,800 units)**	**2,35,200**
To Selling and Distribution expenses	**3,28,000**	**By Interest on Investments**	**2,600**
To Preliminary expenses written-off	**18,000**	**By Dividend earned**	**11,000**
To Goodwill written-off	**17,000**		
To Net Profit transferred to Appropriation A/c	**1,44,900**		
	20,72,800		**20,72,800**

The following procedure is adopted in connection with the costing of the product:

(a) Factory expenses are allocated to production at 60% of direct labour cost.

(b) Administration expenses are applied at ₹12 per unit over the units produced.

(c) Selling and distribution expenses are charged so as to work out at 20% of selling price.

Prepare Costing Profit and Loss Account and the Statement of Reconciliation between the profit or loss as per the two accounts. [5+5]

Answer:

(a) The objectives of the Cost Accounting Standards Board (CASB) are to develop high quality Cost Accounting Standards to enable the management to take informed decisions and to enable regulators to function more effectively by integrating, harmonizing and standardizing Cost Accounting Principles and Practices.

The following will be the functions of the CASB:-

(a) To issue the framework for the Cost Accounting Standards

(b) To equip the Cost & Management Accounting professionals with better guide lines on cost Accounting Principles

(c) To provide from time to time interpretations on Cost Accounting Standards

(d) To propagate the Cost Accounting Standards and to persuade the users to adopt them in the preparation and presentation of general purpose Cost Statement

(e) To persuade the government and appropriate authorities to enforce Cost Accounting Standards, to facilitate the adoption thereof, by industry and corporate entities in order to achieve the desired objectives of standardization of Cost Accounting Practices.

(b) Costing Profit and Loss Account

Particulars	₹	₹	₹
Material consumed:			
Opening Stock	59,000		
Add: Purchase	3,73,000		
	4,32,000		
Less: Closing stock	64,000	3,68,000	
Wages: Paid	5,62,000		
Accrued	34,000	5,96,000	
Prime cost			9,64,000
Factory expenses (60% of wages)			3,57,600
Works cost (for units finished and Work-in-progress)			13,21,600
Less: Work-in-progress			25,600
Works cost of units finished			12,96,000
Administration expenses @₹12 per unit on (15,200 + 2,800) units			2,16,000
Cost of goods produced			15,12,000
Less: Finished Stock- 2,800 units @ ₹84			2,35,200
			12,76,800
Selling and Distribution Expenses (20% of ₹18,24,000)			3,64,800
Cost of Sales (15,200 units)			16,41,600
Sales			18,24,000
Profit			1,82,400

Note: Cost per unit = ₹15,12,000 ÷ 18,000 units = ₹84.

Reconciliation Statement

Particulars	₹	₹	₹
Profit as per Cost Accounts			1,82,400
Add: Items not credited in Cost Accounts:			
Interest on Investments	2,600		
Dividend earned	11,000		
		13,600	
Selling and Distribution expenses			
Over-recovered (3,64,800 – 3,28,000)		36,800	
			50,400
			2,32,800

Less: Items not charged in Cost Accounts:			
Preliminary expenses written-off	18,000		
Goodwill written-off	17,000		
		35,000	
Factory expenses under-recovered (3,81,500 – 3,57,600)		23,900	
Administration expenses under-recovered (2,45,000 – 2,16,000)		29,000	
			87,900
Profit as per Financial Accounts			1,44,900

4. (a) The normal expenses attributable to Machine 1 and the normal hours for which the machine is expected to be utilised in the year 2023 are indicated below:

Particulars	₹	₹
Fixed Expenses		**4,000**
Variable:		
Power	**1,500**	
Repairs	**900**	
Lubricants	**600**	**3,000**
Total		**7,000**
Predetermined normal hours of working:		
To make ready		**200 hours**
Running on jobs		**800 hours**
Total		**1,000 hours**

From the data furnished below, compute the cost of Job No. 1993:

	₹
Materials consumed: 10 units at ₹5 per unit	**50**
Machine labour:	
To make ready: 2 hours at ₹1 per hour	**2**
Running on jobs: 8 hours at ₹1 per hour	**8**
	60

