

Suggested Answer_Syl12_Dec2014_Paper_10

INTERMEDIATE EXAMINATION GROUP II (SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS DECEMBER 2014

Paper-10: COST & MANAGEMENT ACCOUNTANCY

Time Allowed : 3 Hours

Full Marks : 100

The figures in the margin on the right side indicate full marks.

This paper contains four questions.

All questions are compulsory, subject to instruction provided against each question.

All working must form part of your answer. Assumptions, if any, must be clearly indicated.

- Please
- (i) Write answers to all parts of a question together.
 - (ii) Open a new page for answer to a new question.
 - (iii) Attempt the required number of questions only.

1. Answer all questions.

2x10=20

- (a) MENZ LTD. earned a profit of ₹ 3,00,000 during the year 2013-14. If the marginal cost and selling price of a product are ₹ 80 and ₹ 100 per unit respectively, find out the amount of 'Margin of Safety'.
- (b) BEEU LTD. operates throughput accounting system. The details of Product-X per unit are as under:

Selling price	₹50
Material cost	₹20
Conversion cost	₹15
Time on Bottleneck resources	10 minutes

What would be the return per hour for Product-X?

- (c) A factory transferred out 8,800 completed units during November' 14. Opening stock was 400 units 75% completed; Closing stock was 800 units 50% completed. Assuming FIFO method, what is the equivalent production in November 2014?
- (d) In a factory repairs and maintenance expenses were ₹ 1,50,000 at 60% capacity level out of these 40% was fixed. Calculate the repairs and maintenance expenses for the capacity level of 80%.
- (e) State the main advantages of Integrated Accounting System.
- (f) Differentiate between Cost Accounting Policy and Cost Accounting System.
- (g) Whether cost consultant of a company can issue compliance certificate to the same company?

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- (h) The cost (C) of a firm is given by the function $C = 4X^3 + 8X^2 + 10x + 20$, (where x is the output). Find the Average cost, Marginal cost, Average variable cost and Average fixed cost.
- (i) What is law of variable proportions?
- (j) MESCAB LTD. is operating in a perfectly competitive market. The price elasticity of demand and supply of the product estimated to be 6 and 4 respectively. The equilibrium price of the product is ₹ 120. If the Government imposes a specific Tax of ₹ 10 per unit, what will be the new equilibrium price?

Answer: 1. (a)

Margin of Safety = Profit / (P/V ratio)

But P/V ratio = Contribution/Sales = 20/100 = 20%

Hence, Margin of Safety = ₹ 300000 / 0.20

$$= ₹ 1500000$$

(b)

Return per hour for Product-X

(Selling price - Material cost) / Time on bottleneck resource

$$= [(\text{₹ } 50 - \text{₹ } 20) / 10] \times 60 = \text{₹ } 180 \text{ per hour}$$

(c)

Equivalent Production = 8800 - (400 x 0.75) + (800 x 0.50) units

$$= 8800 - 300 + 400 = 8900 \text{ units}$$

(d)

Machine shop expenses at 60% capacity level:

Fixed - ₹ 150,000 x 40% = ₹ 60,000

Variable - ₹ 150,000 - 60,000 = ₹ 90,000

₹ 150,000

The expenses for level of 80% of capacity:

$$= (90,000 \times 80/60) + 60,000 = ₹ 1,80,000$$

(e) The main advantages of integrated accounts are as follows:

- (i) No need for Reconciliation: The question of reconciling costing profit and financial profit does not arise, as there is one figure of profit only.
- (ii) Significant saving in the clerical efforts, as only one set of books is maintained.
- (iii) Retrieving of information is easy and quick
- (iv) It is economical also as it is based in the concept of centralization of accounting function.

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(f) Difference between Cost Accounting policy and Cost Accounting system:

Cost Accounting Policy of a company should state the policy adopted by the company for treatment of individual cost components in cost determination.

The cost accounting system of a company, on the other hand, would provide a flow of the cost accounting data/information across the activity flow culminating in arriving at the cost of final product/activity.

(g) A person who is a cost accountant as defined under the Rules can certify compliance report. It is immaterial whether he is also a cost consultant or rendering service in any other capacity.

(h)

$$C = \text{Total cost} = 4x^3 + 8x^2 + 10x + 20$$

$$\text{Average cost} = 4x^2 + 8x + 10 + (20/x)$$

$$\text{Marginal cost} = \frac{d(c)}{dx} = d(4x^3 + 8x^2 + 10x + 20)/dx = 12x^2 + 16x + 10$$

$$\text{Average variable cost} = 4x^2 + 8x + 10$$

$$\text{Average Fixed Cost} = \frac{20}{x}$$

(i) In economics, the production function with one variable input is illustrated well-known law of variable proportions. The law of variable proportions is one of the fundamental laws of economics. It has also been called as the law of diminishing marginal returns (also sometimes known as law of Diminishing Marginal Productivity). Law of variable proportion shows the input-output relationship or production function with one factor variable while other factors of production are kept constant.

