Paper 10- Cost & Management Accountancy

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

Section A

1. Answer Question No.1 which is compulsory carrying 25 Marks

(a) Answer the following **[5 x 2 = 10]**

(i) Given: Sales ₹ 2,00,000; Fixed Cost ₹ 40,000; BEP ₹ 1,60,000. Ascertain the profit.

(ii) A contract is expected to be 80% complete in its first year of construction, as certified. The Contractee pays 75% of the work certified as and when certified and makes final payment on the completion of the Contract. The following information is available for the first year:

	(₹)
Cost of Work uncertified	80,000
Profit transferred to Profit and Loss Account at the end of year 1 on incomplete contract	60,000
Cost of Work to date	8,80,000

Compute the Notional Profit.

(iii) Calculate the efficiency ratio from the following figures:

Budgeted production	160 units
Actual production	120 units
Standard time per unit	10 hours
Actual hours worked	1000

(iv) The following information is given for the next year:

Budgeted Sales – 5,00,000 units.

Finished Goods: Closing Stock – 1,50,000 units; Opening Stock – 80,000 units.

Equivalent units of WIP: Closing Stock – 60,000 units; Opening Stock – 50,000 units.

Calculate the number of equivalent units produced.

(v) X Ltd., produces and markets 3 products-Chairs, Tables and Benches. The company is interested in presenting its budget for the next quarter ending 31st March. It expects to sell 4,200 Chairs, 800 Tables and 500 Benches during the said period at the selling price of ₹50, ₹85 and ₹158 per unit. The following information is made available for this purpose:

Inventory Levels planned:

Particulars	Chairs (Nos.)	Tables (Nos.)	Benches (Nos.)
Opening Stock	400	100	50
Closing Stock	200	300	50

Prepare the Production Budget for the Quarter ending 31st March.

Answer:

(i) P/V Ratio = Fixed Cost/ BEP = 40000/160000 = 0.25
Total Contribution = Sales * P/V = 200000*0.25 = ₹50000

Profit = Contribution - Fixed Cost = 50000 - 40000 = ₹ 10000.

(ii) As the Contract is 80% complete, 2/3rd of Notional Profit on Cash basis has been transferred to P/L A/C in the 1st year of the contract.
Thus, amount transferred to P/L A/C = 2/3 × Notional Profit × % of cash received

Or, ₹ 60000 = 2/3 × Notional Profit × 75%

Or, Notional Profit – 60000 × (3/2) × (I 00/75) = ₹ 1,20,000

(iii) Efficiency Ratio = standard hours for actual production/actual hours worked
= (10 hours × 120 units/ 1000) × 100 = 120%

(iv) Sales + Closing Stock – Opening Stock = Production
FG: 5,00,000 + 1,50,000 – 80,000 = 5,70,000 Units

WIP: + 60,000 – 50,000 = 10,000 Units

Units Number of equivalent units produced = 5,80,000 Units

(v) Production Budget

Particulars	Chairs (units)	Tables (units)	Benches (units)
Budgeted Sales Quantity	4,200	800	500
Add: Closing Stock of Finished Goods	200	300	50
Sub-total	4,400	1,100	550
Less: Op. Stock of Finished Goods	400	100	50
Budgeted Production Quantity	4,000	1,000	500

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

	Column 'A'		Column 'B'
1.	**The method which is followed for evaluation of equivalent production when prices are fluctuating.**	**A**	**Fixed Cost / P/V ratio**
2.	**In hospital the cost unit is**	**B**	**Standard yield for actual Mix minus Actual Yield) x Standard yields Price.**
3.	**Breakeven point (in Value)**	**C**	**Average price method**
4.	**Direct material yield variance**	**D**	**Fixed, variable and semi variable costs.**
5.	**A flexible budget takes into the account**	**E**	**Per bed**

Answer:

	Column 'A'		Column 'B'
1.	The method which is followed for evaluation of equivalent production when prices are fluctuating.	**C**	Average price method
2.	In hospital the cost unit is	**E**	Per bed
3.	Breakeven point (in Value)	**A**	Fixed Cost / P/V ratio
4.	Direct material yield variance	**B**	(Standard yield for actual Mix minus

			Actual Yield) x Standard yields Price.
5.	A flexible budget takes into the account	**D**	Fixed, variable and semi variable costs.

(c) What is the procedure to be followed for fixing the remuneration of a Cost Auditor? [5]

Answer:

Rule 14 of the Companies (Audit and Auditors) Rules, 2014 has laid down the procedure of appointment and fixing the remuneration of a cost auditor.