Note: Wherever a job to be put on the machine, the machine is cleared, any tools or jigs already on the machine are removed and new tools, etc. suitable for the particular job are fixed before commissioning the machine for the job and the time involved is to be charged to the job as 'make ready' time. Hence, fixed expenses are absorbed on the basis of total normal working hours & variable expenses are absorbed on the basis of running working hours. [7]

(b) Following information is available regarding process 1 for the month of February 2022:

Production Record	
Units in process as on 31st Jan. 2022	**8,000**
(All material used 25% complete for labour and overhead)	
Net units started in process	**32,000**
	40,000

Production report shows following results:	
Units completed	**28,000**
Units in process on 28th February 2022	**12,000**
(All material used, $33\frac{1}{3}$% complete for labour and overhead)	
Cost records	
Work-in-process as on 31.1.22:	
Material	**₹2,400**
Labour	**₹400**
Overhead	**₹400**
Cost of February 2022:	
Material	**₹10,240**
Labour	**₹6,000**
Overhead	**₹6,000**
Total cost to be accounted for	**₹25,440**

Presuming that average method of inventory costing is used, prepare:

(i) Statement of equivalent production.

(ii) Statement showing cost for each element.

(iii) Statement of apportionment of cost.

(iv) Process cost account for process 1. **[2+2+2+2]**

Answer:

(a) Cost Sheet of Job No. 1993

Particulars	₹	₹
Materials: 10 units @ ₹5 each		50
Wages:		
2 hours @ ₹1 per hour (to make ready)	2	
8 hours @ ₹1 per hour (running)	8	10
Prime Cost		60
Factory Expenses:		
2 hours to make ready @ ₹4 per hour [WN (i)]	8	
8 hours (running) @ ₹7.75 per hour [WN (ii)]	62	70
Total Cost		130

Working Notes: Machine hour rate

(i) Computation of Fixed expenses per hour:	
Total number of hours	1,000
Total fixed expenses	₹4,000
Fixed expenses per hour (₹4,000 ÷ 1,000 hours)	**₹4**
(ii) Computation of Variable expenses per hour:	
Total number of running hours	800
Total variable expenses	₹3,000
Variable expenses per hour (₹3,000 ÷ 800 hours)	₹3.75

Fixed expenses per hour are used for the time the machine is being made ready. The aggregate of fixed and variable expenses, i.e., ₹(4 + 3.75) = **₹7.75** per hour is the rate for running time.

(b)

Process 1

Average Method

(i) Statement of Equivalent Production

Period: February 2022

Input		Output		Equivalent Production					
Particulars	**Units**	**Particulars**	**Units**	**Material**		**Labour**		**Overhead**	
				Units	**%**	**Units**	**%**	**Units**	**%**
Opening Stock	8,000	Units completed:	28,000	28,000	100	28,000	100	28,000	100
New Units introduced	32,000	Closing stock	12,000	12,000	100	4,000	$33\frac{1}{3}$	4,000	$33\frac{1}{3}$
	40,000		40,000	40,000		32,000		32,000	

(ii) Statement of Cost for each Element

Elements of Cost	Cost of Opening WIP (₹)	Cost in Process (₹)	Total Cost (₹)	Equivalent Production	Cost per week (₹)
Material	2,400	10,240	12,640	40,000	0.316
Labour	400	6,000	6,400	32,000	0.200
Overhead	400	6,000	6,400	32,000	0.200

(iii) Statement of Apportionment of Cost

Items	Element	Equivalent Production units	Cost per unit (₹)	Cost (₹)	Total Cost
Units completed	Material	28,000	0.316	8,848	
	Labour	28,000	0.200	5,600	
	Overhead	28,000	0.200	5,600	20,048
Closing Stock	Material	12,000	0.316	3,792	
	Labour	4,000	0.200	800	
	Overhead	4,000	0.200	800	5,392

(iv) Process 1 Account

Dr. Cr.

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Opening Stock	8,000	3,200	By units completed and transferred	28,000	20,048
To New units introduced:	32,000		By Closing stock	12,000	5,392
Material		10,240			
Labour		6,000			
Overhead		6,000			
	40,000	25,440		40,000	25,440

5. (a) ASK Institute is a school having five buses each plying in different directions for the transport of its school students. In view of a larger number of students availing of the bus service the buses work two shifts daily both in the morning and in the afternoon. The buses are garaged in the school. The work-load of the students has been so arranged that in the morning the first trip picks up senior students and the second trip plying an hour later picks up the junior students. Similarly, in the after-noon the first trip takes the junior students and an hour later the second trip takes the senior students home.

