Paper-8: COST & MANAGEMENT ACCOUNTING

SECTION - A
Answer Q No. 1 (Compulsory) and any 5 from the rest

Question.1
(a) Match the statement in Column 1 with the most appropriate statement in Column 2 :

[1 × 5 = 5]

Column I	Column II
Value analysis	Performance analysis
Performance of public enterprise	Management by exception
Balance score card	Measures divisional performance
Residual income	Technique of cost reduction
Variance analysis	Shows profitability and capacity utilization

(b) Fill in the blanks:

[1 × 5 = 5]

i) Out of pocket cost means_____.

ii) Wages under Halsey Plan and Rowan Plan are exactly equal when time saved is Nil or it is _____% of standard time.

iii) The technical term for charging of overheads to cost units is known as _____

iv) In determining equivalent production, degree of completion for normal process loss is taken as _____.

v) _____determines the priorities in functional budgets.

(c) Choose the correct option.

[1 × 5 = 5]

i) Which of the following is not a relevant cost?
   A. Replacement cost
   B. Sunk cost
   C. Marginal cost
   D. Standard cost

ii) Material mix variance is sub-variance of:
   A. Material cost variance.
   B. Material price variance
   C. Material quantity variance
   D. Material yield variance

iii) The fixed-variable cost classification has a special significance in preparation of :
   A. Flexible Budget
   B. Master Budget
   C. Cash Budget
   D. Capital Budget

iv) Idle capacity of a plant is the difference between:
   A. Maximum capacity and practical capacity
   B. Practical capacity and normal capacity
   C. Practical capacity and capacity based on sales expectancy
   D. Maximum capacity and actual capacity.

v) Conversion cost is equal to the total of:
   A. Material Cost and direct wages
   B. Material Cost and indirect wages
   C. Direct wages and factory overhead
   D. Material cost and factory overhead

(d) Calculate the following.

[2 × 5 = 10]

i) If the minimum stock level and average stock level of raw material "A" are 4,000 and 9,000 units respectively, find out its reorder quantity.

ii) A chemical is manufactured by combining two standard items of input A(standard price ₹60/kg.) and B (Standard price ₹45/kg.) in the ratio 60 % : 40%. 10% of input is lost during processing. If during a month 1,200 kg of the chemical is produced incurring a total cost of ₹69,600, what would be the total material cost variance?

iii) A Limited has fixed costs of ₹6,00,000 per annum. It manufactures a single product which it sells for ₹200 per unit. Its contribution to sales ratio is 40%. What would be A Limited's break-even in units?

iv) A bus carries 25 passengers daily for 25 days and its mileage per month is 2,000 kms. What is its passenger kms.

v) Sale for two consecutive months, of a company are ₹3,80,000 and ₹4,20,000. The company's net profits for these months amounted to ₹24,000 and ₹40,000 respectively. There is no change in contribution/sales ratio or fixed costs. What would be the contribution/sales ratio of the company?

Answer:

(a)

Column I	Column II
Value analysis	Technique of cost reduction
Performance of public enterprise	Shows profitability and capacity utilization
Balance score card	Performance analysis
Residual income	Measures divisional performance
Variance analysis	Management by exception

(b)
   i) cost which gives rise to cash expenditure
   ii) 50
   iii) Absorption
   iv) Nil
   v) Key factor

(c)
   i) Sunk cost
   ii) Material quantity variance
   iii) Flexible Budget
   iv) Maximum capacity and actual capacity.
   v) Direct wages and factory overhead

(d)

i) Average stock level = Minimum stock level + ½ Reorder quantity
9,000 units = 4,000 units + ½ Reorder quantity
½ Reorder quantity = 9,000 units – 4,000 units
Reorder level = 5, 000 units / 0.5 = **10,000 units**

ii) A – 60 kgs. @ ₹ 60/- = ₹ 3,600
B – 40 kgs. @ ₹45/- = ₹ 1,800
Process lost @ 10 % = 10 kgs.
Therefore, output = 90 kgs.
Therefore, standard cost of output   =₹ 5,400/ 90 kgs.
                                       =₹ 60/kg.
Material cost variance =₹ 1,200 × 60 – ₹ 69,600= **₹2,400 (F)**

iii) Break-even units   = Fixed cost / contribution per unit
                             =₹6,00,000/ 40% of ₹200
                             = **7,500**

iv) Passengers carried in a day   = 25
Kms. covered in a day   = 2,000 kms. / 25 days
Bus passenger kms. per month   = 25 days × 80 kms. per day × 25 passengers
                                        = **50,000 passenger kms.**

v) Contribution / sales   = Increase in profit / Increase in sales
                            = (40,000 – 24,000) / (4,20,000 – 3,80,000)
                            = 16,000/40,000 = **2/5**

Question.2

(a) Arun Ltd. follows standard costing system and the following information is available for the month of April, 2014.

i)   Actual Production – 1,500 kg.