Remuneration of the Cost Auditor: For the purpose of sub-section (3) of section 148, in the case of companies which are required to constitute an audit committee—

(i) the Board shall appoint an individual, who is a cost accountant in practice, or a firm of cost accountants in practice, as cost auditor on the recommendations of the Audit committee, which shall also recommend remuneration for such cost auditor;

(ii) the remuneration recommended by the Audit Committee under (i) shall be considered and approved by the Board of Directors and ratified subsequently by the shareholders; (ii) in the case of other companies which are not required to constitute an audit committee, the Board shall appoint an individual who is a cost accountant in practice or a firm of cost accountants in practice as cost auditor and the remuneration of such cost auditor shall be ratified by shareholders subsequently.

(d) The Cost of a product of MENZ LTD. is given by function $C(q) = 200q - 10q^2 + \frac{1}{3}q^3$.

[Where C(q) stands for Cost function and q for output.]
Calculate, output at which average cost is equal to marginal cost. [5]

Answer:

Marginal cost (MC) $= \frac{dc}{dq}(200q - 10q^2 + 1/3q^3)$

$= 200 - 20q + q^2$

Average cost (AC) $= (200q - 10q^2 + 1/3q^3)/q$

$= 200 - 10q + 1/3q^2$

If average cost = Marginal cost, then.

$200 - 10q + 1/3q^2 = 200 - 20q + q^2$

Or, $10q - 2/3q^2 = 0$ or, $q(10 - 2/3q) = 0$ or $q = 0.15$

Output at which AC = MC is 15 units.

Section B

(Cost & Management Accounting – Methods & Techniques and Cost Records and Cost Audit)
Answer any three questions from the following
Each question carries 17 marks

2. (a) The share of total production and the cost-based fair price computed separately for each of the four units in industry are as follows:

(Amount in ₹)

Units	A	B	C	D
Share of Production (%)	40	25	20	15
Direct Material	300	360	340	380
Direct Labour	200	240	280	320
Depreciation	600	400	320	200
Other Overheads	600	600	560	480
	1,700	1,600	1,500	1,380
20% Return on Capital Employed	1,260	860	700	460
FAIR PRICE	2,960	2,460	2,200	1,840
Capital Employed per unit:				
Net Fixed Assets (₹ per unit)	6,000	4,000	3,200	2,000
Working Capital (₹ per unit)	300	3,000	300	300
Total Capital (₹ per unit)	6,300	4,300	3,500	2,300

Required:

What should be the uniform price fixed for the product of the industry? [5]

(b) MAGATRON LTD. produces and sells four products A, B, C and D. Details of the four products and relevant information are given below for week ended March 29, 2017:

Products	A	B	C	D
Output (units)	120	100	80	120
Cost per unit (₹)				
Direct Material	40	50	30	60
Direct Labour	28	21	14	21
Machine-hours (per unit)	4	3	2	3

The four products are similar and are usually produced in production runs of 20 units and sold in batches of 10 units.

The production overheads during the period are as follows:

	₹
Factory works expenses	20,860
Set up costs	10,500
Stores receiving	7,200
Inspection/Quality control	4,200
Material handling and dispatch	9,240

The production overhead is currently absorbed by using a Machine-hour rate and the company wishes to introduce Activity Based Costing (ABC) system and has identified major cost pools for production overheads and their associated cost drivers.

Information in these activity cost pools and their drivers is given below:

Activity Cost Pools	Cost Drivers
Factory Works Expenses	Machine-hours
Set up costs	Number of production runs
Stores receiving	Requisition raised
Inspection/Quality Control	Number of production runs
Material handling & dispatch	Number of orders executed

The number of requisitions-raised on the stores was 20 for each product and number of orders executed was 42, each order being for a batch of 10 of a product.

Requirements:

(i) Total cost of each product assuming the absorption of overhead on Machine-hour basis.

(ii) Total cost of each product assuming the absorption of overhead by using Activity Based Costing.

(iii) Show the differences between (i) and (ii) and Comment. (3+6+2+1)=12

Answer:

(a) COMPUTATION OF UNIFORM PRICE FOR THE PRODUCT

(Amount in ₹)

Units share of production		Total cost	Return on capital employed	Selling price
	(1)	(2)	(3)	(2+3)
A	0.40	1700 x 0.40 = 680	1260 x 0.40=504	1184
B	0.25	1600 x 0.25=400	860 x 0.25=215	615
C	0.20	1500 x 0.20 = 300	700 x 0.20=140	440
D	0.15	1380 x 0.15 = 207	460 x 0.15=69	276
		= 1587	= 928	2515

Uniform price: ₹1,587 + ₹928 = ₹2,515

Hence, Uniform price for the product = ₹2,515

(b) MAGATRON LTD.

