INTERMEDIATE EXAMINATION

GROUP II

(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS
DECEMBER 2013

Paper- 10: COST & MANAGEMENT ACCOUNTANCY

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

The figures in the margin on the right side indicate full marks.
QUESTION 1, which is compulsory. Attempt all of them.
Section-A has three questions. Attempt any two of them.
Section-B has two questions. Attempt any one of them.
Section-C has three questions. Attempt any two of them.

Please:
1. **Write answers to all parts of a question together.**
2. **Open a new page for answer to a new question.**
3. **Attempt the required number of questions only.**

1. Answer all questions:

(a) ANKIT LTD. operates a throughput accounting system. The details of product B-1 per unit are as under:

Selling price	₹ 30
Material Cost	₹ 12
Conversion Cost	₹ 15

Time on bottleneck resources 6 minutes
Calculate the Return per hour for Product B-1. 2

(b) The following figures have been given for Profit and Sales from the accounts of ZEESLIN LTD.

Year	Sales (₹)	Profit (₹)
2011	2,00,000	20,000
2012	3,00,000	40,000

Calculate the sales required to earn a Profit of ₹ 50,000. 2

(c) In a factory of ARITAN LTD. operating Standard Costing System, 2,000 kgs of a material@ ₹ 12 per kg were used for a product, resulting in price variance of ₹ 6,000 (FAV) and usage variance of ₹ 3,000 (ADV). What is the standard material cost of actual production of a product ? 2

(d) The cost per unit of a product manufactured in a factory of ZENION LTD. amounts to ₹ 160 (75% variable) when production is 10,000 units. If the production increases by 25% what would be the cost of production per unit? 2

(e) What are the limitations of Inter-firm comparison? 2

(f) ARIHANT LTD. is a 100% EOU as per the policy announced under the Foreign Trade Policy but is not registered under the provisions of Foreign Trade Policy. Will this company be exempted from mandatory Cost Audit? 2

(g) A Company is covered under the Companies (Cost Accounting Records) Rules, 2011. But some of its products are not covered under Cost Audit. Does such Company need to file Compliance Report? 2

(h) What are the determinants of Demand? 3

(i) The demand function is x = 80 + 2P + 5P² where 'x' is the demand for the commodity at Price 'P'. Find the elasticity of demand at P = 5. 3

Answer

(a)

$$\frac{\text{Selling Price - Material Cost}}{\text{Time of bottle neck resouce}} = \frac{30-12}{6\text{ minutes}} \text{ x } 60 \text{ minutes}$$

$$= \frac{18}{6} \text{ x } 60 = ₹\ 180$$

(b) $\text{P/VRatio} = \frac{\text{Change in Profit}}{\text{Change in SAles}} \text{ x } 100 = \frac{20{,}000}{1{,}00{,}000} \text{ x } 100 = 20\%$

Fixed Cost = Sales x P/V Ratio – Profit = 2,00,000 x 0.2 – 20,000
= ₹ 20,000

Sales required to earn a desired Profit of ₹ 50,000
= (Fixed Cost + Desired Profit) / P/V Ratio
= (₹ 20,000 + 50,000) ÷ 0.2 = ₹ 3,50,000

(c) Total Material Cost Variance:
= Material Price Variance + Material Usage Variance
= 6,000 (FAV) + 3,000 (Adv) = ₹ 3,000 (FAV)
Actual Material Cost = 2,000 x 12 = ₹ 24,000
Hence, the standard material cost of Actual production: = 24,000+3,000 (F) = ₹ 27,000

(d) Variable Cost per unit = ₹ 160 x 0.75 = ₹ 120
Fixed Cost per unit = (160 - 120) = ₹ 40
Total fixed Cost = 10,000 x 40 = ₹ 4,00,000
Total Cost per unit when production is 12,500 units (10,000 x 1.25)

$= 120 + \frac{4{,}00{,}000}{12{,}500} = 120 + 32 = ₹\ 152$

(e) Limitations of Inter firm comparison are:

(i) Top management may not be convinced of the utility of inter-firm comparison.
(ii) Reluctance to disclose data which a concern considers to be confidential.
(iii) A sense of complacence on the part of the management who may be satisfied with the present level of profit.
(iv) Absence of a proper system of cost accounting so that the costing figures supplied may not be relied upon for comparison purposes.
(v) Non-availability of a suitable base for comparison.

(f) The exemption for mandatory cost audit is applicable to those 100% EOU, who are registered under the policy document as per the foreign trade policy and the 100% EOU is functioning within the permissible approved limits as per the foreign trade policy.

(g) Every company covered under Companies (Cost Accounting Record) Rules, 2011 is required to file a compliance Report, irrespective of whether all or any of its products are covered under Cost Audit. Thus the compliance Report shall include Product groups covered under Cost Audit as well as Product groups not covered under Cost Audit.

(h) Determinants of demand are enumerated below:

(i) Price of the Commodity (P)
(ii) Prices of Substitutes (Ps) [Tea and Coffee]
(iii) Price of Complements (Pc) [Pen and Ink]
(iv) Income of household (I)
(v) Tastes and Preference of the households (T) and
(vi) The amount annually spent on advertisement of the product and sales promotion (A)

Mathematically :Dx = f(P, Ps, Pc, I, T, A)

(i)

$X - 80 + 2P + 5P^2$

Marginal Quantity demanded $\left(\frac{dx}{dp}\right) = 2 + 10P$

Average Quantity demanded = $\frac{x}{p} = \frac{80+2p+5p^2}{p} = \frac{80}{p} + 5P + 2$

$$Ep = \frac{dx}{dp} / \frac{x}{p} = \frac{2+10p}{\frac{80}{p}+5p+2} = \frac{p(2+10p)}{80+5p^2+2p}$$

AT P = 5

$$Ep = \frac{5(2+50)}{80+125+10} = \frac{260}{215} = \frac{52}{43}$$

SECTION A

Answer any two questions (carrying 20 marks each) from this section.