The distance travelled by each bus one way is 8 km. The school works 25 days in a month and remains closed for vacation in May, June and December. Bus fee, however, is payable by the students for all 12 months in a year.

The details of expenses for a year are as under:

Driver's salary	**₹4,500 per month per driver**
Cleaner's salary	**₹3,500 per month**
(Salary payable for all 12 months)	
(one cleaner employed for all the five buses)	
Licence fee, taxes, etc.	**₹ 8,600 per bus per annum**
Insurance	**₹10,000 per bus per annum**
Repairs & maintenance	**₹35,000 per bus per annum**
Purchase price of the bus	**₹15,00,000 each**
Life of each bus	**12 years**
Scrap value of buses at the end of life	**₹3,00,000**
Diesel cost	**₹45.00 per litre**

Each bus gives an average mileage of 4 km. per litre of diesel.
Seating capacity of each bus is 50 students.
The seating capacity is fully occupied during the whole year.
Students picked up and dropped within a range up to 4 km. of distance from the school are charged half fare and fifty per cent of the students travelling in each trip are in this category. Ignore interest. Since the charges are to be based on average cost you are required to:

(i) Prepare a statement showing the expenses of operating a single bus and the fleet of five buses for a year.

(ii) Work out the average cost per student per month in respect of –

a. students coming from a distance of up to 4 km. from the school

b. students coming from a distance beyond 4 km. from the school. [4+4]

(b) Super Ltd. undertook a contract for ₹50,00,000 with effect from 1st July, 2021. On 30th June, 2022, when the accounts were closed, the following details relating to the contract were gathered:

Particulars	₹
Materials purchased	10,00,000
Wages paid	4,50,000
General expenses	1,00,000
Plant purchased	5,00,000
Materials at site (on 30th June, 2022)	2,50,000

Wages accrued (on 30th June, 2022)	**50,000**
Cash received	**15,00,000**
Work certified	**20,00,000**
Work not certified (at cost)	**1,50,000**
Depreciation on plant	**50,000**

The contract contained an escalation clause which reads as follows:

'In the event of increase in both the material cost and the wage cost by more than 5%, the contract price would increase by 25% of the increase in both the material cost and the wage cost beyond 5%.'

It was found that, since the date of signing the agreement, both the material cost and the wage cost increased by 25%. The value of the work certified did not take into account the effect of the escalation clause. Calculate the amount of cost escalation and prepare the Contract Account. [2+5]

Answer:

(a) (i) Statement of Expenses of operating bus/ buses for a year

Particulars	Rate (₹)	Per Bus per annum (₹)	Fleet of 5 buses p.a. (₹)
Standing Charges:			
Driver's salary	4,500 p.m.	54,000	2,70,000
Cleaner's salary	3,500 p.m.	8,400	42,000
Licence fee, taxes etc.	8,000 p.a.	8,000	40,000
Insurance	10,600 p.a.	10,600	53,000
Depreciation (15,00,000 – 3,00,000) ÷ 12 yrs.	1,00,000 p.a.	1,00,000	5,00,000
Maintenance Charges:			
Repairs & maintenance	35,000 p.a.	35,000	1,75,000
(iii) Operating Charges:			
Diesel (Working Note 1)		1,62,000	8,10,000
Total Cost [(i) + (ii) + (iii)]		3,78,000	18,90,000
Cost per month		31,500	1,57,500
Total no. of equivalent students		150	750
Total Cost per half fare equivalent student		₹210	₹210

(ii) Average cost per student per month:

a. Students coming from distance of up to 4 km. from school

= Total cost per month ÷ Total no. of equivalent students

= 31,500 ÷ 150 students

= ₹210

b. Students coming from a distance beyond 4 km. from school

= Cost of per half fare student × 2 = ₹210 × 2

= ₹420

Working Notes:

1. Calculation of Diesel cost per bus:

Distance travelled in a year: (8 round trip × 8 km. × 25 days × 9 months)

Distance travelled p.a.: 14,400 km.