(i) Statements showing total cost of different products assuming absorption overhead on a Machine Hour Rate basis.

(Figure in ₹)

Particulars	**PRODUCT**				**TOTAL**
	A	B	C	D	
Output (units)	120	100	80	120	420
Direct Material	40	50	30	60	180
Direct Labour	28	21	14	21 120	84
Overheads @ 40/- per M/G hr	160	120	80		480
Total cost per unit	228	191	124	201	
Total cost	27360	19100	9920	24120	80500

$$\text{Overhead rate} = \frac{52{,}000}{1{,}300} = 40 \text{ per Machine hour}$$

[Total Machine hours = (120 × 4 +100 ×3 + 80 ×2 + 120 ×3) = 1,300]

(ii)

Total Overheads		**Drivers**	**No.**	**Cost/Unit of Drivers**	
Factory works expenses	₹20,860	Machine hrs	1,300	20,860/1,300	= ₹16.05
Set up costs	₹10,500	Production runs	21	10,500/21	= ₹500.00
Stores receiving	₹7,200	Requisitions	80	7,200/80	= ₹90.00
Inspection/Quality control	₹4,200	Productions runs	21	4,200/21	= ₹200.00
Material handling & dispatch	₹9,240	orders	42	9,240/42	= ₹220.00
Total	₹52,000				

Statement showing total cost of each product assuming activity based costing:

Particulars	**Product**			
	A	**B**	**C**	**D**
Output (units)	120	100	80	120
No. of production runs	6	5	4	6
No. of stores requisitions	20	20	20	20
No. of sales orders	12	10	8	12
Machine hours per unit	4	3	2	3

Direct materials (₹)	40.00	50.00	30.00	60.00
Direct labour (₹)	28.00	21.00	14.00	21.00
Factory Works Expenses (₹)	64.18	48.14	32.09	48.14
Set ups(₹)	25.00	25.00	25.00	25.00
Store receiving (₹)	15.00	18.00	22.50	15.00
Inspection/quality control (₹)	10.00	10.00	10.00	10.00
Handling/dispatch (₹)	22.00	22.00	22.00	22.00
Unit cost (₹)	204.18	194.14	155.59	201.14
Total cost (₹)	24,501.60	19,414.00	12,447.20	21,136.80

(iii) Statement showing differences (in ₹)

Particulars	Products			
	A	B	C	D
Cost peer unit under MHR (i)	228.00	191.00	124.00	201.00
Cost per Unit under ABC (ii)	204.18	194.14	155.59	201.14
Difference	23.82	(3.14)	(31.59)	(0.14)
Total cost- MHR (i)	27,360.00	19,100.00	9,920.00	24,120.00
Total cost- ABC (ii)	24,501.60	19,414.00	12,447.20	24,136.80
Difference	2,858.40	(314.00)	(2,527.20)	(16.80)

Comments:

Comparison of the ABC cost with the original traditionally calculated cost reveals that product-A was significantly overcosted by the traditional system relative to the ABC system, whilst product Byproduct C and product D were seriously undercosted. Product A consumes comparatively more of machine hours than other three products, This result is therefore to be expected. ABC reflects reality in its allocation of production overhead costs to the product. The traditional approach allocated all production overhead costs to products as if the overheads were driven by unit level activities i.e. the number of direct labour hours worked.

In the light of above criteria, it may be commented that ABC gives a better insight into the cost of producing the products than traditional cost.

3. (a) Division- AY of STATUSLINE Ltd. is a profit centre which produces four products M, N, O and P, Each product is sold in the external market also. Data for the products are:

	M	N	O	P
Market price per unit (₹)	**300**	**292**	**280**	**260**
Variable production cost per unit (₹)	**260**	**200**	**180**	**170**
Labour hours required per unit (hrs.)	**3**	**4**	**2**	**3**

Product P can be transferred to Division-BZ, but the maximum quantity that may be required for transfer is 2500 units of P.

The maximum sales in the external market are:

M-2800 Units; N-2500 Units; 0-2300 Units; and P-1600 Units. Division-BZ can purchase the same product at a price of ₹250 per unit from outside instead of receiving transfer of product P from division-AY.