2.

(a) A review, made by the top management of THAKAR LTD. which makes only one product, of the result of first quarter of the year revealed the following:

Sales in units	**10,000**
Loss in ₹	**10,000**
Fixed cost (for the year ₹ 1,20,000) in ₹	**30,000**
Variable cost per unit in ₹	**8**

The Finance Manager who feels perturbed suggests that the company should at least break even in the second quarter with a drive for increased sales. Towards this, the company should introduce a better packing which will increase the cost by ₹ 0.50 per unit.

The Sales Manager has an alternate proposal. For the second quarter additional sales promotion expenses can be increased to the extent of ₹ 5,000 and a profit of ₹ 5,000 can be aimed at for the period with increased sales.

The Production Manager feels otherwise. To improve the demand, the selling price per unit has to be reduced by 3 per cent. As a result the sales volume can be increased to attain a profit level of ₹ 4,000 for the quarter.

The Managing Director asks you as a Cost Accountant to evaluate these three proposals and calculate the additional Sales Volume that would be required in each case, in order to help him take a decision. **2+8=10**

(b) ESKAY LTD. operates a system of standard costing throughout its division. The company produces an alloy by mixing and processing three materials P, Q and R as per standard data given below:

Materials	Ratio of Input	Cost per kg (₹)
P	2	40
Q	2	60
R	1	85

Note: Loss during processing is 5% of input and this has no realizable value.

During the month of June, 2013, 5,80,000 kg of finished alloy was obtained from inputs as per details given below:

Materials	Quantity Consumed (kg)	Cost per kg (₹)
P	2,40,000	38
Q	2,50,000	59
R	1,10,000	88

You are required to calculate the following variances:
(a) Material Cost Variance;
(b) Material Price Variance;
(c) Material Mix Variance;
(d) Material Yield Variance;
(e) Material Usage Variance. **2x5=10**

Answer:

(a)

Results of the first quarter: Sales 10,000 units

Particulars	Per unit (₹)	Amount (₹)
Variable Cost (V)	8	80,000
Fixed cost	3	30,000
Total cost	11	1,10,000
Loss	1	10,000
Sales (S)	10	1,00,000
Contribution (S-V) =	2	20,000

Comparative Statement of 3 proposals

Particulars	PROPOSAL OF		
	Finance Manager (₹)	Sales Manager (₹)	Production Manager (₹)
Selling Price per Unit Variable Cost per Unit	10.00	10.00	9.70
(8.00 + 0.50)	8.50	8.00	8.00
Contribution Per Unit	1.50	2.00	1.70
Fixed Cost Profit Required	30,000 Nil	35,000 5,000	30,000 4,000

Particulars	PROPOSAL OF		
	Finance Manager (₹)	Sales Manager (₹)	Production Manager (₹)

B.E.P (Units) = $\frac{\text{Fixed Cost}}{\text{Contribution per unit}}$ (A)	30,000 ÷ 1.50 = 20,000	-----	-----
Sales (Units): $\frac{\text{Fixed Cost + Profit}}{\text{Contribution per unit}}$ (A)	-----	20,000 $\frac{(35,000+5,000)}{2.00}$	20,000 $\frac{(30,000+4,000)}{1.70}$
Sales (units) in First Quarter (B)	10,000	10,000	10,000
Additional Sales volume required in SECOND Quarter as Compared to first Quarter (A-B)	10,000	10,000	10,000

(b)

ESKAY LTD
Working: Standard Cost of Finished Alloy

Material	Ratio	Quantity(Kg)	Cost/kg (₹)	Total (₹)
P	2	2	40	80
Q	2	2	60	120
R	1	1	85	85
Total Input		5		285
(Less) 5% Loss in process		(0.25)		—
Net Output		4.75 Kg		(₹) 285

Standard cost per kg of output = 285 / 4.75 = ₹ 60

COMPUTATION OF VARIANCES:

1.0	**Total Material Cost Variance :** [Standard cost of actual output - Actual mat. Cost of production] 580000 x ₹ 60 - [P: 240000 x ₹ 38 + Q: 250000 x ₹ 59 + R: 110000 x ₹ 88] = ₹ 34800000 – ₹ 33550000 = ₹ 1250000 (FAV)
1.1	**Material Price Variance :** [(Std Price - Actual Price) x Actual Quantity Consumed] = P: ₹ (40 - 38) x 240 000 + Q: ₹ (60 - 59) x 250 000 + R: ₹ (85 - 88) x 110 000 = P: ₹ 480000 (fav) + Q: ₹ 250000 (fav) + R: ₹ 330000 (adv) = ₹ 400000 (FAV)
1.2	**Material Usage Variance :** [Std cost of actual output - Std cost of actual quantity consumed] = 580000 x ₹ 60 - [P: 240000 x ₹ 40 + Q: 250000 x ₹ 60 + R: 110000 x ₹ 85] = ₹ 34800000 - 33950000 = 850000 (FAV)
1.2.1	**Material Mix Variance:** [(Input in std proportion - Actual input) x std cost (price) of input] = P: (240 000 - 240 000) x ₹ 40 + Q; (240 000 - 250 000) x ₹ 60 + R: (120 000 - 110 000) x ₹ 85 = P: ₹ 0 + Q: ₹ 600 000 (adv) + R: ₹ 850 000 (FAV) = ₹ 250 000 (FAV)