Cost of diesel (per bus p.a.): (14,400 km. ÷ 4 kmpl) × 45

= ₹1,62,000

2. Calculation of equivalent number of students per bus:

Seating capacity of a bus	50 students
Half fare students (50% of 50 students)	25 students
Full fare students (50% of 50 students)	25 students
Total number of students equivalent to half fare students	
Full fare students (25 students × 2)	50 students
Add: Half fare students	25 students
Total Equivalent number of students in a trip	75 students
Total number of equivalent students in two trips (Senior + Junior)	150 students

(b)

Particulars	**₹**
25% increase in material cost: (₹10,00,000 − ₹2,50,000) × $\frac{25}{125}$	1,50,000
25% increase in wages cost: (4,50,000 + ₹50,000) × $\frac{25}{125}$	1,00,000
Total increase in material and wages cost	2,50,000
5% increase in material and wages cost $\left(\frac{5}{25}\times 2,50,000\right)$	50,000

Increase in contract price (due to cost escalation) = 25% of ₹(2,50,000 − 50,000)

= ₹50,000

Super Ltd.

Contract Account

Dr. Cr.

Particulars	**₹**	**Particulars**	**₹**
30th June, 2022		30th June, 2022	
To Materials purchased	10,00,000	By Materials c/d (at site)	2,50,000
" Wages	4,50,000	" Cost c/d	14,00,000
" General expenses	1,00,000		
" Depreciation on Plant	50,000		
30th June, 2022			
To Wages accrued c/d	50,000		
	16,50,000		16,50,000
" Cost b/d	14,00,000	" Contractee's A/c	20,00,000
" Profit to Profit and Loss A/c $\left(\frac{1}{3}\times\frac{15}{20}\times 8,00,000\right)$	2,00,000	" Cost escalation	50,000
" Profit Provision c/d	6,00,000	" Cost of uncertified work c/d	1,50,000
	22,00,000		22,00,000
1st July, 2022		1st July, 2022	
To Materials b/d	2,50,000	By Profit Provision c/d	6,00,000
" Cost of uncertified work b/d	1,50,000	" Wages accrued b/d	50,000

6. (a) Ashis Ltd. has a production capacity of 20,00,000 units per year. Normal capacity utilisation is reckoned as 90%. Standard variable production costs are ₹11 per unit. The fixed cost is ₹36,00,000 per year. Variable selling costs are ₹3 per unit and fixed selling costs are ₹27,00,000 per year. The unit selling price is ₹20. In the year just ended on 31st March 2022, the production was 16,00,000 units and sales were 15,00,000 units. The closing inventory on 31.3.22 was 2,00,000 units. The actual variable production costs for the year were ₹3,50,000 higher than the standard.

(i) Calculate the profit for the year ending on 31.3.2022:

(A) by the absorption costing method, and

(B) by the marginal costing method.

(ii) Explain the difference in the profits. [6+2]

(b) Powerful Ltd. has the option of buying one machine. Two machines are available, Machine Electrode and Machine Force. From the information given below, calculate- (i) the break-even point for each; (ii) the level of sales at which both are equally profitable, and (iii) the range of sales at which one is more profitable than the other:

Particulars	Machine Electrode	Machine Force
Output p.a. (units)	**1,00,000**	**1,00,000**
Fixed costs p.a. (₹)	**3,00,000**	**1,60,000**
Profit at full capacity (₹)	**3,00,000**	**2,40,000**

Both the machines will produce identical products. The annual market demand for such product is 1,00,000 units @ ₹10 per unit. [2+3+2]

Answer:

(a)

(i) (A) Cost Sheet (Absorption costing)

Particulars	Amount (₹)
Fixed Cost	36,00,000
(+) Variable Cost (11 × 16,00,000 + 3,50,000)	1,79,50,000
Total cost of production	2,15,50,000
(+) Opening Stock of Finished Goods [(1,00,000) × (11+ 2)]	13,00,000
(-) Closing Stock of Finished Goods $\left[\frac{2,15,50,000}{16,00,000} \times 2,00,000\right]$	(26,93,750)
Cost of Goods sold	2,01,56,250
Selling Overhead:	
Fixed	27,00,000
Variable (15,00,000 × ₹3)	45,00,000
Cost of Sales	2,73,56,250
(+) Profit	26,43,750
Sales	3,00,00,000