(j) Distribution of tax burden between buyers and sellers is in Ratio of elasticity of supply to elasticity of demand.

Thus tax burden borne by the Buyers = $10 \times 4/10 = ₹ 4$.

If the tax burden borne by buyer is ₹ 4 now equilibrium price will be ₹(120+4) = ₹ 124.

2. Answer any two questions (Carrying 20 marks each):

(a) (i) The following information pertains to labour force of UDHHAMI LTD. engaged in a week of November 2014 for a JOB-PH.

	Skilled	Semi-skilled	Unskilled	Total
No. of workers in standard gang:	16	12	8	36
Standard rate per hour (₹)	60	30	10	—
No. of workers in actual gang:	—	—	—	—

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Actual rate per hour (₹)	70	20	20	—
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In a 40 hours week, the gang produced 1080 standard hours. The actual number of semi-skilled workers is two times of the actual number of unskilled workers. Total number of actual workers are same as standard gang. The rate variance of semi-skilled workers is ₹ 6400 (F).

You are required to find the following:

- (a) The actual number of workers/labours in each category.
- (b) Labour gang (mix) variance.
- (c) Labour sub-efficiency variance.
- (d) Labour rate variance.
- (e) Labour cost variance. $[(2+1 \times 4)+4]=10$

- (ii) **BATRON LTD.**, a contractor commences the contract No. HB-108 on 1st July, 2013. The details about the contract for the year ending 31st March, 2014 were following:

	(₹)
Contract Price	3,000,000
Materials issued	800,000
Material transferred from contract no. 101	50,000
Wages paid	631,000
Wages outstanding	35,000
Supervisor's Salary	180,000
Establishment Exp.	41,000
Plant Issued	1,000,000

Material costing ₹ 15,000 was sold for ₹ 11,000 and plant costing ₹ 80,000 returned to stores on 31st December, 2013.

A crane costing ₹ 2,000,000 has been on the contract site for 73 days. Its working life is estimated at 6 years and its scrap value at ₹ 110,000. Depreciation on plant is to be charged @15% per annum. Up to 31st March, 2014, 3/4(Three-fourth) of the contract was completed but architect's certificate has been issued covering 2/3 of the contract price and 15,00,000 had been received in cash on account.

Required:

- (a) Prepare the Contract No. HB-108 Account for the year ended March 31, 2014.
 - (b) State as to how much Profit should be credited to Profit and Loss Account for the year ended March 31, 2014. (8+2)=10
- (b) (i) **BHUMIKA LTD.** a manufacturing company, presently sells an equipment for ₹75,000. Increase in prices of labour and material cost are anticipated to the extent of 20% and 10% respectively. At present material cost represents 40% of

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cost of sales and labour cost 30% of cost of sales. The remaining relates to overheads.

If the existing selling price is retained, despite the increase in labour and Material prices the company would face a 20% decrease in the existing amount of Gross Profit on the equipment.

Required:

- (a) Prepare a statement of Profit and Loss per unit of equipment at present.
- (b) Compute the new selling price and cost of sales to produce the same percentage of profit to cost of sales as before. (4+3+3)= 10
- (ii) DKB FACTORY LTD. has a key resource (bottleneck) of facility AX which is available for 58000 minutes per week.

Budgeted factory costs and data on two products P and Q are shown below:

Product	Selling Price/ Unit (₹)	Material Cost per unit (₹)	Time facility AX
P	50.00	32.00	6 Minutes
Q	50.00	26.00	12 Minutes

Budgeted factory costs per week:

	(₹)
Direct labour	48000
Indirect labour	23650
Power	3150
Depreciation	40500
Space costs	14400
Engineering	6300
Administration	9000

Actual production during the last week is 7300 units of product P and 1050 units of product Q. Actual factory cost was ₹ 145000.

You are required to calculate:

- (1) Total factory costs (TFC).
 - (2) Cost per factory Minute.
 - (3) Return per factory Minute for both products.
 - (4) TA ratios for both products.
 - (5) Throughput cost per week.
 - (6) Efficiency ratio. (1½+1+2+2+2+1½)=10
- (c) (i) The following data extracted from the records of DHOORA LTD. are given to you:

Particulars	Year 2013-14	
	First six months (₹)	Second six months (₹)

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Cost of sales	10,50,000	15,30,000
Profit/Loss (-)	(-) 50,000	2,70,000

You are required to calculate for the year 2013-14:

- (1) P/V Ratio
 - (2) Fixed cost
 - (3) BEP
 - (4) The amount of profit where sales are ₹ 25,00,000
 - (5) Amount of sales required to earn a profit of ₹ 6,50,000
 - (6) Amount of sales required to earn a profit of 25% on cost. $(2+1+1+1+1+2)=8$
- (ii) DEFALI LTD. wishes to prepare cash budget for the period of December, 2014 to March, 2015. The Budgeted/Estimated Revenue and Expenses for the said period extracted from the records of the Company are as follows:

(Amount in ₹ Lakh)

Months	Total Sales (₹)	Purchases (Materials) (₹)	Wages (₹)	Expenses (Overheads)
September, 2014	80	45	20	4
October, 2014	80	50	22	5
November, 2014	75	52	18	6
December, 2014	90	60	20	6
January, 2015	85	40	18	8
February, 2015	80	35	15	9
March, 2015	95	46	24	9.5

You are further informed that:

- (i) 20% of purchases and the 30% of sales are for cash;
- (ii) Realisation is made from debtors 30% in the month of sale, 50% in the month of following that and the balance in the month after that;
- (iii) The credit purchases are paid of regularly after one month;
- (iv) Wages are paid half monthly;
- (v) Rent of ₹ 50,000 per month included in expenses is paid monthly and remaining expenses are paid half monthly;
- (vi) Cash and bank balance as on 1st December, 2014 was ₹10,00,000 and the company wants to keep it at the end of every month below ₹10,00,000 but not less than ₹ 9,00,000, the excess cash being put in fixed deposit in multiples of ₹1,00,000.

Required:

Prepare A CASH BUDGET for the four months ending March 31, 2015.

$3+3+2+(2+1+1)=12$

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Answer: 2. (a)

Working Notes:

UDHHAMI LTD.

(i) Actual No. of workers:

Rate variance = AH (SR-AR)

Rate variance for semi-skilled workers = AH (30-20) = ₹ 6400 (F)

AH = 6400/10 = 640 hours of semi-skilled workers

Actual semi skilled = 2x Actual unskilled workers = 640 hours

Actual unskilled = 640/2 = 320 hours

Actual skilled hours = Total actual hours - (Semi skilled+ unskilled)

= 36x40 - (640+320) = 1440 - (640 + 320)

= 480 hours

Hence, Actual No. of workers = skilled: 480/40 = 12

Semi skilled: 640/40 = 16 and unskilled: 320/40 = 8 workers

(ii) Total standard hours:

Skilled- 30x16 = 480 hrs: semi skilled - 30x12 = 360 hours and

Unskilled - 30x8 = 240 hrs = Total 1080 hours

(iii) Weekly standard gang hours = 1080/36 = 30 hours

(iv) Revised standards hrs (RSH)

Skilled - 1440 x (480/1080) = 640 hours; semi skilled- 1440x(360/1080) = 480 hrs.

Unskilled – 1440 x (240/1080) = 320 hour

(v)

TSC= SR×SH ₹	TAC= AR × AH ₹	SR × RSH ₹	SR × AH ₹
Skilled: 60 x 480 = 28800	70x480 = 33600	60x640 = 38400	60x480 = 28800
Semi skilled: 30 x 360 = 10800	20x640 = 12800	30x480 = 14400	30x640 = 19200
Unskilled: 10 x 240 = 2400	20x320 = 6400	10x320 = 3200	10x320 = 3200
Total 42000	52800	56000	51200

Labour Gang (Mix) variance = SR (RSH-AH) or (SR x RSH)- (SRxAH)

= 56000-51200 = ₹ 4800 (FAV)

Labour sub-efficiency variance = SR (SH- RSH) or (SR x SH) - (SR x RSH)

= 42000- 56000 = ₹ 14000 (ADV)

Labour rate variance = AH (SR-AR) or (AH x SR) - (AH x AR)

= 51200- 52800 = ₹ 1600 (ADV)

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Labour cost variance = TSC-TAC or (SRxSH) - (AR x AH)

= ₹ 42000- ₹ 52800 = ₹ 10800 (ADV)

BATRON LTD.

Contract No. HB-108 Account for the your ended March 31, 2014

Particulars	₹	Particulars	₹
To Materials issued	8,00,000	By Bank A/c (Material sold)	11,000
To Material transferred from contract no. 101	50,000	By Profit and Loss A/c (Loss on sale of material)	4,000
To Wages paid	6,31,000	By Plant returned	74,000
To Wages outstanding	35,000	By Plant at site	8,16,500
To Supervisor's Salary	1,80,000	By W.I.P. A/c	
To Establishment Exp.	41,000	Value of work certified	20,00,000
To Plant issued	10,00,000	Cost of work uncertified	1,57,875
To Crane depreciation	63,000		
To Notional profit c/d	2,63,375		
	30,63,375		30,63,375
To Profit & Loss A/c	1,31,687	By Notional profit b/d	2,63,375
To W.I.P. A/c (Reserve)	1,31,688		
	2,63,375		2,63,375