Materials Consumed			Labour deployed		
Type	Quantity (kgs.)	Rate (₹ per kg.)	Worker	Time worked (hours)	Rate (₹ per hour)
A	550	5.00	P	32	11.00
B	200	6.00	Q	14	9.00
C	350	2.00	R	20	11.00
D	400	5.00	S	10	18.00

ii)   Details of standard materials and labour cost based on production of 1,000 kgs. are as under:

Consumption of Materials			Deployment of labour		
Type	Quantity (kgs.)	Rate (₹ per kg.)	Worker	Time (hours)	Rate (₹ per hour)
A	400	4.00	P	20	10.00
B	100	5.00	Q	10	8.00
C	200	2.50	R	15	12.00
D	300	6.00	S	7	20.00

From the above information you are required to compute
(i)   Labour rate variances
(ii)   Labour efficiency variances

Also prepare a reconciliation statement between actual cost and standard cost for labour.

[3+3+3]

(b) For a particular stationary item, the sales price per unit is ₹ 25. The variable cost per unit for Material & Labour is ₹15. The variable selling cost per unit is ₹4. Factory overheads amounts to ₹5,40,000 and Fixed Administration Cost ₹ 2,70,000. Based on the given data calculate:
  i.   BEP expressed in amount of sales in rupees.
  ii.   Number of units that must be sold to earn a profit of ₹ 90,000 per year
  iii.   How many units must be sold to earn a net income of 15% of sales.

[2+2+2]

Answer:
(a)
I.   Labour variances:

Worker	Std. Cost for Actual Output 1500 kg.			Actual cost for Actual Production		
	Time (Hrs.)	Rate ₹	Amount ₹	Time (Hrs.)	Rate ₹	Amount ₹
P	30	10	300	32	11	352
Q	15	8	120	14	9	126
R	22.5	12	270	20	11	220
S	10.5	20	210	10	18	180
Total	78		900	76		878

(i) **Labour Rate Variance (LRV)**	= Actual Hrs. × (SR – AR)	
P	= 32 × (10 – 11)	= 32 (A)
Q	= 14 × (8 – 9)	= 14 (A)
R	= 20 × (12 – 11)	= 20 (F)
S	= 10 × (20 – 18)	= 20 (F)
		₹ 6 (A)

(ii) **Labour Eff. Variance (LEV)**	= Std. Rate x (Std. time for output – Actual time)	
P	= 10 × (30 – 32)	= 20 (A)
Q	= 8 × (15 – 14)	= 8 (F)
R	= 12 × (22.5 – 20)	= 30 (F)
S	= 20 × (10.5 – 10)	= 10 (F)
		₹ 28 (F)

Reconciliation Statement Between Actual Cost & Standard Cost

Labour	Actual Cost	Variance			Standard Cost
	₹	Rate	Efficiency	Total	₹
P	352	32 (A)	20 (A)	52 (A)	300
Q	126	14 (A)	8 (F)	6 (A)	120
R	220	20 (F)	30 (F)	50 (F)	270
S	180	20 (F)	10 (F)	30 (F)	210
	878	6 (A)	28 (F)	22 (F)	900

(b)

Particulars	₹	₹
Selling Price		25.00
Variable Cost		
Material & Labour	15.00	
Selling Cost	4.00	19.00
Contribution per unit		**6.00**
Fixed Administration Cost	2,70,000.00	
Factory Overheads	5,40,000.00	
Total Fixed Cost		**8,10,000.00**

∴ BEP (units) = $\dfrac{8,10,000}{6} = 1,35,000$ units

i. **BEP expressed in amount of sales in rupees =** 1,35,000 × ₹ 25 = ₹ 33,75,000

ii. **Number of units that must be sold to earn a profit of ₹90,000 per year =** $\dfrac{8,10,000 + 90,000}{6} = 1,50,000$ units

iii. **How many units must be sold to earn a net income of 15% of sales**

Let 'a' be the number of units.

Sales = 25a

∴ Desired profit = 15% of 25a = 3.75a

Hence, units to be sold are = $\dfrac{Total\ Fixed\ \cos t + Desired\ profit}{Contribution\ per\ unit}$

or,　　　a　　　= $\dfrac{8,10,000 + 3.75a}{6}$

or,　　　a　　　= 3,60,000 units.

Question.3

(a) Anand Co. Ltd., having an adequate supply of labour presents the following data. Kindly analyse and state the area to be allotted for cultivation of various types of vegetables which would result in the maximization of profits. The company contemplates growing Potato, Onion, Gingers and Garlic.