1.22	**Material Yield Variance: ₹ 600000 (FAV)** Output basis: Std input for actual yield = 580000 kg ÷ 0.95 = 610526.3158 kg (Less) actual input (600000.0000 kg) Saving in input: 10526.3158 kg ∴ Cost saved @ ₹ 285 / 5 = ₹ 57: 10526.3158 x 57 = ₹ 600000 (FAV) [alternately] Input basis : Std yield for actual input 600 000 x 0.95 = 570 000 kg Actual yield 580 000 kg Excess yield obtained Material cost whereof @ ₹ 60 Yield Variance : 10000 x 60 = ₹ 600000 (F)

3.

(a) GREEN ENVIRON LTD. has two divisions—M and N. Division-M manufactures product A-15 which it sells in outside market as well as to Division-N which processes it to manufacture Z-25. The Manager of Division-N has expressed the opinion that transfer price is too high. The two Divisional Managers are about to enter into discussions to resolve the conflict and Manager of Division-M to supply him with some information prior to discussions.

Division-M has been selling 50,000 units to outsiders and 10,000 units to Division-N, all at ₹ 25 per unit. It is not anticipated that these demand will change. The variable cost is ₹ 15 per unit and the fixed costs are ₹ 3 lakhs. Divisional investment in assets is ₹12 lakhs.

The Manager of Division-M anticipates that Division-N will want a transfer price of ₹ 22. If he does not sell to Division-N, ₹ 40,000 of fixed costs and ₹ 2,00,000 of assets can be avoided. The Manager of Division-M would have no control over the proceeds from the sale of the assets and is judged primarily on his rate of return.

Required:

(i) Should the Manager of Division-M transfer its products at ₹ 22 to Division-N?

(ii) What is the lowest price that the Division-M should accept? 7+2=9

(b) What are the Pre-requisites for Installation of a Uniform Costing System? 3

(c) The monthly budgets for manufacturing overhead of SHAHEEN LTD. for two levels of activity were as follows:

Capacity	60%	100%
Budgeted production	600	1,000
	₹	₹
Wages	1,200	2,000
Consumable stores	900	1,500
Maintenance	1,100	1,500
Power & Fuel	1,600	2,000
Depreciation	4,000	4,000
Insurance	1,000	1,000
	9,800	12,000

Required:

(i) Indicate which of the items are fixed, variable and semi-variable;

(ii) Prepare a Budget for 80% capacity; and

(iii) Find the total cost, both fixed and variable per unit of output at 60%, 80% and 100% capacity. 1+4+3=8

Answer

(a)

GREEN ENVIRON LTD

(i) Comparative Profitability Statement of Division M (Figures in ₹)

Particulars	Alternative Situations		
	Sell at ₹ 25	**Transfer at ₹ 22**	**Don't transfer**
Sales Revenue : Market Sales (50,000 units x ₹ 25)	12,50,000	12,50,000	12,50,000
Transfer to Division – N (10,000 units x ₹ 25)	2,50,000	2,20,000	----
Total (A)	15,00,000	14,70,000	12,50,000
Variable Cost (at ₹ 15 / unit)	9,00,000	9,00,000	7,50,000
Fixed Cost	3,00,000	3,00,000	2,60,000
Total (B) (₹)	12,00,000	12,00,000	10,10,000
Total Profit (A - B) (₹)	3,00,000	2,70,000	2,40,000
Total Assets (₹)	12,00,000	12,00,000	10,00,000
ROI (Per centage)	25%	22.50%	24%

Comments :

The manager of Division M should not agree to sell at ₹ 22 per unit, as it lowers down its rate of return (ROI) i.e. (25% to 22.50%)

(ii) The lowest transfer price acceptable to Division M is one, which maintains its rate of return of 24% (ROI without selling to Division N):

= (Total sales Revenue - Total Cost) / Total Assets = 0.24

or, [(₹ 12,50,000 + 10,000 x Transfer Price (TP)) – 12,00,000] ÷ ₹ 12,00,000 = 0.24

or, 10,000 TP = 2,88,000 – 50,000 = 2,38,000

or, (Transfer Price) TP = 2,38,000 ÷ 10,000 = 23.80 i.e. ₹ 23.80

The lowest transfer price acceptable to Division - M is ₹ 23.80 per unit.

(b) Essential Pre-requisites for installation of a Uniform costing System:

A successful system of uniform costing requires the following essential requisites for its installation.

(i) There should be a spirit of mutual trust, co-operation and a policy of give and take amongst the participating members.

(ii) Mutual exchange of ideas, methods used, special achievements made, research and know-how etc. should be frequent.

(iii) Bigger units should take the lead towards sharing their experience and know-how with smaller units to enable the latter to improve their performance.

(iv) Uniformity must be established with regard to several points before the introduction of uniform costing in an unit. In fact, uniformity should be with regard to the following points:

a. Size of the various units covered by uniform costing.
b. Production methods.
c. Accounting methods, principles, and procedures used.