Required:

What should be the transfer price for each unit for 2500 units of P, if the total labour hours available in Division-AY are 20000 hours? [8]

(b) ANSTIM TRANSPORT LTD., a transport company has been given a twenty Kilometer long rout to ply a bus. The bus costs the company ₹10 lakh. It has been insured at 3% per annum. The annual road tax amounts to ₹20,000. Garage rent is ₹4,000 per month. Annual

repair is estimated to cost ₹ 23,600 and the bus is likely to last for five years.

The salary of the Driver and the Conductor is ₹6,000 and ₹2,000 per month respectively in addition to 10% of the takings as commission to be shared equally by them. The Manager Salary is ₹14,000 per month and stationery will cost ₹ 1,000 per month. Petrol and Oil will cost ₹500 per 1000 kilometres. The bus will make three round trips per day carrying on average 40 passengers in each trip.

Assuming 15% profit on takings and that the bus will ply on an average 25 days in a month.

Required:
Prepare Operating Cost statement on a full year basis and also calculate the bus fare to be charged from each passenger per kilometre. [9]

Answer:

(a) STATUSLINE LTD.

Calculation of product wise contribution per labour hour (key factor)

Particulars	M	N	O	P
	₹	₹	₹	₹
Market price	300	292	280	260
Less: Variable cost	260	200	180	170
Contribution per unit	40	92	100	90
Labour hours required per unit	3	4	2	3
Contribution per labour hour (₹)	13.3333	23	50	30
Ranking	IV	III	I	II
Maximum demand (units)	2,800	2,500	2,300	1,600
Total No. of hours required	8400	10000	4,600	4,800
Allocation of 20000 hours on the basis of ranking	*600	10,000	4,600	4,800

*(Balancing figure)

Time required meeting the demand of 2500 units of product P for division BZ is 7500 hours. This requirement of time viz. 7500 hours for providing 2500 units of product P for division BZ can be met by sacrificing 600 hours of product M (200 units) and 6900 hours of product N (1725 units)

Computation of Transfer price of product P :	2500 units
Variable cost @ 170 per unit	₹4,25,000
Add: Opportunity cost (contribution lost)	
Product M-600 hours @ 13.3333 = 8,000	
Product N – 6,900 hours @ 23 = 1,58,700	₹1,66,700
Total amount to be recovered (Total transfer price)	₹5,91,700

Hence, transfer price per unit of product P= 5,91,700/2,500 = ₹236.68 per unit

(b) ANSTIM TRANSPORT LTD

Statement showing operating cost of the Bus per Annum

Particulars	₹

(a)	**Fixed charges:**	
	Manager's Salary (₹14,000 ×12)	1,68,000
	Driver's Salary (₹6000 ×12)	72,000
	Conductor's Salary (₹ 2,000 ×12)	24,000
	Road Tax	20,000
	Insurance (3% of ₹10,00,000)	30,000
	Garage Rent (₹4000 ×12)	48,000
	Stationery (₹ 1,000 × 12)	12,000
	Depreciation (₹10,00,000/5 years)	20,000
		5,74,000
(b)	**Maintenance costs:**	
	Repair	23,600
(c)	**Running charges:**	
	Petrol and Oil (36,000 km/ 100) × ₹500	1,80,000
(d)	Total cost: (A + B + C)	7,77,600
(e)	Add: 10 percent of takings for commission of Driver and Conductor and 15 percent for desired profit i.e. 25 percent on takings or 33 1/3 percent of Total cost	2,59,200
(f)	Total Takings (d + e)	10,36,800

Calculation of bus fare to be charged:

1. Effective km (20 km × 2 ×3 ×25 ×12) — 36,000 km
2. Effective passenger kilometer(36,000 × 40) — 14,40,000 passenger km
3. Total takings: — ₹10,36,800
4. Rate to be charged per kilometer from each Passenger (₹10,36,800/14,40,000) — ₹0.72

Working note: Calculation of distance covered
= 20 km × 2 × 3 × 25 ×12 = 36,000 km per annum

4. (a) Roshan Ltd. produces three products P, Q and R and for each of them uses three different machines X, Y and Z. Capacity of the machines are limited to 7000 hours for X, 8600 hours for Y and 5400 hours for Z per month. Relevant data for November 2016 are stated below:

Products	P	Q	R
Selling price per unit (₹)	10,000	8,000	6,000
Variable cost per unit (₹)	7,000	5,600	4,000
Machine hours required per unit			
X	20	12	4
Y	20	18	6
Z	20	6	2
Expected Demand (units)	200	200	200

Machine Z is identified as the bottleneck. Calculate the optimum product mix based on the throughput concept and ascertain the total profits if fixed cost amounts to ₹ 7,80,000. [11]

(b) How do you treat the fallowing items in Cost Accounting? [3+3]

(i) Rectification Cost

(ii) Obsolescence:

Answer:

(a)

Particulars	P	Q	R	
Selling price per unit (₹)	10000	8000	6000	
Variable cost per unit (₹)	7000	5600	4000	
Machine hours required per unit				
X	20	12	4	
Y	20	18	6	
Z	20	6	2	
Expected Demand (units)	200	200	200	
Contribution Per Unit (CPU) (₹)	3000	2400	2000	
Contribution per hour of Z (Bottleneck) - CPU/Machine hour per unit	150	400	1000	
Rank of preference	3	2	1	
Hours allotted in order of preference: R: 200*2 = 400 Q. 200*6 = 1200 P: Residual = 5400 -(400+1200)	3800	1200	400	5400
Optimum Product Mix (Units): Max Demand for R and Q and 3800/20-190 for P	190	200	200	
Contribution (₹): Units*CPU	570000	480000	400000	1450000
Fixed Cost (₹)				780000
Total Profit (₹)				670000

(b) Treatment in cost accounting:

(i) Rectification Cost: In the course of manufacturing/process, there is likely to be some defective which can be rectified or brought upto the standard by incurring some extra material, labour and overheads. The cost is booked under 'Cost on rectification of detectives or re-processing cost'. The detectives should be classified under (i) normal (ii) abnormal for the purpose of control and treated as : (i) Normal detectives - Rectification cost may be treated as part of the product cost if this is identifiable with any specific product or process, otherwise this may be treated as manufacturing overhead. (ii) Abnormal detectives - Such detectives should not normally have arisen and therefore, rectification cost is not to be charged in cost accounts but debitable to profit and loss account.

(ii) Obsolescence: (a) Obsolescence of Fixed Assets. (b) Obsolescence of Inventory. (a) Obsolescence of Fixed Assets: Obsolescence represents the loss arising as a result of having the discard an asset due to its supersession in favor of a more productive asset at an earlier date than planned/contemplated. It is sometimes called "external depreciation" because the existing asset is replaced by a now asset on account of invention/innovation. The loss due to obsolescence to fixed assets may be dealt with in the following manner: • In industries which are vulnerable to the risks of obsolescence, e.g., electronics, it is somewhat predictable that obsolescence will take place with certain frequency. In such case, higher rates of deprecation may be charged to take care of such obsolescence. • For industries which are not vulnerable to frequent obsolescence it is prudent to create a reserve fund to take care of such eventualities. • For other industries bearing a remote possibility of obsolescence in the event of obsolescence taking place, loss is to be written off to profit and loss account.

5. (a) Gemini chemicals Ltd. Provides the following information from its records:

Material	Quantity (kgs)	Rate/kg (₹)

A	**8**	**6**
B	**4**	**4**
	12	

During April 2016, 1,000 kgs of GEMCO were produced. The actual consumption of material was as under:

Material	Quantity (kgs)	Rate/kg (₹)
A	**760**	**7**
B	**500**	**5**
	1,260	

Calculate: i. Material cost variance

(i) Material Cost Variance
(ii) Material Price variance
(iii) Material Usage variance **[4+4+4]**

(b) From the following data, prepare a Production Budget for ABC Co. Ltd., for the six months period ending on 30th June, 2016.
Stocks for the budgeted period:

(in units)

Product	As on 01 January, 2016	As on 30 June, 2016
A	**6,000**	**10,000**
B	**9,000**	**8,000**
C	**12,000**	**17,500**

Other relevant data:

Product	Normal loss in production	Requirement to fulfill sales programme (units)
A	**4%**	**60,000**
B	**2%**	**50,000**
C	**5%**	**80,000**

[5]

Answer:

(a) Basic Calculations:

Calculation of standard input for actual production (1,000 kgs.)

Standard output	Standard input
10 kgs	12 kgs
1,000 kgs	?

Standard input = 12/10 × 1,000 = 1,200 kgs.

1. Standard Quantity for actual production:
   Material – A = 8/12 × 1,200 kgs = 800 kgs.
   Material – B = 4/12 × 1,200 kgs = 400 kgs.