	Potato	Onions	Gingers	Garlic
Selling Price per box (₹)	30	30	60	90
Seasons yield per acre (No of Boxes)	500	150	100	200
	Cost (₹)			
Material per acre	270	105	90	150
Labour for growing per acre	300	225	150	195
Picking & Packing per box	1.50	1.50	3.00	4.50
Transport per Box	3.00	3.00	1.50	4.50

The fixed cost in each season would be:

　　i) **Cultivation & growing - ₹ 56,000**

　　ii) **Picking - ₹ 42,000**

　　iii) **Transport - ₹ 10,000**

　　iv) **Administration - ₹ 84,000**

　　v) **Land Revenue - ₹ 18,000**

The company also faces the following limitations:

i) The area available is 450 acres, but out of it 300 acres are suitable for growing only Gingers and onions. The balance 150 acres is suitable for growing all four vegetables.

ii) As the products may be hypothecated to banks, hence the area allotted to any vegetable should be demarcated clearly in complete acres and not in fractions of an acre.

iii) The marketing strategy of the company requires compulsory production of all four types of vegetables in a season and the minimum quantity of any type should be 18,000 boxes.

Also calculate the profits that would arise in case the firm follows your advice.   **[4+4]**

(b) Components for an assembly are produced under the control of the production manager. These are assembled and sold under the supervision of the sales manager. The production manager is entitled for a bonus payment for himself at $1/8$ and the workers $7/8$th of the difference between the notional value and cost of production of the delivered components. The notional value is assessed at ₹5,18,500 for the components issued to assembly. The sales manager is entitled to a bonus of $2^{1}/_{2}$% of the profits for himself and 12-$1/_2$ % is distributed among his sales staff. The sales during a period amount to ₹65,000.

From the under mentioned particulars, detail the calculations involved in arriving at the bonus for both managers and the staff. Find also the impact of such bonus as a percentage of sales.

Particulars	₹
Raw materials at the beginning of the period	22,800
Raw materials at the end of the period	16,400
Purchases during the period	2,48,600
Wages – Production	46,200
Wages – Assembly	18,100
Overheads – Production	2,12,500
Overheads – Sales	45,200
Credit for scrap realized pertaining to components	8,700
Work-in-progress of production at the beginning	12,500
Work-in-progress of production at the end	18,200
Completed assemblies at the beginning	36,000
Completed assemblies at the end	24,030
Net realization on assemblies sold	6,50,000

[7]

Answer:

(a)

	Statement showing computation of contribution per acre and determination of priority for profitability				
	Particulars	Potato (₹)	Onion(₹)	Ginger(₹)	Garlic(₹)
I	Sales value per acre	15,000	4,500	6,000	18,000
II	Variable Cost:				
	Material	270	105	90	150
	Labour for growing	300	225	150	195
	Picking & Packing Labour	750	225	300	900
	Transport	1,500	450	150	900
		2,820	1,005	690	2,145
III	Contribution	12,180	3,495	5,310	15,855
	Priority	II	IV	III	I

	Statement showing optimum mix under given conditions and computation of profit at that mix					
	Particulars	**Potato (₹)**	**Onion (₹)**	**Ginger (₹)**	**Garlic (₹)**	**Total (₹)**
	Minimum production (in boxes)	18,000	18,000	18,000	18,000	
	Area utilized for these minimum production	36	120	180	90	426
	Remaining area					24
I.	No of acres to be cultivated, based on priority	36	120	180	114	450
II.	Contribution per acre	12,180	3,495	5,310	15,855	
III.	Total Contribution	4,38,480	4,19,400	9,55,800	18,07,470	36,21,150
IV.	Fixed Cost					2,10,000
V.	Profit					34,11,150

(b)

Cost of Production of the Components		₹
Work-in-progress (opening)		12,500
Raw materials consumed (Opening stock + Purchases – Closing stock)		2,55,000
Wages – Production		46,200
Overhead – Production		2,12,500
To t a l		5,26,200
Less: Credit for scrap realized		8,700
		5,17,500
Less: Work-in-progress (closing)		18,200
Cost of production excluding bonus	(a)	4,99,300
Notional value		5,18,500
Difference between notional value and cost of production		19,200
Bonus of Production Manager (19,200 x $^1/_8$)		2,400
Bonus to workers (19,200 x $^7/_8$)		16,800
Total bonus	(b)	19,200
Cost of the components delivered	(a + b)	5,18,500

Cost of sales of the Components		₹
Cost of the components delivered		5,18,500
Wages – Assembly		18,100
Overheads – Sales		45,200
Completed assembly (opening)		36,000
Total		6,17,800
Less : Completed assembly (closing)		24,030
Cost of sales excluding bonus	(a)	5,93,770
Selling price		6,50,000
Profit (before bonus)		56,230
Bonus to sales manager (56,230 x $^{2.5}/_{100}$)		1,406
Bonus to sales staff (56,230 x $^{12.5}/_{100}$)		7,029
Total bonus (sales)	(b)	8,435
Cost of sales including bonus	(a + b)	6,02,205
Profit (net)		47,795
Selling price		6,50,000