(v) It should be willing to share/furnish relevant data/information.

(c)

SHAHEEN LTD

(i) Fixed -> Depreciation and Insurance
Variable -> Wages and consumable stores
Semi-variable -> Maintenance, and Power & fuel

(ii) Working Notes:

Segregation of semi-variable costs:

Maintenance = [1,500 - 1,100] / 400 = ₹ 1. Per unit variable and
Fixed cost = 1,100 - 600 = ₹ 500.

Power & Fuel = [2,000 - 1,600] / 400 = ₹ 1. Per unit variable and
Fixed cost = 1,600 - 600 = ₹ 1000.

BUDGET FOR 80% CAPACITY LEVEL

Budgeted Production (80 % Capacity) **800 Units**

	₹
Wages @ ₹ 2.00 per unit	1,600
Consumable stores @ ₹ 1.50 per unit	1,200
Maintenance : ₹ 500 + ₹ 1.00 per unit	1,300
Power & Fuel : ₹ 1,000 + ₹ 1.00 per unit	1,800
Depreciation	4,000
Insurance	1,000
Total Cost :	**10,900**

(iii) To sum up the Variable Cost per unit works out to ₹ 5.50.
It consists of wages : ₹ 2, Consumables Stores : ₹ 1.50,
Maintenance : ₹ 1.00 Power & Fuel : ₹ 1.00
Total Fixed Cost comes to ₹ 6500 ;
(Maintenance : ₹ 500 + Power & Fuel : ₹ 1,000 + Depreciation : ₹ 4,000 + Insurance : ₹ 1,000)

COMPUTATION OF TOTAL COST PER UNIT :

Particulars	**CAPACITY**		
	60%	**80%**	**100%**
Production (Units)	600	800	1,000
Variable cost Per unit (₹)	5.50	5.50	5.50
Fixed Cost Per Unit (₹6,500 + Production Units) (₹)	10.83	8.13	6.50
Total Cost Per Unit (₹)	**16.33**	**13.63**	**12.00**

4.

(a) The following information provides details of costs, volumes and cost drivers for a particular period in respect of AKASH INDUSTRIES LTD. for the products X, Y and Z:

	Product X	**Product Y**	**Product Z**	**Total**
1. Production and Sales (Units)	**30,000**	**20,000**	**8,000**	
2. Raw material usage (Units)	**5**	**5**	**11**	
3. Direct material cost (₹)	**25**	**20**	**11**	**12,38,000**
4. Direct Labour hours	**$^4/_3$**	**2**	**1**	**88,000**
5. Machine hours	**$^4/_3$**	**1**	**2**	**76,000**
6. Direct Labour Cost (₹) per unit	**8**	**12**	**6**	
7. Number of production runs	**3**	**7**	**20**	**30**
8. Number of deliveries	**9**	**3**	**20**	**32**
9. Number of receipts (2x7)*	**15**	**35**	**220**	**270**
10. Number of production orders	**15**	**10**	**25**	**50**

11. Overhead Costs (₹):		
Setup	30,000	
Machines	7,60,000	
Receiving	4,35,000	
Packing	2,50,000	
Engineering	3,73,000	
	18,48,000	

* The company operates a just-in-time inventory policy and receives each component once per production run.

In the past, the company has allocated overheads to products on the basis of direct labour hours. However, the majority of overheads are related to machine hours rather than direct labour hours. The company has recently redesigned its costing system by recovering overheads using two volume-related bases: machine hours and a materials handling overhead rate for recovering overheads of the receiving department.

Both the current and the previous cost systems reported low profit margins for Product X, which is the company's highest-selling product.

The cost accountant has recently attended a seminar/workshop on Activity Based Costing and the overhead costs for the last period have been analysed by the major activities in order to compute activity-based costs.

Required:

(i) Compute the product costs using a traditional volume-related costing system based on the assumption that:
- (A) all overheads are recovered on the basis of direct labour hours (i.e. the company's past product costing system); and
- (B) the overheads of the receiving department are recovered by a materials handling overhead rate and the remaining overheads are recovered using a machine hour rate (i.e. the company' s current costing system).

(ii) Compute product costs using an Activity Based Costing System. 5+7=12

(b) Compute a conservative estimate of profit on a contract (which has been 90% complete) from the following particulars.

Also calculate the proportion of profit to be taken to Profit & Loss Account under any three methods.

	₹
Total expenditure to date	4,50,000
Estimated further expenditure to complete the contract (including contingencies)	25,000
Contract price	6,12,000
Work Certified	5,50,800
Work not certified	34,000
Cash received	4,40,640

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(c) Explain the concept of Performance Budgeting. 3

Answer

(a)

AKASH INDUSTRIES LTD

(i) COMPUTATION OF PRODUCT COSTS USING TRADITIONAL COSTING SYSTEM (based on assumption that all overheads are recovered on the basis of Direct Labour hours)

(A)

Products	X	y	Z
	₹	₹	₹
Direct Labour	8	12	6
Direct Materials	25	20	11
Over head [4/3 x 21, 2 x 21; 1 x 21]	28	42	21
TOTAL	61	74	38

Direct labour hour rate = 18,48,000 / 88,000 = ₹ 21 per hour.