Working Notes:

(i) Cranes depreciation = $[(2000000 - 110000) / 6] \times 73/365 = ₹ 63000$

(ii) Value of the plant returned to store on 31st December, 2013:

Cost of plant returned on 1/7/13	₹ 80,000
Less: Depreciation from 1/7/13 to 31/12/13 = $(80000 \times 15/100) \times 6/12$	₹ <u>6,000</u>
	₹ 74,000

(iii) **Plant at site** on 31/3/14 = 10,00,000- 80,000

= 9,20,000 - Dep. $9,20,000 \times 15/100 \times 9/12$

= 9,20,000 - 1,03,500 = ₹ 8,16,500

(iv) **Value of work certified** = $30,00,000 \times 2/3 = ₹ 20,00,000$

(v) **Cost of work uncertified:**

Total cost upto 31/3/14 = 8,00,000+50,000+6,31,000+35,000+1,80,000+41,000
+ 10,00,000+63,000-11,000-4,000-74,000-8,16,500
= ₹ 18,94,500

Work completed upto 31/3/14 = $\frac{3}{4}$ but work certified = $\frac{2}{3}$

So, work uncertified = $\frac{3}{4} - \frac{2}{3} = \frac{(9-8)}{12} = \frac{1}{12}$

Hence, cost of work uncertified = $18,94,500 \times \frac{1}{12} = ₹ 1,57,875$

(vi) **Profit transferred to P/L A/c** = Notional profit $\times \frac{2}{3} \times (\text{cash received} / \text{work certified})$

= ₹ $2,63,375 \times \frac{2}{3} \times (15,00,000 / 20,00,000)$

= ₹ 1,31,687

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2 (b) (i)

BHUMIKA LTD.

Working :

Let X and Y be the cost and profit respectively.

$$X+Y = 75000 \quad \text{Eq. no.(1)}$$

$$\text{Material } 40\% \text{ of } X = 0.40X$$

$$\text{Labour} = 30\% \text{ of } X = 0.30X$$

$$\text{Overheads} = 30\% \text{ of } X = 0.30 X$$

After increase of cost:

$$\text{Material} = 0.40 X \times 1.10 = 0.44 X$$

$$\text{Labour} = 0.30 X \times 1.20 = 0.36 X$$

$$\begin{aligned} \text{Overheads} &= \underline{0.30 X} \\ &= 1.10X \end{aligned}$$

$$\text{Profit} = Y \times (1-0.20) = 0.80 Y$$

$$\therefore \text{New Equation } 1.10X + 0.80 Y = 75000 \quad \text{E.q No. ... (2)}$$

$$\text{Multiplying Eq. (1) by } 0.80, 0.80 X + 0.8 Y = 60000 \quad \text{E.q No. ... (3)}$$

Subtracting Eq. No. (3) from Eq. No. (2) We, get,

$$0.30 X = 15000$$

$$X = (15,000/0.30) = ₹ 50,000$$

$$Y = 75,000 - 50,000 = ₹ 25,000$$

(a) Statement of cost & profit per unit at present: ₹

Material	=	50000x0.40	=	20,000
Labour	=	50000x0.30	=	15,000
Overheads	=	50000x0.30	=	<u>15,000</u>
				50,000
(+) Profit @ 50% of cost of sale				<u>25,000</u>
Existing selling price				<u>75,000</u>

(b) Statement showing the new selling price to get same percentage of profit:

Material	=	20,000x1.10	=	22,000
Labour	=	15,000x1.20	=	18,000
Overheads			=	<u>15,000</u>
Cost of sales				55,000
(+) Profit @ 50% of cost of sales				<u>27,500</u>

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New selling price

82,500

2 (b) (ii)

DKB FACTORY LTD.

- (1) Total factory costs = Total of all costs except materials.
= ₹ 48000+₹ 23650+ ₹ 3150+ ₹ 40500+ ₹ 14400 + ₹ 6300+ ₹ 9000 = ₹ 145000
- (2) Cost per factory minute= Total factory cost / Minutes available
= ₹ 145000 / 58000 = ₹ 2.50
- (3) (a) Return per bottleneck for product. P = $\frac{\text{Selling Price} - \text{Material cost}}{\text{Minutes in bottleneck}}$
= (50-32)/ 6 = ₹ 3.00
- (b) Return per bottleneck minute for product Q = $\frac{\text{Selling Price} - \text{Material cost}}{\text{Minutes in bottleneck}}$
= (50-26)/12 = ₹ 2.00
- (4) Throughput Account (TA) Ratio for Product P = $\frac{\text{Return per Minute}}{\text{Cost per Minute}}$
= (3/2.50) = ₹ 1.20
- Throughput Accounting (TA) Ratio for Product Q = $\frac{\text{Return per Minute}}{\text{Cost per Minute}}$
= (2.00/2.50) = ₹ 0.80

Based on the review of the TA ratios relating to two products, it is apparent that if we only made Product Q the enterprise would suffer a loss, as its TA ratio is less than 1.