Impact of Bonus on Sales:

Bonus – Production	=19,200
Bonus – Sales	=8,435
Total bonus	=27,635

Bonus as a % of sales $= \left(\dfrac{27,635}{6,50,000}\right) \times 100 = 4.25\%$

Question.4

(a) "Best Transport Ltd" operates a fleet of trucks. The records for the truck, 'Joy' reveals the following information for April, 2014:

1.	Days maintained	30
2.	Days operated	25
3.	Days idle	5
4.	Total hours operated	300
5.	Total kilometers covered	2,500
6.	Total Tonnage carried (4 tonne – load per trip, return journey empty)	200

The following further information is made available:

i) **Operating Cost for the month:**

1.	Petrol	₹ 400
2.	Oil	₹ 170
3.	Grease	₹ 90
4.	Wages to driver	₹ 550
5.	Wages to helpers	₹ 350

ii) **Maintenance Costs for the month:**

1.	Repairs	₹ 170
2.	Overhaul	₹ 60
3.	Tyres	₹ 150
4.	Garage charges	₹ 100

iii) **Fixed costs for the month based on the estimates for the year:**

1.	Insurance	₹ 50
2.	License & Tax	₹ 80
3.	Interest	₹ 40
4.	Other Overheads	₹ 190

iv) **Capital Costs:**

1.	Cost of acquisition	₹ 54,000
2.	Residual Value at the end of 5 years	₹ 36,000

Prepare cost sheet and calculate the following:
    i) Cost per day operated
    ii) Cost per kilometer   **[4+1+1]**

(b) Ashim Ltd. produces four joint products, A, B, C and D, all of which emerge from the processing of one raw material. The following are the relevant data:

Production for the period:

Joint Products	Number of units	Selling price per unit (₹)
A	500	18.00
B	900	8.00
C	400	4.00
D	200	11.00

The company budgets for a profit of 10% of sales value. The other estimated costs are:

Particulars	Amount (₹)
Carriage Inwards	1,000
Direct Wages	3,000
Manufacturing Overhead	2,000
Administration Overhead	10% of sales value

You are required to:
    i)   Calculate the maximum price that may be paid for the raw material
    ii) Prepare a comprehensive cost statement for each of the products allocating the materials and other costs based upon
        a. Number of units   b. Sales Value   [3+3+3]

<u>Answer:</u>
(a)

Cost Sheet of "Best Transport ltd" for the month of April, 2014		
Particulars	Amount (₹)	Amount (₹)
I. Operating Costs:		
Petrol	400	
Oil	170	
Grease	90	
Wages to drivers	550	
Wages to helpers	350	1,560
II. Maintenance Costs:		
Repairs	170	
Overhaul	60	
Tyre	150	
Garage charges	100	480
III. Fixed Costs		
Insurance	50	
License & tax	80	
Interests	40	
Other overheads	190	
Depreciation $= \dfrac{54,000 - 36,000}{5 \times 12}$	300	
		660
IV. Total monthly cost		2,700

    i) **Cost per day operated =** (₹ 2,700 ÷ 25 days) = ₹ 108
    ii) **Cost per kilometer**   **=** (₹ 2,700 ÷ 2500 kms) = ₹ 1.08

(b)

Joint Products	Number of units	Selling price per unit (₹)	Sales Value (₹)
A	500	18.00	9,000

B	900	8.00	7,200
C	400	4.00	1,600
D	200	11.00	2,200
Total Sales Value			20,000
Less: Budgeted profit			2,000
Total Joint Cost			18,000

i) **Maximum price that may be paid for the raw material:**

Particulars	Amount (₹)	Amount (₹)
Total Joint Costs		18,000
Less: Other cost		
i. Carriage Inwards	1,000	
ii. Direct Wages	3,000	
iii. Manufacturing Overhead	2,000	
iv. Administration Overhead	2,000	8,000
Maximum price that may be paid for the raw material		10,000

ii) **Comprehensive cost statements:**
    a. **Based on Number of units:**

Particulars	A	B	C	D	Total
Number of units	500	900	400	200	2000
Raw Material @ ₹5.00	2500	4500	2000	1000	10000
Carriage @ 50p	250	450	200	100	1000
Direct wages @ ₹1.50	750	1350	600	300	3000
Manufacturing Overhead @ ₹1	500	900	400	200	2000
Administration Overhead @ ₹1	500	900	400	200	2000
Total Cost	4500	8100	3600	1800	18000

    b. **Based on Sales Value:**

Particulars	A	B	C	D	Total
Sales Value	9000	7200	1600	2200	20000
Raw Material	4500	3600	800	1100	10000
Carriage	450	360	80	110	1000
Direct wages	1350	1080	240	330	3000
Manufacturing Overhead	900	720	160	220	2000
Administration Overhead	900	720	160	220	2000
Total Cost	8100	6480	1440	1980	18000