(B) Marginal costing Approach

Particulars	Amount (₹)
Variable Cost of production	1,79,50,000
Opening Stock of Finished Goods (1,00,000 × 11)	11,00,000
(-) Closing Stock of Finished Goods $\left[\frac{1,79,50,000}{16,00,000} \times 2,00,000\right]$	(22,43,750)
Variable Cost of Goods sold	1,68,06,250
(+) Variable Selling Overhead	45,00,000
Variable Cost of Sales	2,13,06,250
Sales	3,00,00,000
(-) Variable Cost of Sales	(2,13,06,250)
Contribution	86,93,750
(-) Fixed Cost (36,00,000 + 27,00,000)	(63,00,000)
Profit	23,93,750

(ii) The reason difference in profits as per absorption casting and marginal costing is that absorption costing includes fixed cost in inventory valuation and marginal costing ignores the same.

Marginal costing considers fixed cost as period cost and charges the entire fixed cost of the period against the contribution earned during the period.

(b)

Particulars	Machine Electrode	Machine Force
Sales (1,00,000 @ ₹10)	₹10,00,000	₹10,00,000
Contribution (C = F + P)	₹6,00,000	₹4,00,000
P/V Ratio	60%	40%
(i) Break-even sales	₹5,00,000 or, 50,000 units	₹4,00,000 or, 40,000 units
Contribution per unit	₹6	₹4
Variable cost per unit	₹4	₹6

(ii) Unit selling price of the products produced by either of the machines being the same, both machines will be equally profitable at that level of activity where total cost (fixed plus variable) of production produced by each machine exactly equals.

Let X be the number of units where both the machines are equally profitable.

∴ In case of Machine Electrode, total costs would be:

4X + 3,00,000

While in case of Machine Force, it would be:

6X + 1,60,000

Since at this level of output, total cost of production by each machine will be the same,

$4X + 3,00,000 = 6X + 1,60,000$

$X = 70,000$ units.

Thus, at 70,000 units, both the machines will be equally profitable.

(iii) The break-even point of Machine Force is 40,000 units while it is 50,000 for Machine Electrode. At 70,000 units, both the machines are equally profitable. Thus, Machine Force is more profitable at an output range of 40,000 to 69,999. The P/V ratio of Machine Electrode is greater than that of Force. Therefore, above 70,000 units, the rate of profit-earning by Electrode would be greater than that of Force. Thus, Electrode would be more profitable at an output range of 70,001 to 1,00,000 units.

7. (a) Following information is given regarding standard composition and standard rates of a gang workers:

Standard composition	Standard hourly rate
100 Men	**₹0.625**
50 Women	**₹0.400**
50 Boys	**₹0.350**

According to given specifications, a week consists of 40 hours and standard output for a week is 1,000 units.

In a particular week, gang consisted of 130 men, 40 women and 30 boys and actual wages were paid as follows:

Men @ ₹0.6 per hour

Women @ ₹0.425

Boys @ ₹0.325 per hour

Two hours were lost in the week due to abnormal sale time. Actual production was 960 units in the week.

Find out-

(i) Labour rate variance,

(ii) Labour mix variance,

(iii) Labour idle time variance,

(iv) Labour yield variance,

(v) Labour efficiency variance,

(vi) Labour cost variance. **[8]**

7. (b) The following are the estimated sales of S Ltd. for eight months ending 30.11.2022:

Months	Estimated Sales (units)
April 2022	**1,20,000**
May 2022	**1,30,000**
June 2022	**90,000**
July 2022	**80,000**
August 2022	**1,00,000**
September 2022	**1,20,000**
October 2022	**1,40,000**
November 2022	**1,20,000**

As a matter of policy, the company maintains the closing balance of finished goods and raw materials as follows:

Stock item	Closing balance of a month
Stock item	**50% of the estimated sales for the next month**
Raw Materials	**Estimated consumption for the next month**

Every unit of production requires 2 kg. of raw material costing ₹5 per kg.