2. Calculation of Revised Standard Quantity Actual Quantity at Standard mix)
   Material – A = 8/12 × 1,260 kgs = 840 kgs.
   Material – B = 4/12 × 1,260 kgs = 420 kgs.

Relevant cost details for computation of Material variances:

Particulars	Material – A	Material – B
a. Actual Price (AP)	₹7/kg	₹5/kg
b. Actual Quantity (AQ)	760 kgs	500 kgs
c. Standard Price (SP)	₹6/kg	₹4/kg
d. Standard Quantity (See Note – 2)	800 kgs	400 kgs
e. Revised Standard Quantity (RSQ) (See Note – 3)	840 kgs	420 kgs

Particulars	M 1(AP × AQ)	M2 (SP × AO)	M3 (SP × RSQ)	M4 (SP × SQ)
Material-A	7 × 760 = 5,320	6 × 760 = 4,560	6 × 840 = 5,040	6 × 800 = 4,800
Material- B	5 × 500 = 2,500	4 × 500 = 2,000	4× 420 =1,680	4 × 400 =1,600

(i) Material Cost Variance = M4 – M1

Material – A = ₹4,800 – ₹5,320 = ₹520 (A)

Material – B = ₹1,600 – ₹2,500 = ₹900 (A)

₹1,420 (A)

(ii) Material Price variance = M2 – M1

Material – A = ₹4,560 – ₹5,320 = ₹760 (A)

Material – B = ₹2,000 – ₹2,500 = ₹500 (A)

₹1,260 (A)

(iii) Material Usage Variance = M4 – M2

Material – A = ₹4,800 – ₹4,560 = ₹240 (F)

Material – B = ₹1,600 – ₹2,000 = ₹400 (A)

₹160 (A)

Check:

Material Cost Variance (MCV) = Material Price variance (MPV) + Material Usage Variance (MUV)

₹1,420 (A) = ₹1,260 (A) + ₹160(A)

(b)

Production budget for 6 months ending on 30 June 2016

Details	**Products (units)**			**Marks**
	A	**B**	**B**	
Budgeted sales	60000	50000	80000	
Add: Closing stock	10000	8000	17500	
Total required stock	70000	58000	97500	
Less: Opening stock	6000	9000	12000	
Net production	64000	49000	85500	3
Add: Normal loss in production = Net production × Normal Loss %/(100 - Normal Loss %)	(4%) 2666.67	(2%) 1000.00	(5%) 4500.00	-
Gross production	66666.67	50000.00	90000.00	3

6. (a) What is the procedure for appointment of cost auditor under the Companies Act, 2013? [8]

Answer:

The cost auditor is to be appointed by the Board of Directors on the recommendation of the Audit Committee, where the company is required to have an Audit Committee. The

cost auditor proposed to be appointed is required to give a letter of consent to the Board of Directors. The company shall inform the cost auditor concerned of his or its appointment as such and file a notice of such appointment with the Central Government within a period of thirty days of the Board meeting in which such appointment is made or within a period of one hundred and eighty days of the commencement of the financial year, whichever is earlier, through electronic mode, in form CRA-2, along with the fee as specified in Companies (Registration Offices and Fees) Rules, 2014.

Any casual vacancy in the office of a cost auditor, whether due to resignation, death or removal, shall be filled by the Board of Directors within thirty days of occurrence of such vacancy and the company shall inform the Central Government in Form CRA-2 within thirty days of such appointment of cost auditor.

(b) (i) What are the Social objects of Cost Audit? [6]

(ii) What is the meaning of "Turnover" in relation to the companies (Cost records and Audit) Rules, 2014? [3]

Answer:

(i)

Among the social objectives of cost audit, the following deserve special attention:

- Facilitation in fixation of reasonable price of goods and service produced by the enterprise.
- Improvement in productivity of human, physical and financial resources of the enterprise
- Availability of audited cost data as regards contracts containing escalation clauses.
- Channelising of the enterprise resources to most optimum, productive and profitable areas.
- Facilitation in settlement of bills in the case of cost-plus contracts entered into by the Government.
- Pinpointing areas of inefficiency and mismanagement, if any, for the benefit of shareholders, consumers etc. such that necessary corrective action could be taken in time.
- Hospitalization, schooling, Roads and transportation facilities to own employees as also as neighboring people & cost benefit analysis.
- Plantation to neighboring areas.