Question.5

(a) ROSHNI Limited has received an offer of quantity discount on its order of materials as under:

Price per ton	Tones number
₹ 9,600	Less than 50
₹ 9,360	50 and less than 100
₹ 9,120	100 and less than 200
₹ 8,880	200 and less than 300
₹ 8,640	300 and above

The annual requirement for the material is 500 tonnes. The ordering cost per order is ₹12,500 and the stock holding cost is estimated at 25% of the material cost per annum.
Required

(i) Compute the most economical purchase level.
(ii) Compute EOQ if there are no quantity discounts and the price per tonne is ₹10,500.

[4+2=6]

(b) The cost sheet of a company based on a budget volume of sales of 4,00,000 units per quarter is as under :

	(₹ Per unit)
Direct materials	6.00
Direct wages	3.00
Factory overheads (50% fixed)	8.00
Selling & Adm. Overheads ($^1/_3$ variable)	4.50
Selling price	24.00

When the budget was discussed it was felt that the company would be able to achieve only a volume of 3,00,000 units of production and sales per quarter. The company therefore decided that an aggressive sales promotion campaign should be launched to achieve the following improved operations:

Proposal I :
- Sell 5,00,000 units per quarter by spending ₹2,50,000 on advertising.
- The factory fixed costs will increase by ₹4,00,000 per quarter.

Proposal II :
- Sell 6,00,000 units per quarter subject to the following conditions :
- An overall price reduction of ₹2 per unit is allowed on all sales.
- Variable selling and administration costs will increase by 6%.
- Direct material costs will be reduced by 1.5% due to purchase price discounts.
- The fixed factory costs will increase by ₹2,50,000 more.

You are required to prepare a Flexible Budget at 3,00,000, 5,00,000 and 6,00,000 units of output per quarter and calculate the profit at each of the above levels of output

[3+3+3 = 9]

Answer:
(a)

Order size (Q) (Units)	No. of orders A/Q (Units)	Cost of purchase Ax per unit cost	Carrying cost $\dfrac{A}{Q} \times ₹12500$	Carrying cost $\dfrac{Q}{2} \times C \times 25\%$	Total cost (3+4+5)
(1)	(2)	(3)	(4)	(5)	(6)
10	12.5	48,00,000 (500×9600)	1,56,250	48,000 $\left(\dfrac{40}{2} \times 9600 \times 0.25\right)$	50,04,250
50	10	46,80,000 (500×9360)	1,25,000	58,500 $\left(\dfrac{50}{2} \times 9360 \times 0.25\right)$	48,63,500
100	5	45,60,000 (500×9120)	62,500	1,14,000 $\left(\dfrac{100}{2} \times 9120 \times 0.25\right)$	47,36,500

200	2.5	44,40,000 (500×8880)	31,250 (2.5×12500)	2,22,000 $\left(\dfrac{200}{2} \times 8880 \times 0.25\right)$	46,93,250
300	1.67	43,20,000 (500×8640)	20,875 (1.67×12500)	3,24,000 $\left(\dfrac{300}{2} \times 8640 \times 0.25\right)$	46,64,875

The above table shows that the total cost of 500 units including ordering and carrying cost is minimum (₹ 46,64,875) where the order size is 300 units. Hence the most economical purchase level is 300 units.

(ii) EOQ = $\sqrt{\dfrac{2AO}{c \times i}}$ = $\sqrt{\dfrac{2 \times 500 \times 12500}{10500 \times 25}}$ = 69 tonnes.

(b)

Flexible budget for the quarter ended	₹	₹	₹
Units produced and sold	3,00,000	5,00,000	6,00,000
Sales revenue: (3,00,000 × ₹24); (5,00,000 × ₹24); (6,00,000 × ₹22) (a)	72,00,000	1,20,00,000	1,32,00,000
Variable costs :			
Direct materials (3,00,000 × ₹6); (5,00,000 × ₹6); (6,00,000 × ₹5.91)	18,00,000	30,00,000	35,46,000
Direct labour (@ ₹ 3 per unit)	9,00,000	15,00,000	18,00,000
Factory overheads (@ ₹ 4 per unit)	12,00,000	20,00,000	24,00,000
Selling and Administration overheads (3,00,000 × ₹1.5); (5,00,000 × ₹1.5); (6,00,000 × ₹1.59)	4,50,000	7,50,000	9,54,000
Total variable costs (b)	43,50,000	72,50,000	87,00,000
Contribution (c) = (a) – (b)	28,50,000	47,50,000	45,00,000
Fixed costs :			
Factory overhead	16,00,000	16,00,000	16,00,000
Selling and administration overheads	12,00,000	12,00,000	12,00,000
Increase in fixed factory costs	-	4,00,000	6,50,000
Advertisement costs	-	2,50,000	-
Total fixed costs (d)	28,00,000	34,50,000	34,50,000
Profit (c) – (d)	50,000	13,00,000	10,50,000