(B) The overheads of the receiving deptt. are recovered by a material handling overhead rate the remaining overheads are recovered by using a machine hour rate:

Products	**X**	**Y**	**Z**
	₹	₹	₹
Direct Labour	8	12	6
Direct Materials	25	20	11
Material handling overhead [25 x 35.14%, 20 x 35.14%, 11 x 35.14%]	8.78	7.03	3.87
Other overheads [4/3 x 18.59, 1 x 18.59, 2 x 18.59]	24.79	18.59	37.18
TOTAL Cost	66.57	57.62	58.05

Material handling rate = 4,35,000 / 12,38,000 = 35.14% and M/C hr. rate = 14,13,000 / 76,000 = ₹ 18.59.

(ii) COMPUTATION OF PRODUCT COSTS USING ACTIVITY BASED COSTING (ABC) SYSTEM:

Products	X	Y	Z
	₹	₹	₹
Direct Labour	8	12	6
Direct Materials	25	20	11
M/C Overheads [₹ 10 x 4/3, ₹ 10 x 1, ₹ 10 x 2]	13.33	10	20
Set-up costs [(₹ 1000 x 3) / 30000, (₹ 1,000 x 7) / 20,000, (₹ 1,000 x 20) / 8,000]	0.10	0.35	2.50
Receiving [(₹ 1611 x 15) / 30000, (₹ 1,611 x 35) / 20,000, (₹ 1611 x 220) / 8,000]	0.81	2.82	44.30
Packing [(₹ 7,812 x 9) / 30,000, (₹ 7812 x 3 ') / 20,000, (₹7,812 x 20) / 8,000]	2.34	1.17	19.53
Engineering [(₹ 7,460 x 15) / 30,000, (₹ 7,460 x 10) / 20,000, (₹7,460 x 25) / 8,000]	3.73	3.73	23.31
Total manufacturing cost	53.31	50.07	126.64

M/C overhead rate per hour = 7,60,000 / 76,000 = ₹ 10
Cost per set-up = 30,000 / 30 = ₹ 1,000
Cost per receiving order = 4,35,000 / 270 = ₹1,611
Cost per packing order = 2,50,000 / 32 = ₹ 7,812
Engg. : Cost per production order = 3,73,000 / 50 = ₹ 7,460

(b)

Computation of Estimated Profit:

	₹	₹
Contract Price		6,12,000
Less : Cost of work to date	4,50,000	
Estimated Further expr. to complete contract	25,000	
Estimated total cost		4,75,000
Hence, Estimated Profit		1,37,000

Computation of PROFIT to be transferred to profit & Loss Account under different Methods :

(i) Estd. Profit x Work certified / contract price = 1,37,000 x 5,50,800 / 6,12,000 = ₹ 1,23,300.

(ii) Estd. Profit x [Work certified/ contract price] x [cash received / work certified] = 1,37,000 x [5,50,800 / 6,12,000] x [4,40,640 / 5,50,800] = ₹ 98,640.

(iii) Estd. Profit x Cost of work to date / Estd. Total cost = 1,37,000 x 4,50,000 / 4,75,000 = ₹ 1,29,789.47

(iv) Estd. Profit x [cost of work to date / Estd. Total cost] x [cash received / work certified] = 1,37,000 x [4,50,000 / 4,75,000] x [4,40,640 / 5,50,800] = ₹ 1,03,831.58

(c) The concept of performance budgeting:

Performance Budgeting is similar to responsibility Accounting which means that the responsibilities of various levels of management is pre-determing in terms of output or result keeping in view that authority vested with them. The prime concepts of such a system are given below:

(i) It is based on a classification of managerial level for the purpose of establishing a budget for each level. The official in charge of that level should be made responsible and accountable for its performance for a given period of time.

(ii) The starting point of the performance budgeting system rests with the organisation chart in which the areas of jurisdiction have been determined. Authority leads to the responsibility for certain cost & expenses which are reflected in the budget with the knowledge of the manager concerned.

(iii) The cost of each individuals or department's budget should be limited to the cost controllable by them.

(iv) The person concerned should have the authority to bear the responsibility.

SECTION B

Answer any one question (carrying 16 marks) from this section.

5.

(a) Under what conditions will the appointment of Cost Auditor for conducting Cost Audit be appointed in firm's name? Who will authenticate such reports and how? 3+1=4

(b) The following figures are extracted from the Accounts of NAVINA LTD. a single manufacturing company.

(Amount in ₹ Lakh)

For the year ended:	**31.3.13**	**31.3.12**	**31.3.11**
Gross fixed assets	**4,615**	**4,212**	**3,845**
Cumulative depreciation	**1,312**	**1,263**	**1,224**
Capital WIP	**273**	**225**	**317**
Investments in Shares and Debentures	**724**	**712**	**693**
Inventories	**625**	**580**	**511**
Sundry Debtors	**334**	**317**	**292**

Advances for purchase of Capital eqpts.	**24**	**61**	**47**
Other loans and advances	**65**	**58**	**53**
Other Current Assets	**32**	**29**	**26**
Sundry Creditors	**214**	**187**	**174**
Provision for expenses	**29**	**34**	**28**
Net Sales	**3,924**	**3,212**	**2,931**
Depreciation	**54**	**47**	**44**
Interest	**614**	**497**	**416**
Profit before taxes (PBT)	**232**	**145**	**197**

You are required to compute the following figures/ratios as stipulated in PARA-9 of the Annexure to Cost Audit Report under the companies (Cost Audit Report) Rules, 2011 for the year ended March 31, 2013 and 2012.