Advantage will be achieved, when product P is made.

- (5) Standard minutes of throughput for the week:
= [7300x6] + [1050x12] = 43800+12600= 56400 minutes.
THROUGH PUT COST PEP WEEK:
56400 x ₹ 2.5 = ₹ 141000 = ₹ 141000

- (6) Efficiency % = (Throughput cost/ Actual TFC) %
= (₹ 141000/₹ 145000) x 100
= 97.24%

The bottleneck resource of facility AX is available for 58000 minutes per week but produced only 56400 standard minutes. This could be due to:

- (a) The process of a 'wandering' bottleneck causing facility - AX to be underutilized
(b) inefficiency in facility AX

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2 (c) (i):

DHOORA LTD.

$$(i) \text{ P/V ratio} = \frac{\text{Change in profit}}{\text{Change in sales}} \times 100$$

Sales for first 6 months = 10,50,000 - 50,000 = ₹ 10,00,000

Sales for last 6 months = 15,30,000 + 2,70,000 = ₹ 18,00,000

$$\begin{aligned} \text{P/V ratio} &= \frac{2,70,000 - (-50,000)}{18,00,000 - 10,00,000} \times 100 \\ &= \frac{3,20,000}{8,00,000} \times 100 = 40\% \end{aligned}$$

(ii) Fixed cost for the year 2013-14:

$$= (\text{Total sales} \times \text{P/V Ratio}) - \text{Profit}$$

$$= (28,00,000 \times 40\%) - 2,20,000$$

$$= ₹ 9,00,000$$

$$(iii) \text{ BEP} = \frac{\text{Fixed cost}}{\text{P/V Ratio}} = \frac{9,00,000}{40\%} = ₹ 22,50,000$$

(iv) Profit at sales of ₹ 25,00,000:

$$= 25,00,000 \times 40\% - 9,00,000$$

$$= 10,00,000 - 9,00,000 = ₹ 1,00,000$$

(v) Required sales to earn a profit of ₹ 6,50,000

$$\text{Required Sales} = \frac{F+P}{\text{P/V Ratio}} = \frac{9,00,000 + 6,50,000}{40\%}$$

$$= \frac{15,50,000}{40\%} = ₹ 38,75,000$$

(vi) Required sales to earn a profit of 25% on cost or 20% on sales:

Let 'x' be required sales

$$\text{Req. Sales} = \frac{F+P}{\text{P/V Ratio}}$$

$$x = \frac{9,00,000 + 0.2x}{40\%}$$

$$\text{or } 0.4x - 0.2x = 9,00,000 \text{ or } 0.2x = 9,00,000$$

Or $x = ₹ 45,00,000$: Hence, required sales to earn a profit of 25% on

Cost will be ₹ 45,00,000

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2 (c) (ii)

DEFALI LTD.

Cash Budget for four months ended March 31, 2015

(Amount in ₹ lakh)

Particulars	December, 14 ₹	January, 15 ₹	February, 15 ₹	March, 15 ₹
Opening cash & bank balance	10.00	9.75	9.10	9.25
Add: Receipts				
Cash Sales	27.00	25.50	24.00	28.50
Collection from Debtors	56.35	59.85	59.15	59.85
Cash available (A)	93.35	95.10	92.25	97.60
Payments:				
Cash Purchases	12.00	8.00	7.00	9.20
Payment to creditors	41.60	48.00	32.00	28.00
Wages	19.00	19.00	16.50	19.50
Rent	0.50	0.50	0.50	0.50
Expenses	5.50	6.50	8.00	8.75
Total payments (B)	78.60	82.00	64.00	65.95
Surplus: (A-B)	14.75	13.10	28.25	31.65
Less: Fixed Deposits	5.00	4.00	19.00	22.00
Closing Cash & Bank Balance	9.75	9.10	9.25	9.65

Working Note:

(i) Calculation of Cash Sales and amount realized from Debtors:

(Amount in ₹ Lakh)

Month	Total Sales	Cash Sales	Credit Sales	2014			2015		
				October	November	December	January	February	March
2014									
Oct	80.00	24.00	56.00	16.80	28.00	11.20			
Nov.	75.00	22.50	52.50		15.75	26.25	10.50		
Dec.	90.00	27.00	63.00			18.90	31.50	12.60	
2015									
Jan.	85.00	25.50	59.50				17.85	29.75	11.90
Feb.	80.00	24.00	56.00					16.80	28.00
Mar.	95.00	28.50	66.50						19.95
Total					43.75	56.35	59.85	59.15	59.85