Question.6

(a) Explain briefly the procedure for the valuation of Work-in-process. **[3]**

(b) A company produces article 'A' from a material which passes through namely M and N. The details relating to a month are as under:

	Process M	Process N

Materials introduced (units)	10,000	
Transferred to next process (units)	9,000	
Work-in-process:		
At the beginning of the month (units)	-------	600
At the end of the month (units)	1,000	400
Expenses:		
Work-in-process at the beginning of the month	-------	9,400
Material introduced at the beginning of the process	1,20,000	------
Labour and Overheads	27,600	18,200

State of completion of work-in-process:
Process M: Closing WIP 20 % complete in respect of labour and overheads.
Process N: Opening WIP 33 $1/3$% complete in respect of labour and overheads.
        Closing WIP: 25% complete in respect of labour and overheads.
The finished output 'A' emerging out of process N is sold at ₹ 20 per unit.

Required:
Prepare Process Cost Accounts for Process M and N (Show the workings of equivalent units and cost per equivalent unit in each process). **[12]**

Answer:
(a)
The valuation of work-in-process can be made in the following three ways, depending upon the assumptions made regarding the flow of costs.
- i) First-in-first out (FIFO) method
- ii) Last-in-first out (LIFO) method
- iii) Average cost method

A brief account of the procedure followed for the valuation of work-in-process under the above three methods is as follows;

i) <u>FIFO method:</u> According to this method the units first entering the process are completed first. Thus the units completed during a period would consist partly of the units which were incomplete at the beginning of the period and partly of the units introduced during the period. The cost of completed units is affected by the value of the opening inventory, which is based on the cost of the previous period. The closing inventory of work-in-process is valued at its current cost.

ii) <u>LIFO method:</u> According to this method units last entering the process are to be completed first. The completed units will be shown at their current cost and the closing-work in process will continue to appear at the cost of the opening inventory of work-in-progress along with current cost of work in progress if any.

iii) <u>Average cost method:</u> According to this method opening inventory of work-in-process and its costs are merged with the production and cost of the current period, respectively. An average cost per unit is determined by dividing the total cost by the total equivalent units, to ascertain the value of the units completed and units in process.

(b)

Process Cost Accounts
STATEMENT OF EQUIVALENT UNITS (PROCESS M)

Input Units		Materials		Labour & Overheads	
		Units	% completion	Units	% completion
9,000	Units Completed	9,000	100	9,000	100

1,000	Closing Stock	1,000	100	200	20
Equivalent Units		10,000		9,200	
Expenses		₹ 1,20,000		₹ 27,600	
Cost per Equivalent unit		12		3	
Cost of Closing Stock= 1,000 × ₹ 12 + 200 × ₹ 3 =₹ 12,600					
Cost of Completion units= ₹1,20,000 + ₹ 27,600 - ₹ 12,600 = ₹1,35,000					

PROCESS M ACCOUNT

	Units	₹		Units	₹
To Material	10,000	1,20,000	By Transfer Process N	9,000	1,35,000
To Labour & Overhead		27,600	By Closing Stock	1,000	12,600
	10,000	1,47,600		10,000	1,47,600

STATEMENT OF EQUIVALENT UNITS (PROCESS N)

		Material		Labour & Overhead	
Input		Units	% Completion	Units	% Completion
600	Opening Stock (Work Competed in current period)			400	66 2/3
8,600	Units introduced and completed [units started less closing stock: (9,000 – 400)]	8,600	100	8,600	100
400	Closing Stock (work done in current period)	400	100	100	25
	Equivalent Units	9,000		9,100	
	Expenses	₹1,35,000		₹18,200	
	Cost per Equivalent unit	₹ 15		₹ 2	
Cost of Closing Stock = 400 × ₹ 15 + 100 × ₹ 2 = ₹ 6,200					
Cost of finished Stock (Product A) = ₹ 9,400 + ₹ 1,35,000 + ₹ 18,200 - ₹ 6,200 = ₹ 1,56,400					

PROCESS N ACCOUNT

	Units	₹		Units	₹
To Opening Stock	600	9,400	By Transfer to Finished Stock (Product A)	9,200	1,56,400
To Process M	9,000	1,35,000			
To Labour & Overhead		18,200	By Closing Stock	400	6,200
	9,600	1,62,600		9,600	1,62,600

Question.7

(a) The following figures have been extracted from the books of accounts of "Asha Ltd' for the year 2013.