Prepare Production Budget (in units) and Raw Material Purchase Budget (in units and cost) of the company for the half year ending 30 September, 2022. [7]

Answer:

(a) L_1 - Actual payment to workers for actual hours worked

Actual composition of gang	Hrs. worked	Actual Rate (₹)	Amount (₹)
130 Men	× 40	× 0.600	3120
40 Women	× 40	× 0.425	680
30 Boys	× 40	× 0.325	390
			4190

L_2 - Payment involved, if workers had been paid at standard rate

Actual composition of gang	Hrs. worked	Standard Rate (₹)	Amount (₹)
130 Men	× 40	× 0.625	3250
40 Women	× 40	× 0.400	640
30 Boys	× 40	× 0.350	420
			4310

L_3 - Payment involved, if workers had been used according to proportion of standard gang and payment had been made at standard rate

Standard composition of gang	Hrs. worked	Standard Rate (₹)	Amount (₹)
100 Men	× 40	× 0.625	2500
50 Women	× 40	× 0.400	800
50 Boys	× 40	× 0.350	700
			4000

L_4 - Standard labour cost of labour hours utilized

Standard composition of gang	Hrs. utilized	Standard Rate (₹)	Amount (₹)
100 Men	× 38	× 0.625	2375
50 Women	× 38	× 0.400	760
50 Boys	× 38	× 0.350	665
			3800

L_5 - Standard labour cost of output achieved

$$\frac{\text{Standard labour cost for std. output}}{\text{Standard output}} \times \text{Actual Output}$$

$$= \frac{4000}{1{,}000 \text{ units}} \times 960 \text{ units or } ₹3840$$

Variances:

(i) Labour Rate Variance = $L_1 - L_2$ = ₹4190 – ₹4310 or ₹120 (F)

(ii) Labour Mix Variance = $L_2 – L_3$ = ₹4310 – ₹4000 or ₹310 (A)
(iii) Labour Idle Time Variance = $L_3 – L_4$ = ₹4000 – ₹3800 or ₹200 (A)
(iv) Labour Yield Variance = $L_4 – L_5$ = ₹3800 – ₹3840 or ₹40 (F)
(v) Labour Efficiency Variance = $L_2 – L_5$ = ₹4310 – ₹3840 or ₹470 (A)
Alternatively,
Labour Efficiency Variance = Labour Mix Variance + Labour Idle Time Variance + Labour Yield Variance
= 310 (A) + 200 (A) + 40 (F) or ₹470 (A)
(vi) Labour Cost Variance = $L_1 – L_5$ = ₹4190 – ₹3840 or ₹350 (A)
Alternatively, Labour Cost Variance = Labour Rate Variance + Labour Mix Variance + Labour Idle Time Variance + Labour Yield Variance
= 120 (F) + 310 (A) + 200 (A) + 40 (F) or ₹350 (A)

(b) Production Budget (Units) for the half-year ending 30th September, 2022

Month	Sales (in units)	Closing Balances 50% of the estimated Sales for the next month	Opening Balances	Production
1	2	3	4	5 = (2) + (3) – (4)
April 2022	1,20,000	65,000	60,000	1,25,000
May 2022	1,30,000	45,000	65,000	1,10,000
June 2022	90,000	40,000	45,000	85,000
July 2022	80,000	50,000	40,000	90,000
August 2022	1,00,000	60,000	50,000	1,10,000
September 2022	1,20,000	70,000	60,000	1,30,000
	6,40,000			6,50,000

Purchase Budget (Cost & Units) for the year ending 30th September, 2022

Month	Production (in units)	Consumption (kg.) @ 2 kg. per unit	Closing Balances	Opening Balance	Purchase in kg.	Rate (₹)	Amount (₹)
April 2022	1,25,000	2,50,000	2,20,000	2,50,000	2,20,000	5	11,00,000
May 2022	1,10,000	2,20,000	1,70,000	2,20,000	1,70,000	5	8,50,000
June 2022	85,000	1,70,000	1,80,000	1,70,000	1,80,000	5	9,00,000
July 2022	90,000	1,80,000	2,20,000	1,80,000	2,20,000	5	11,00,000
August 2022	1,10,000	2,20,000	2,60,000	2,20,000	2,60,000	5	13,00,000
September 2022	1,30,000	2,60,000	2,60,000	2,60,000	2,60,000	5	13,00,000
	6,50,000	13,00,000					65,50,000