(Amount in ₹ Lakh)

(ii) Payment of wages	Dec' 14	Jan' 15	Feb' 15	Mar' 15
½ of preceeding month	9.00	10.00	9.00	7.50
½ of current month	10.00	9.00	7.50	12.00
	19.00	19.00	16.50	19.50

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(iii)	Credit purchase (20% less than total purchase) paid to creditors		48.00	32.00	28.00
		41.60			
(iv)	Payment of Expenses				
	Rent paid	0.50	0.50	0.50	0.50
	Expenses other than rent	5.50	7.5	8.5	9.00
	½ of Proceeding month	2.75	2.75	3.75	4.25
	½ of current month	2.75	3.75	4.25	4.50
		5.50	6.50	8.00	8.75

3. Answer any two questions (Carrying 8 marks each):

(a) (i) State the provisions of the companies (Cost Accounting Records) Rules 2011, regarding preparation of the compliance report. 6

(ii) A company has been in existence since 1992 and is covered under cost audit for the first time in 2013-14.

Whether it is mandatory to indicate previous figures while submitting the reports? 2

(b) (i) Whether all manufacturing companies having turnover exceeding ₹ 100 crores and or listed in a stock exchange are covered under companies (cost audit report) Rules 2011 and get cost audit conducted? 3

(ii) Is it Mandatory to Submit Performance Appraisal Report to Company Management or can it be a NIL Report?

Can Form III relating to Performance Appraisal Report be modified or it has to be strictly followed as prescribed? 5

(c) Briefly explain the objectives of the Cost Audit. 8

Answer: 3. (a)

(i) The compliance report is to be prepared for the 'company as a whole' under different product groups.

(i) If all the products/activities of a company, excluding the exempted categories, are covered under cost audit, then company will not be required to separately file the compliance report.

(ii) If one or more product(s)/activity(s) of a company is covered under cost audit and there are other products covered under Companies (Cost Accounting Records) Rules 2011 but not covered under Cost Audit as per companywise or industry specific Cost Audit orders dated 2nd May, 2011 and 3rd May, 2011 (amended by 30th June, 2011), the company will be required to file a Compliance Report (Company as a whole) covering products under cost audit and products not under cost audit.

(iii) If one or more product(s)/ activity(s) of a company is covered under Cost Audit and there are other products not covered under Companies (Cost Accounting Records) Rules 2011, then the company will not be required to file a Compliance

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Report since the product(s)/ activity(s) other than product(s)/activity(s) under Cost Audit are in the exempted category.

- (ii) A company coming under the purview of the Cost Audit for the first time, the cost auditor shall mention figures for the previous year (s) certifying by means of a note that the figures so stated are on the basis of information furnished by the management, for which he has obtained a certificate from them.

Answer: 3. (b)

- (i) All companies covered under cost audit orders dated 2nd May 2011, 3rd May 2011 (amended on 30th June 2011) and companies wherein cost audit orders were issued earlier in respect of products/activities covered by any or all of the Cost Accounting Records Rules as they existed before their supersession by the Companies (Cost Account Records) Rules 2011 published vide GSR 429 (E) dated 3rd June 2011 are covered under cost audit. Companies not falling under any of the above categories are not covered under cost Audit.
- (ii) It is mandatory to submit Performance Appraisal Report to company management which cannot be a nil report. Vide sub-rule 5 of Rule 4 of the Company (Cost Audit Report) Rules, 2011, every cost auditor, who submits a cost audit report shall also furnish Performance Appraisal Report, duly authenticated by the cost auditor, to the Board/Audit Committee of the company in the prescribed format (Form III). There cannot be nil report since list of the areas to be covered in the report as per Form III are relating to company's operations being audited by the cost auditor. However, the frequency of this report viz. half yearly/annual (or even quarterly) is to be decided by the Company Management. The contents of the Performance Appraisal Report as given in Form III are 'indicative', depending on the nature of business and activity of the company, the management and the cost auditor in consultation with each other can add or delete the indicative areas to be covered under the Performance Appraisal Report. The intention of the law appears to assign a role to the cost auditor to provide an independent view of the performance of the company to enable the management to take corrective steps wherever necessary. The institute is also going to bring out a guidance note on the subject.

Answer: 3. (c)

Objectives of Cost Audit:

Cost Audit has both general and social objectives. The general objectives can be described to include the following:

- (1) Verification of cost accounts with a view to ascertaining that these have been properly maintained and compiled according to the cost accounting system followed by the enterprise.
- (2) Ensuring that the prescribed procedures of cost accounting records rules are duly adhered to.
- (3) Detection of errors and fraud.
- (4) Verification of the cost of each "cost unit" and "Cost center" to ensure that these have been properly ascertained.