Particulars	₹
Direct Material consumption	**45.00,000**
Direct Wages	**36,00,000**
Factory Overheads	**16,00,000**
Administration Overhead	**7,00,000**

Selling & Distribution Overhead	9,60,000
Bad Debts	80,000
Preliminary expenses written off	40,000
Legal Charges	10,000
Dividend received	1,00,000
Interest on deposit received	20,000
Sales (1,20,000 units)	1,20,00,000
Closing Stock	
Finished goods (4,000 units)	3,20,000
Work-in-progress	2,40,000

Cost accounts for the same period reveal that the direct material consumption was ₹ 50, 00,000. Factory overhead recovered was 20% on prime cost; Administration overhead recovered was @ ₹ 6.00 per unit of production and selling and distribution overhead recovered were @ ₹ 8.00 per unit sold.

You are required to prepare the Costing profit & loss account and reconcile the same with the Financial profit and loss account provided that the net profit as per financial books is ₹ 11,90,000 for that year. **[4+4]**

(b) The cost structure of an article the selling price of which is ₹45,000 is as follows:
   i) Direct Materials - 50%
   ii) Direct Labour - 20%
   iii) Overheads - 30%

An increase of 15% in the cost of materials and of 25% in the cost of labour is anticipated. These increased costs in relation to the present selling price would cause a 25% decrease in the amount of present profit per article.

You are required:
   i) To prepare a Statement of Profit Per Article at Present, and
   ii) The Revised Selling Price to produce the same percentage of profit to sales as before

[7]

Answer:
(a)

Costing Profit & Loss A/c			
Particulars	**Amount (₹)**	**Particulars**	**Amount (₹)**
To, Materials	50,00,000	By, Sales	1,20,00,000
To, Direct Wages	36,00,000		
Prime Cost	86,00,000		
To, Factory O/H (@20% on prime cost)	17,20,000		
	1,03,20,000		
(-) Closing WIP	2,40,000		
Factory Cost	1,00,80,000		
To Administration O/H [(1,20,000 +4,000)×6]	7,44,000		
Cost of Production	1,08,24,000		
(-) Closing stock of Finished goods $[1,08,24,000 \times \dfrac{4,000}{1,24,000}]$	3,49,161		
Cost of Goods sold (8 × 1,20,000)	1,04,74,839		

To, Selling O/H	9,60,000		
To, Profit	5,65,161		
	1,20,00,000		1,20,00,000

Statement of Reconciliation		
Particulars	Amount (₹)	Amount (₹)
Profit as per Financial accounts (given)		11,90,000
Add: Over Valuation of closing stock of Finished goods in cost accounts (3,49,161 – 3,20,000)	29,161	
Pure Financial Items not considered in cost accounts:		
1. Bad Debts	80,000	
2. Preliminary expenses written off	40,000	
3. Legal Charges	10,000	1,59,161
Less: Over recovery of		
1. Material	5,00,000	
2. Factory Overhead	1,20,000	
3. Administration Overhead	44,000	
Financial items not considered in Cost Accounts		
1. Dividend Received	1,00,000	
2. Interest on Deposits	20,000	7,84,000
Profit as per cost Accounts		5,65,161

(b) Present Statement of Profit per article:

Particulars	₹	₹
Direct Material	0.5x	15,000
Direct Labour	0.2x	6,000
Overheads	0.3x	9,000
Total Cost		30,000
Profit (50% of cost)		15,000
Selling Price		45,000

Statement of Revised Selling Price per Article:

Particulars	₹	₹
Direct Material	0.575x	17,250
Direct Labour	0.250x	7,500
Overheads	0.300x	9,000
Total Cost		33,750
Profit (50% of cost)		16,875
Selling Price		50,625

Working Notes:
Suppose,
x = Total Cost
y = Profit per article
Hence x + y = ₹45,000

Statement showing The Present & Anticipated Cost per Article

Item	Present Cost	Increase in % ₹	Anticipated Cost
Direct Material	0.5x	15.00	0.575x
Direct Labour	0.2x	25.00	0.250x

Overheads	0.3x		0.300x
	X		1.125x

1.125x + 0.75y = ₹45,000 - I
x + y = 45,000 - II
1.5 x+ y = 60,000 (Multiply both sides of first equation by $^4/_3$) - III
Deducting (III) equation
0.5x = 15,000
From equation (II), we get
x = ₹ 30,000
and y = ₹15,000

Question.8

Write a short note on any three of the following: [3× 5 = 15]
   i) **Role of Cost Accountant in Material Cost Control**
   ii) **Incremental Pricing**
   iii) **Value Analysis**
   iv) **Application of service costing**
   v) **Material transfer note**