(ii)

Sub-section 91 of Section 2 of the Companies Act, 2013 defines "turnover" as "the aggregate value of the realization of amount made from the sale, supply or distribution of goods or on account of services rendered, or both, by the company during a financial year. For the purposes of these Rules, "Turnover" means gross turnover made by the company from the sale or supply of all products or services during the financial year. It includes any turnover from job work or loan license operations tout exclude duties and taxes. Export benefit received should be treated as a part of sales.

Section C

(Economics for managerial decision making)
Answer any two from the following
Each question carries 12 marks

7. (a) State the exception of Law of Demand. [5]

Answer:

The following are the exceptions to the Law of Demand

- **Giffen Paradox** : According to Giffen, even though the price, for necessary goods rise, the demand for them will not decrease. These goods are called "Giffen Goods".
- **Prestigious goods** : The law of demand will not operate in case of prestige goods like diamonds, cars etc., The demand for these does not decrease with the rise in the price, as these goods are attached with prestige.
- **Speculative Business** : The law of demand do not operate in case of the speculative business. If people think that the prices of goods increase in the future, now they will buy more units of that commodity. This is against the law of demand.
- **Trade Cycles** : The law of demand does not operate in periods of trade cycles. During the prosperity period, people may buy more goods at higher prices. In periods of depression, people buy fewer goods even though the prices are less.
- Ignorance of the consumers: The law of demand is not applicable in case of the ignorant consumers. By ignorance, people think that high priced goods are qualitative goods. Therefore the consumers would buy the goods even at high price.

(b) What are the factors involved in Demand Forecasting? [7]

Answer:

The factors involved in Demand Forecasting are enumerated below:

1. **Time factor:** Forecasting may be done for short-term or long-term. Short-term forecasting is generally taken for one year while long-term forecasting covering a period of more than 1 year.
2. **Level factor:** Demand forecasting may be undertaken at three different levels:

a. Macro level: It is concerned with business conditions over the whole economy.
b. Industry level: Prepared by different industries.
c. Firm-level: Firm-level forecasting is the most important from managerial view point.

3. **General or Specific purpose factor**: The firm may find either general or specific forecasting or both useful according to its requirement.
4. **Product:** Forecasting varies type of product i.e., new product or existing product or well established product.
5. **Nature of the product:** Goods can be classified into

   (i) consumer goods and (ii) producer goods.

   Demand for a product will be mainly dependent on nature of the product. Forecasting methods for producer goods and consumer goods will be different accordingly.
6. **Competition.** While making forecasting, market situation and the product position in particular market should be analyzed.
7. **Consumer Behaviour:** What people think about the future, their own personal prospects and about products and brands are vital factors for firm and industry.

8. (a) What are the Pricing policies of a firm for introduction stage of a new product? [8]

Answer:

PRICING OF A NEW PRODUCT

Basically, the pricing policy of a new product is the same as that for an established product - viz., the price must cover the full costs in the long run and direct costs or prime costs in the short period.

There are two alternative pricing policies which a firm can adopt for introduction stage of a new product such as (a) Skimming price policy and (b) Penetration pricing policy.

(a) Skimming Price Policy:

When the product is new but with a high degree of consumer acceptability, the firm may decide to charge a high mark up and, therefore, charge a high price. The system of charging high prices for new products is known as price skimming for the object is to "skim the cream" from the market. There are many reasons for adopting a high mark-up and, therefore, high initial price:

(i) The demand for the new product is relatively inelastic. The high prices will not stop the new consumers from demanding the product. The new product, novelty, commands a better price. Above all, in the initial stage, there is hence cross elasticity of demand is low.

(ii) If life of the product promises to be a short one, the management may fix a high price so that it can as much profit as possible and, in as short a period as possible.

(iii) Such an initially high price is also suitable if the firm can divide the market into different segments based on different elasticities. The firm can introduce a cheaper model in the market with lower elasticity,

(iv) High initial price may also be need in those cases where there is heavy investment of capital and when the costs of introducing a new product are high. The initial price of a transistor radio was ₹500 or more (now ₹50 or even less); electronic calculators used to cost ₹1,000 or more, they are now available for ₹100 or so.

(b) Penetration Price Policy:

Instead of setting a high price, the firm may set a low price for a new product by adding a low mark-up to the full cost. This is done to penetrate the market as quickly as possible. The assumptions behind the low penetration price policy are:

(a) The new product is being introduced in a market which is already served by well-known brands. A low price is necessary to attract gradually consumers who are already accustomed to other brands.