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- (5) Determination of inventory valuation.
- (6) Facilitating the fixation of prices of goods and services.
- (7) Periodical reconciliation between cost accounts and financial accounts.
- (8) Ensuring optimum utilization of human, physical and financial resources of the enterprise.
- (9) Detection and correction of abnormal loss of material and time.
- (10) Inculcation of cost consciousness.
- (11) Advising management, on the basis of inter-firm comparison of cost records, as regards the areas where performance calls for improvement.
- (12) Promoting corporate governance through various operational disclosures to the directors.

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

- Facilitation in fixation of reasonable prices of goods and services produced by the enterprise.
- Improvement in productivity of human, physical and financial resources of the enterprise.
- Channelising of the enterprise resources to most optimum, productive and profitable areas.
- Availability of audited cost data as regards contracts containing escalation clauses.
- 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, consumer! etc., such that necessary corrective action could be taken in time.

4. Answer any three questions (Carrying 8 marks each):

(a) (i) How is the price determined by a firm under Oligopoly? 4

(ii) The demand function for a particular brand of Pocket Calculators is $P = 75 - 0.3Q - 0.05 Q^2$.

Find the consumers' surplus at the quantity (Q) of 15 calculators. 4

(b) (i) Calculate the trend values by the method of least squares from the data given below and estimate the sales demand of milk for the year 2015-2016. 5

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Sale of milk (in lakh litres)	20	25	27	35	38	41

(ii) PARU Enterprise can sell 'X' items ($X \geq 0$) at a price of $(650 - x)$ each. The cost of Producing 'X' items is ₹ $(x^2 + 10x + 12)$. How many items should be sold to make the maximum profit? 3

(c) What are the factors to be considered while setting the price of a PRODUCT? 8

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(d) (i) The total cost of daily output of Q tonnes of coal is ₹ $(\frac{1}{10}q^3 - 3q^2 + 50q)$. What is the value of q, when average cost is minimum? Verify that at this level, Average Cost = Marginal Cost. 2+2=4

(ii) State what are the different types of income elasticity of demand? 4

Answer: 4. (a) (i)

PRICE DETERMINATION UNDER OLIGOPOLY:

Price can be determined in three ways under oligopoly:

1. Independent pricing;
 2. Pricing under collusion;
 3. Price Leadership
1. **Independent pricing:** If there is a product differentiation under oligopoly each firm can act as a monopoly and fixes the price independently. Therefore the firm may determine its price in that way where it gets maximum profits. If there is no product differentiation, it is difficult to know the price determination in accurate manner the firm may compete each other and finally they may fix the common reasonable price which cannot be changed.
 2. **Pricing Under collusion:** Most of the firms have the opinion that independent price determination leads to uncertainty. To avoid this defect there is a tendency among the oligopoly firm to act collectively by collusion. In this method these firms may make 'cartle arrangement. The centralized cartle determines the output produce by different firms and the price is also determined which is the most acceptable by all firms.
 3. **Price leadership:** If the other firms follow the price which is determined by one firm in oligopoly then we can say that there is a dominant firm or the firm with low costs or well established old firm- may take this leadership and fixes the price.

4 (a) (ii)

$$P = 75 - 0.3Q - 0.05Q^2$$

$$\text{at } Q = 15, P = 75 - 0.3 \times 15 - 0.05 \times 15^2$$

$$= 59.25 \text{ (on reduction)}$$

$$\text{Now } PQ = 59.25 \times 15 = 888.75$$

$$\begin{aligned} \text{consumer's surplus} &= \int_0^{15} PdQ - PQ = \int_0^{15} (75 - 0.3Q - 0.05Q^2) dQ - PQ \\ &= \left[75Q - 0.3 \frac{Q^2}{2} - 0.05 \frac{Q^3}{3} \right]_0^{15} - 888.75 \\ &= \left[75 \times 15 - 0.3 \times \frac{15^2}{2} - 0.05 \frac{15^3}{3} \right] - 888.75 \\ &= 1035 - 888.75 = 146.25 \end{aligned}$$

Hence the consumer's surplus is 146.25

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4 (b) (i)

Calculation of Trend Values by the method of Least Squares

Year	Sale of Milk (Y) (in lakh litres)	Deviation from mid year (X)	X ²	xy	Trend values Y _C = 31+4.34x
2008-09	20	-2.5	6.25	-50	20.15
2009-10	25	-1.5	2.25	-37.5	24.49
2010-11	27	-0.5	0.25	-13.5	28.83
2011-12	35	+0.5	0.25	17.5	33.17
2012-13	38	+1.5	2.25	57	37.51
2013-14	41	+2.5	6.25	102.5	41.85
N=6	∑Y=186	∑X=0	∑X ² =17.5	∑XY=76	∑Y _C =186

$$Y_c = a + bx$$

$$a = \frac{\sum Y}{N} = \frac{186}{6} = 31$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{76}{17.5} = 4.34$$