(i) Capital Employed

(ii) Profit before Taxes (PBT) to Capital Employed

(iii) Profit before Taxes (PBT) to Net Sales. **8+2+2=12**

Answer

(a) The Ministry of Corporate Affairs has decided to approve the appointment of Cost Auditors in firm's name under Sub-Section (2) of Section 233-B of the Companies Act 1956 if such proposal is received from Board of Directors of any Company subject to the following Conditions :

(i) All the Partners are practicing Cost Accountants within the meaning of Sections 6 and 7 of the cost and works Accountant Act 1959 and

(ii) The firm itself has been constituted with the previous approval of the Central Government / Institute as required under Regulation 113 of the Cost and Works Accountant Act 1959 as amended from time to time.

When a firm is appointed as Cost Auditors, authentication of Cost Audit Report is to be done by the Signature of any one of the Partners of the firm in his own hand for and on behalf of the firm. The report should not be signed by merely affixing firm name.

(b)

NAVINA LTD

(i) STATEMENT SHOWING COMPUTATION OF CAPITAL EMPLOYED

For the year ended	**31.3.2013**	**31.3.2012**	**31.3.2011**
Particulars	**(Amount in ₹ Lakh)**		
Gross Fixed Assets :	4,615	4,212	3,845
Less Depreciation	1,312	1,263	1,224
Net Fixed Assets (A)	3,303	2,949	2,621
Gross Current Assets :			
Inventory	625	580	511
Sundry Debtors	334	317	292
Other Loans and Advances	65	58	53
Other Current Assets	32	29	26
Total Current Assets	1,056	984	**882**

Gross Current Liabilities :			

Sundry Creditors	214	187	174
Provisions for expenses	29	34	28
Total Current Liabilities	243	221	202
Net Current Assets (B)	813	763	680
Total Capital Employed (A+B)	4,116	3,712	3,301

Average Capital Employed:			
2012-13 ; (3,712 + 4,116) / 2	3, 914		
2011-12 : (3,301 + 3,712)/ 2		3,506.5	
Profit before Taxes (PBT)	232	145	
Net Sales	3, 924	3, 212	

For the year ended	31.3.2013	31.3.2012
(ii) PBT to Capital Employed :	5.93%	4.14%
	[(232 ÷ 3,914) x 100]	[(145 ÷3,506.5) x 100]
(iii) PBT to Net Sales :	5.91%	4.51%
	[(232 ÷ 3,924) x 100]	[(145 ÷ 3,212) x 100]

6.

(a) Enumerate the duties to be performed by a Cost Auditor. **6**

(b) During the year ended 31st March, 2013, the profit of ROVERTZ LTD. as per Financial Profit and Loss Account was ₹ 33,248 as given below:

Profit and Loss A/c for the year ended 31st March, 2013

	₹		₹
To Opening Stock	**4,94,358**	**By Sales**	**6,93,000**
To Purchases	**1,64,308**	**By Sundry income**	**632**
	6,58,666		
Less: Closing Stock	**1,50,242**		
	5,08,424		
To Direct wages	**46,266**		
Factory overhead	**41,652**		
Admin, expenses	**19,690**		
Selling expenses	**44,352**		
To Net Profit	**33,248**		
	6,93,632		**6,93,632**

The costing records show:

	₹
Closing Stock	**1,56,394**
Direct wages absorbed	**49,734**
Factory overheads absorbed	**39,428**

Administration expenses calculated at 3% of Sales.
Selling expenses absorbed @ 5% of Sales.

Required:

(i) Find out the impact on Costing Profit & Loss A/c.

(ii) Prepare a Reconciliation Statement and arrive at the profit as per Cost Accounts,

using the additional information given above. **3+4=7**

(c) Is it necessary to first prepare "Unit wise" and "product/activity" Cost Statements and then merge into product group-wise Cost Statement for the Company as a whole? **3**

Answer

(a) The duties to be performed by Cost Auditor are enumerated below :

(i) To ensure that the proper books of accounts as required by the Cost Accounting Records Rules have been kept by the Company and proper returns for the purpose of his Audit have been received from branches not visited by him,

(ii) To ensure that the Cost Audit Report and the detailed Cost Statements are in the form prescribed by the Cost Audit Report Rules by following sound professional practices i.e. the report should be based on verified data and observations may be framed after the Company has been afforded an opportunity to comment on them.

(iii) To ensure that the underlying assumptions and basis for allocation and absorption of Indirect expenses are reasonable and are as per the established accounting principles.

(iv) If the auditor is not satisfied in any of the aforesaid matters, he may give a qualified report along with the reasons for the same.

(v) He is to send the Cost Audit Report to the Cost Audit Branch within 180 days from the end of the financial year with one copy to the company.

(vi) He is required to send his replies to any clarification, that may be sought by the Cost Audit Branch on his report. Sending such replies within 30 days from the date of receipt of communication calling for clarification.