Answer:

i) The Cost Accountant may be involved in –
a) <u>Scheduling</u> – Helping to prepare schedule for materials requirements by co-ordinating with production planning and purchase departments, and to provide estimate of material cost.
b) <u>Cost assignment</u> – Tracing materials issued to cost units or jobs undertaken or to overheads (through requisition notes) so that the actual costs of output can be assessed (or estimated) and the profitability or individual products or jobs can be determined.
c) <u>Variance analysis</u> – Reporting the costs of material losses by calculating Material Usage Variance and indicating the same to production management. Monitoring the cost of material purchases and the efficiency of the Purchasing Department by means of Material Price Variance.
d) <u>EOQ</u> – Providing information about cost of ordering stocks and stock holding so as to enable stores management to determine the optimum order size for stocks, which will minimize store-keeping costs.
e) <u>Substitution</u> – Providing information on whether it would be more profitable to alter the material specifications of individual products or to alter the material mix, by introducing cheaper substitute materials.
f) <u>Accounting</u> – Reviewing the material accounting procedures to ensure that goods ordered are received, checked, invoiced and paid for properly.

ii) Incremental Pricing involves comparison of the impact of decisions on revenues and cost. If a pricing decision results in a greater increase in revenue than in costs, it is favourable. Profitability is identified as the primary consideration and then the decision is adjusted to bring it in consonance with the other decisions of the business.
Incremental pricing analyses all aspects of decision-making as listed below:
a) <u>Relevant cost analysis</u>– This technique considers changes in costs rather than in Average Cost. Overhead allocations are irrelevant. Incremental revenue inflows and Cost outflows are included for decision-making.

b) <u>Product-line relationship analysis</u> – This technique necessitates consideration being given to possible complementary relations in demand. Sale of one product may lead to the sale of a complementary product. This overall effect on profitability has to be evaluated.

c) <u>Opportunity cost analysis</u> – Incremental revenue should cover Opportunity Cost and also generate surplus. A price, which results in an Incremental Revenue, which in turn merely covers the Incremental Costs, is not sufficient. If opportunity costs exceed Incremental Revenue, the decision is not sound.

d) <u>Time factor analysis</u> – The decision should take into account the short-run and long-run effect. A high price may increase its immediate profits but may lead to loss of revenue in the long-run owing to competitors snatching the business.

e) <u>CVP analysis</u> – In fixing prices, consideration should be given to Price-Volume relationship. The responsiveness of the market to the price should be such that the volume is increased to achieve full utilization of plant capacity.

f) <u>Risk analysis</u> – Consideration should also be given to the evaluation of uncertainty and risk factor. The decision taken should be able to maximize the expected value, based on Probability Theory.

iii) <u>Value Analysis</u>: It is one of the important tools of modern management in the area of cost reduction. It is also known by other names such as value engineering, value control and product research. Value analysis is the process of systematic analysis and evaluation of various techniques and functions with a view to improve organisational performance. It aims at reducing and controlling the cost of a product from the point of view of its value by analysing the value currently received. It investigates into the economic attributes of value analysis, believes in a planned action to improve performance and thereby, generates higher value in a product and ultimately causes reduction in its cost.

The meaning of the term value may vary from person to person, time to time and place to place. However, in the context of cost reduction and control it refers to the 'use value'.

The reduction in the costs of a product and thus increasing the profitability of a concern is the main advantage of value analysis.

The benefits of value analysis are being derived in many industries, e.g., engineering, building construction and the oil industry. It is being applied to components of a product, finished product and also to be methods of packaging.

The various steps involved in value analysis are;

a) Identification of the problem;

b) Collecting information about the function, design, material, labour, overhead costs, etc., of the product and finding out the availability of the competitive products in the market;

c) Exploring and evaluating alternatives anddeveloping them.

iv) The service costing is applied in the following situations :

a) <u>Internal service departments</u> –Service costing is applied to the operations concerned in an organization which provide services to production departments. For example, Canteen for the staff, Hospital for the staff, boiler house of supplying steam to production departments, Captive Power generation unit, operation of fleet of vehicles for transport of raw material to factory or distribution of finished goods to the market outlets, computer department services used by other departments etc.

b) <u>Service organizations</u> – When services are offered to outside customers with a profit motive and it is the business of the organisation in offering services, like Transport organization, Hotel business, Power generation company etc., service costing is applied.

v) When excess material remains in one department, and another neighboring department need the same, it becomes easier and economical to transfer the material rather than receiving back in stores, and again issue them. Transfers are made for the document known

as a Material Transfer Note (MTN). This document is used to record the transfer of materials from one department, job, stores, cost centre, or cost unit to another.

Valuation of Material Transfer Note (MTN) is done at the original price of issue but if this is not practicable, the current stores ledger rate is adopted for valuation as in the case of Material Return Notes. However, the MTN should be prepared correctly to avoid incorrect accounting. It is preferable to use pre-numbered forms for better control.

Circulation of Material Transfer Note:
a) Receiving department
b) Cost department
c) Stores
d) Issuing department