8. Write short notes on any three of the following: [3x5=15]

(a) Explain the concept of Sunk Cost and Engineered Cost
(b) Describe the requisites of a good Cost Accounting System
(c) State the requisites of Material Control System
(d) State the limitations of Absorption Costing

Answer:

(a) Sunk Costs: Sunk costs are historical costs which are incurred i.e. sunk in the past and are not relevant to the particular decision making problem being considered. Sunk costs are those that have been incurred for a project and which will not be recovered if the project is terminated. While considering the replacement of a plant, the depreciated book value of the old asset is irrelevant as the amount is sunk cost which is to be written-off at the time of replacement.

Engineered Cost: Engineered Cost relates to an item where the input has an explicit physical relationship with the output. For instance, in the manufacture of a product, there is a definite relationship between the units of raw material and labour time consumed and the amount of variable manufacturing overhead on the one hand and units of the products produced on the other. The input-output relationship can be established the form of standards by engineering analysis or by an analysis of the historical data. It should be noted that the variable costs are not engineered cost but some administration and selling expenses may be categorized as engineered cost.

(b) There are certain essential features which a good Cost Accounting System should possess. These features are discussed below:

(i) The cost accounting system should be simple and practical. It should be able to meet the requirements of the organisation.

(ii) The data and information used by the cost accounting system should be authentic and accurate enough to present accurate reporting in order to facilitate the management for taking right decisions.

(iii) There is a need for uniformity and consistency in classifying, treating and reporting cost data and information so that it can facilitate comparability of the results of the system.

(iv) With a view to ensuring clarity of the results there should be integration of the cost accounting system with financial accounting, operation research, statistics, taxation etc.

(v) The cost accounting system should have enough flexibility in order to accommodate necessary amendments and modifications for the purpose of incorporating changes in technical, regulatory and other requirements.

(vi) The management should be satisfied with the implementation of cost accounting system that facilitates the management in taking strategic business decisions.

(c) Requisites of Material Control System:

(a) Coordination and cooperation between the various departments concerned viz. purchase, receiving, inspection, storage, issues and Accounts and Cost departments

(b) Use of standard forms and documents in all the stages of control

(c) Classification, coordination, standardization and simplification of materials

(d) Planning of requirement of material

(e) Efficient purchase organization

(f) Budgetary control of purchases

(g) Planned storage of materials, physical control as well as efficient book control through satisfactory storage control procedures, forms and documents

(h) Appropriate records to control issues and utilization of stores in production

(i) Efficient system of Internal Audit and Internal Checks

(j) System of reporting to management regarding material purchase, storage and utilization.

(d) Limitations of Absorption Costing:

1. Being dependent on levels of output which vary from period to period, costs are vitiated due to the existence of fixed overhead. This renders them useless for purposes of comparison and control. (If, however, overhead recovery rate is based on normal capacity, this situation will not arise).
2. Carryover of a portion of fixed costs, i.e., period costs to subsequent accounting periods as part of the cost of inventory is an unsound practice because costs pertaining to a period should not be allowed to be vitiated by the inclusion of costs pertaining to the previous period.
3. Profits and losses in the accounts are related not only to sales but also to production, including the production which is unsold. This is contrary to the principle that profits are made not at the stage when products are manufactured but only when they are sold.
4. There is no uniformity in the methods of application of overhead in absorption costing. These problems have, no doubt, to be faced in the case of marginal costing also but to a less extent because of the exclusion of fixed costs, as different assumptions made in the matter of application of fixed overhead will not arise in the case of marginal costing.
5. Absorption costing is not always suitable for decision making solutions to various types of problems of management decision making, where the absorption cost method would be practically ineffective, such as selection of production volume and optimum capacity utilisation, selection of production mix, whether to buy or manufacture, choice of alternatives and evaluation of performance can be had with the help of marginal cost analysis. Sometimes, the conclusion drawn from absorption cost data in this regard may be misleading and lead to losses.