(b)

(i)

Impact on costing P & L Account;

Particulars	Financial Books	Cost Books	Impact on Cost Books	
	(Amount in ₹)			
Closing stock	1,50,242	1,56,394	6,152	Results in more profit
Sundry incomes	632	----	632	Less profit in cost accounts
Direct wages	46,266	49,734	3,468	Over-absorbed
Factory overhead	41,652	39,428	2,224	Under-absorbed
Admin. Expenses	19,690	20,790	1,100	Over-absorbed
Selling expenses	44,352	34,650	9,702	Under-absorbed

(ii) Reconciliation Statement for the year ended 31st March 2013

	₹	₹
Profit as per Financial P & L Account		33,248
ADD, Difference in closing stock	6,152	
Factory overheads under - absorbed	2,224	
Selling expenses under - absorbed	9,702	18,078
Less : Over - absorbed direct wages	3,468	
Over- absorbed admin. Expenses	1,100	
Sundry income not taken in cost account	632	(5,200)

Profit as per cost accounts		46,126

(c)

It is mandatory to prepare unit-wise and product/activity-wise cost statements as per the Companies (Cost Accounting Records) Rules 2011. For Compliance Certificate purposes, no cost statement is required to be submitted.

However, if any or all the products/activities of the company is also covered under Cost Audit, then for the purposes of submission of Cost Audit Report under the Companies (Cost Audit Report) Rules 2011, a consolidated cost statement for the product group(s) under cost audit is required to be prepared.

SECTION C

Answer any two questions (carrying 12 marks each) from this section.

7.

(a) What are the factors involved in Demand Forecasting? **4**

(b) The Demand and Supply function under perfect Competition are $y=16-x^2$ and $y=2x^2+4$ respectively.
Find:
(i) the Market Price
(ii) Consumer's Surplus **2+2=4**

(c) NANDINI ELECTRICALS an electronics firm assumes a cost function $C(x) = x(\frac{x^2}{10} + 200)$, where 'x' is a monthly output in thousands of units. Its revenue function is given by $R(x) = x(1100 - 1.5x)$.
Find:
(i) the output required per month to make the Marginal Profit = 0; and
(ii) the Profit of this level of output. **3+1 = 4**

Answer

(a) Factors involved in Demand Forecasting:

(i) 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.

(ii) 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.

(iii) General or specific purpose factor: The firm may find either general or specific forecasting or both useful according to its requirement.

(iv) Product: Forecasting varies type of product i.e., new product or existing product or well established product.

(v) 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 consume/ goods will be different accordingly.

(vi) Competition: While making forecasting, market situation and the product position in particular market should be analyzed.

(vii) Consumer Behavior: What people think about the future, their own personal prospects and about products and brands are vital factors for firm and industry.

(b) Under Perfect Competition Market Price is : Demand = Supply i.e.

$16 - x^2 = 2x^2 + 4$
Or $16 - x^2 - 2x^2 - 4 = 0$
Or $-3x^2 + 12 = 0$
Or $-3x^2 = -12$

$\therefore x^2 = \frac{12}{3} = 4$

$x = \sqrt{4} = \pm 2$ i.e. 2 or -2 (since Quantity / units cannot be negative, rejecting the negative value (-2)

(i) Market Price $y = 16 - x^2$
$= 16 - 2^2 = 16 - 4 = 12$ (when x = + 2)

(ii) Consumer's Surplus:

$$\int_0^2 \left(16 - x^2\right) dx - 2 \times 12$$

$$= \left[16x - \frac{x^3}{3}\right]_0^2 - 24$$

$$= 32 - \frac{8}{3} - 24 = \frac{16}{3}$$

(c) (i) Profit $= R(x) - C(x) = 1100x - 1.5x^2 - \frac{x^3}{10} - 200x$

$$= -\frac{x^3}{10} - 1.5x^2 + 900x \text{ (Say P)}$$

Marginal Profit (MP) $= \frac{dp}{dx} = -\frac{3x^2}{10} - 3x + 900$

Pr Marginal Profit (MP) = O (given)

$$-\frac{3x^2}{10} - 3x + 900 = 0$$

$\Rightarrow -3x^2 - 30x + 9000 = 0$
$\therefore x^2 + 10x - 3000 = 0$
$x^2 + 60x - 50x - 3000 = 0$
or, $x(x + 60) - 50(x + 60) = 0$
or, $(x-50)(x + 60) = 0$ Either $x = 50$ or $x = -60$

[Since units cannot be negative rejecting the negative value (-60)]
The required output level = 50 (thousand) units.

(ii) Total Profit at output x = 50 (thousand) units.

$$-\frac{x^3}{10} - 1.5x^2 + 900x$$

$= -\frac{125000}{10} - 3750 + 45000 =$ ₹28750 *Thousand*

8.

(a) State the main features of Perfect Competition Market. **4**

(b) HITACHI LTD. an air conditioner manufacturer, produces 'x' sets per week at a total cost of x^2+780x+25000. The firm is a monopolist and the demand function for its product is x = (15000 - $\frac{p}{4}$), where the price is 'p' per set.

(i) Determine the number of AC sets to be produced per week at which the firm will earn maximum net revenue; and

(ii) Decide the monopoly price. **3+1=4**

(c) The efficiency (E) of a small manufacturing concern depends on the number of workers (W) and is given by: 10E = $\frac{-W^3}{40}$ + 30W - 392.

Find the strength of the workers, which give maximum efficiency. **4**

Answer:

(a) The following are the features of perfect competition market:

(i) There must be Large number of Buyers and sellers.

(ii) In perfect competition, the goods produced by different firms are homogenious or identical.

(iii) In perfect competition there is free entry and exit of the firms into the industry.

(iv) The buyers and the sellers must have the knowledge with regard to the prices of various commodities at different supply and demand forces.

(v) The factors must be mobilized from those places where they are getting less remuneration to those places where they will get maximum remuneration.