Hence, Trend line or equation: $Y_C = 31 + 4.34X$

Estimation of sales demand for the year 2015-16:

$$Y_C = 31 + (4.34 \times 4.5) = 50.53 \text{ lakh litres}$$

4 (b) (ii)

Given price (p) = 650-x; cost (c) = $x^2 + 10x + 12$

Output = $x \geq 0$; Revenue (R) = $px = 650x - x^2$

Profit = $R - C = 650x - x^2 - (x^2 + 10x + 12) = 640x - 2x^2 - 12$ (say Y)

In order that maximum profit is attained.

$$\frac{dy}{dx} = 0, \text{ and}$$

$$\frac{d^2y}{dx^2} = \text{Negative Value}; \frac{dy}{dx} = 640 - 4x = 0;$$

$$\Rightarrow -4x = -640; x = 160;$$

$$\frac{d^2y}{dx^2} = -4, \text{ which is negative}$$

Profit is maximum at $x = 160$ items

Hence, the number of items to be sold for maximization of profit is 160 items.

4 (c) The factors to be considered while setting the price of a product are enumerated below:

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1. **Target customers:** Price of product is depend on the capacity of buyers to buy at various prices, in other words, influence of price elasticity of demand will be examined.
2. **Cost of the product:** Pricing is primarily based on how much it costs to produce and market the product, i.e., both production and distribution cost.
3. **Competition:** Severe competition may indicate a lower price than when there is monopoly or little competition.
4. **The law:** Government authorities place numerous restrictions on pricing activities.
5. **Social responsibility:** Pricing affects many parties, including employees, shareholders and the public at large. These should be considered in pricing.
6. **Market position of the firm:** The position of the market may also influence the pricing decision of the firm. It is only why the different producers of identical products sell their products at different prices.
7. **Distribution channel policy:** The prices of products will also depend upon the policy regarding distribution channel. The longer the channel, the higher would be the distribution costs and consequently higher the prices.
8. **Price elasticity of Demand:** Price elasticity refers to consequential change in demand due to change in price of the commodity. It is the relative responsiveness to the changes in price. As there is an inverse relationship between price and demand for product, the demand will increase with fall in price.
9. **Economic environment:** In recession, prices are reduced to a sizeable extend to maintained the level of turnover. On the other hand, prices are charged higher in boom period to cover the increasing cost of production and distribution.

4(d) (i)

$$A.C. = \frac{T.C.}{\text{quantity}} = \frac{1}{q} \left(\frac{1}{10} q^3 - 3q^2 + 50q \right) = \frac{1}{10} q^2 - 3q + 50$$

$$\frac{d(A.C.)}{dq} = \frac{1}{5} q - 3. \text{ For max. or min, } \frac{d(A.C.)}{dq} = 0$$

$$\text{i.e. } \frac{1}{5} q - 3 = 0 \text{ or, } q = 15$$

$$\text{Again, } \frac{d^2(A.C.)}{dq^2} = \frac{1}{5} > 0. \text{ Minimum}$$

So, at $q = 15$, average cost is minimum.

$$M.C. = \frac{d}{dq} (T.C.) = \frac{d}{dq} \left(\frac{1}{10} q^3 - 3q^2 + 50q \right) = \frac{3}{10} q^2 - 6q + 50.$$

Now by question $AC = MC$

$$\text{i. e., } \frac{1}{10} q^2 - 3q + 50 = \frac{3}{10} q^2 - 6q + 50 \Rightarrow \frac{2}{10} q^2 - 3q = 0$$

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$$\Rightarrow q\left(\frac{1}{5}q-3\right)=0 \Rightarrow \frac{q}{5}-3=0 \quad \text{or, } q = 15.$$

4 (d) (ii)

Types of income elasticity of demand:

1. **Zero income elasticity of demand:** If the change in the income fails to bring any change in demand, it is called zero income elasticity of demand. ($E_y=0$).
2. **Negative income elasticity of demand:** If the demand decreases with the increase in the income it is called negative income elasticity of demand.
3. **Unitary income elasticity of demand:** If the proportionate change in the demand is equal to proportionate change in the income, it is called unitary income elasticity of demand ($E_y=1$).
4. **Income elasticity of demand is greater than one:** If the proportionate change in the demand is more than the proportionate change in income, it is called relatively income elastic of demand ($E_y>1$).
5. **Income elasticity of demand is less than one:** If the proportionate change in the demand is less than the proportionate change in the income, it is called relatively income inelastic demand ($E_y<1$).