(b) The low price will help to maximize the sales of the product even in the short period.

(c) The low price is set in the market to prevent the entry of new products.

Penetration price policy is preferred to skimming price under three conditions:

In the first place, skimming price offering a high margin will attract many rivals to enter the market. With the entry of powerful rivals into the market, competition will be intensified, price will, fall and profits will be competed away in the long run. A firm will prefer a low penetration price if it fears the entry of ' powerful rivals with plenty of

capital and new technology. For a low penetration price, based on extremely low mark-up will be least profitable and potential competitors will not be induced to enter the market.

Secondly, a firm will prefer low penetration price strategy if product differentiation is low and if rival firms can easily imitate the product. In such a case, the objective of the firm to fix low price is to establish a strong market based and build goodwill among consumers and strong consumer loyalty.

Finally, a firm may anticipate that its main product may generate continuing demand for the complementary items. In such a case, the firm will follow penetration pricing for its new product, so that the product as well as its complements will get a wider market.

(b) The total Profit y in rupees of MEDICOS PHARM LTD., a drug company from the manufacture under sale of x drug bottles in given by y = $-\frac{x^2}{400}+2x-80$.

Required:

(i) How many drug bottles must the company sell to achieve the maximum profit?

(ii) What is the Profit per drug bottle when this maximum is achieved? [3+1=4]

Answer:

(i) $y = \frac{-x^2}{400}+2x-80$ $\quad\therefore \frac{dy}{dx}=\frac{-2x}{400}+2$

Putting $\frac{dy}{dx}=0$ and solving for x, $\frac{-x}{400}+1=0$

Or, $\frac{x}{400}=1$ $\quad\therefore x = 400.$

Also $\frac{d^2y}{dx^2}=\frac{-2}{400}$ = -ve $\quad\therefore$ y is maximum when x = 400.

$\therefore$ To get maximum profit, the company must sell 200 drug bottles.

(ii) Maximum total profit = Value of y when x = 400.

$$= \frac{-1,60,000}{400}+800-80 = ₹320$$

Therefore, profit per drug bottle = ₹ $\frac{320}{400}$ = 80 paise

9. (a) The demand and supply function under perfect competition are $y = 16-x^2$ and $y = 2(x^2+2)$ respectively.

Find:

(1) The Market Price;

(2) Producer's Surplus. [3+3]

Answer:

(1) Under perfect competition market price is: demand = supply i. e.

$16- x^2 – 2x^2 – 4 = 0$

Or, $- 3x^2 + 12 = 0$

Or, $- 3x^2 = -12$

$\therefore x^2 = 12/3$

$x = \sqrt{\frac{12}{3}} = 2$ units

$Y = 2x^2 + 4 = 12$ Market price = 12

(2) Producer's Surplus $= 2 \times 12 - \int_0^2 2(x^2+2)dx$

$= 24 - 2_0\left[\frac{2x^3}{3}+4x\right]$

$= 24 - \frac{16}{3}-8-0$

$= 24 - \frac{16}{3}-8$

$= 10\ ^{2/3}$

(b) If the Primal of a LPP is:

Max. $Z = 3x_1 + 5x_2 + 4x_3$

Subject to

$2x_1 + 3x_2 \leq 8$

$3x_1 + 2x_2 + 2x_3 \leq 10$

$5x_2 + 4x_3 \leq 15$,

And x_1, x_2 and $x_3 \geq 0$, What would be its dual? **[4]**

Answer:

The dual to the LPP would be:

Z min = $8 Y_1 + 10 Y_2 + 15 Y_3$ subject to

$2Y_1 + 3Y_2 + 0Y_3 \geq 3$

$3Y_1 + 2Y_2 + 2Y_3 \geq 5$

$0Y_1 + 5Y_2 + 4Y_3 \geq 4$

Y1, Y2, Y3 ≥ 0 (Non-negativity factors)

(c) Given Cost Function C = 3/5x + 15/4, find

(i) Cost, when the output is 5 units.

(ii) Average Cost of 10 units. **[1+1]**

Answer:

(i) Given: C = 3/5x + 15/4

Cost when the output is 5 units

= 3/5 × 5 + 15/4 = 3 + 15/4 = 6.75

(ii) Average Cost of 10 units:

Average Cost = 3/5 + 15/4x = 3/5 + 15/4 × 10

= 3/5 + 15/40

= 3/5 + 15/40
= 3/5 + 3/8
= 39/40
= 0.975