(vi) All commodities are identical in perfect competition. So the prices of the commodities are also uniform.

(vii) In order to maintain the uniform price level in perfect, competition we should not include the transport cost in the price level.

(viii) There is a difference between firm & industry under perfect competition. Firm is a production unit and where as industry is a group of firms.

(b)

(i) Cost (c) = $x^2 + 780x + 25000$

Demand (D) $x = \left(15000 - \frac{P}{4}\right) = \frac{60000 - P}{4}$

Or, 4x = 60000 – P

=> P = 60000 – 4x

So total Revenue per x sets, R = $60000x - 4x^2$

Maximum Revenue is obtained at MC = MR

MR = $\frac{dR}{dx}$ = 60000 - 8x (Marginal Revenue)

MC (Marginal Cost) = $\frac{dC}{dx}$ = 2x + 780

$\therefore$ 2x + 780 = 60000 – 8x

or, 10x = 59220

or, x = 5922 Sets

(ii) Monopoly Price = 60000 – 4x
= 60000 – 4 x 5922 = ₹ 36312

(c) Given 10 E = $\frac{-w^3}{40} + 30W - 392$

Efficiency (E) = $\frac{-W^3}{400} + 3W - 39.2$

$\frac{dE}{dW} = -\frac{1}{400} \times 3W^2 + 3 = 0$

=> $3W^2 = 1200$ => W = 20

$\frac{d^2E}{dW^2} = -\frac{6W}{400}$ $\therefore$ $\frac{d^2E}{dW^2}$ at W = 20 = $\frac{-6(20)}{400} = \frac{-3}{10} < 0$

Maximum Efficiency at W = 20
Hence the Strength of Workers = 20

9.

(a) AJANTA FOOTWEARS LTD. intends to introduce in the market two products of the following characteristics:

(i) 'Comfort walk'-shoe for elderly people—considered quite new in the market with a high degree of consumer acceptability.

(ii) 'Glamour' sandals (with coloured laces crossing) for young LADIES—considered to be one which is already served by other well known brands.

State suitable pricing strategies, together with your valid arguments, for each of them separately. 2+2=4

(b) Assume that for a closed economy, E = C + I + G,
where E = Total expenditure on Consumption Goods,
I = Exp. on Investment Goods
G = Govt. spending
For equilibrium, we must have E=Y, Y being total income received.
For a certain Economy, it is given that C=15 + 0.9Y, where I=20 + 0.05Y and G=25.
Find the equilibrium values of Y, C and I. How will these change, if there is no Govt. spending? 2+2=4

(c) A firm has revenue function given by R=10Q where R=Gross Revenue and Q=Number of Units Sold, Production Cost function is given by

C = 20000+ 50$\left(\frac{Q}{800}\right)^2$

Find:
(i) the total Profit function, and
(ii) the number of Units (Q) to be sold to get the maximum Profit. 1+3=4

Answer

(a)

(i) When the product is new but with a high degree of consumer acceptability, the firm should decide its pricing strategy in favour of Skimming Pricing Strategy, i.e., charging a higher mark-up and therefor charge a high price. This would help to 'skim the cream' from the market. As 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, together with its novelty and special characteristics, commands a better price. If the life of the product promises to be a short one, the management should fix high price so that it can earn, as, much profit as possible and in as short a period as possible.

(ii) The product is already served in the market by well-known brands. So, a low price is necessary to attract gradually the consumers who are already accustomed to other brands. This low price strategy is termed Penetration Pricing Strategy. This low price will help to maximize the sales of the product even in the short period. Since product differentiation is low, the objective of the firm should be to fix low price so as to establish a strong base in the market, build goodwill among customers and strong consumer loyalty.

(b) E = 15 + 0.9Y + 20 + 0.05 Y + 25
E = 60 +0.95 Y = (I)
As given E = Y = 60 + 0.95 Y
0.05 Y =60
$\therefore$ Y = 60/0.05 = 1200
C=15 + 0.9 x 1200 = 1095
I = 20 + 0.05 x 1200 = 80
When there is no government Spending
Y = 35 + 0.95y

Or 0.05 y = 35 $\quad\quad \therefore\ Y = \dfrac{35}{0.05} = 700$

C = 15 + 630 = 645
1 = 20 +0.05 x 700 = 55

(c) R =10 Q

$$C = 20000 + 50\left(\frac{Q}{800}\right)^2$$

$$\text{Profit (P)} = 10\,Q - 20000 - 50\left(\frac{Q^2}{640000}\right) \text{(Profit function)}$$

To find number of Units to get the Maximum Profit,

$$\frac{dP}{dQ} = 0 \text{ and } \frac{d^2P}{dQ^2} \text{ Should be – ve}$$

$$\Rightarrow \frac{dP}{dQ} = 10 - \frac{50 \times 2Q}{640000} = 0$$

$$\Rightarrow 10 - \frac{100\,Q}{640000} = 0$$

$$\therefore Q = \frac{640000 \times 10}{100} = 64000$$

$$\frac{d^2P}{dQ^2} = \frac{100}{640000} = -\frac{1}{6400} \text{ which is negative (-ve)}$$

P (Profit) is maximum at Q = 64000 Units

$$\text{Maximum Profit} = 10 \times 64000 - 20000 - 50\left(\frac{64000^2}{640000}\right)$$

$$= 640000 - 20000 - 320000 = ₹\ 300000.$$