Paper 19 - COST AUDIT & MANAGEMENT AUDIT

Full Marks: 100

Section A

Answer any four questions [4x15=60]

(1). (a) As a Cost and Management Auditor, you are asked to look into the proposed decision to temporarily suspend operations due to depressed market conditions:

	₹ in '000	
Budgeted level (per annum)	**Capacity Utilisation**	
	60%	**80%**
Direct Material	**1950**	**2600**
Direct Labour	**2400**	**3200**
Production overhead	**1260**	**1380**
Administrative Overhead	**620**	**660**
Selling & Distribution overhead	**680**	**740**
Total	**6910**	**8580**

The company is likely to operate at 50% capacity only and turnover is expected to be ₹ 49.5 lacs p.a. Market Research indicates that the depression will be over in a year and after that they can effect a sale of ₹90 lacs p.a utilizing 75% of capacity.

If operations are suspended for a year, the following cost will be incurred:

- **Fixed cost ₹ 4,00,000**
- **Settlement with labour force ₹ 3,50,000**
- **Maintenance of Plant will continue and cost ₹1,00,000**
- **Cost of reopening will be ₹1,00,000**

Draft a report to the Management of the following two options:

(i) To suspend production for one year and restart thereafter when market improves.

(ii) To continue production at 50% capacity level. **[12]**

Answer:

Draft report is as follows:

To,
The Managing Director,

Dear Sir,

Sub: Report on proposal for temporary suspension of operations due to depressed market conditions

This has reference to your letter no. ……. dated _/ _/ __.

As desired, I have examined carefully both the options that are available viz.,

(i) To suspend production for one year and restart thereafter when market improves.

(ii) To continue production at 50% capacity level.

Due to depressed market conditions, the plant has to be operated only at a low cost capacity utilization of 50%. The market research report has predicted that the adverse market conditions are going to be a temporary phenomenon for a period of only one year, thereafter that they can affect a sale of ₹ 90 lacs p.a utilizing 75% of capacity.

Details pertaining to the feasibility of both the options are as under:

Option I: Suspension of production for one year

	₹ in '000
Fixed cost	400
Settlement with labour force	350
Maintenance of Plant	100
Cost of reopening	100
Total	950

Option II: Continue production at 50% capacity level.

	₹ in '000	
Particulars	Current Year	Next Year
	50% capacity	75 % capacity
Direct Material	1625	2437.50
Direct Labour	2000	3000.00
Production overhead	1200	1350.00
Administrative Overhead	600	650.00
Selling & Distribution overhead	650	725.00
Total cost	6075	8162.50
Sales	4950	9000.00
Profit/(Loss)	(-)1125	837.50

Analysis of the above comparative data shows that if company continues operation at 50% capacity, there will be loss of ₹ 11.25 lacs.

On other hand, if operations are suspended, the loss will be ₹ 9.50 lacs.

Thus there is additional loss of ₹ 1,75,000 if company continues its operation.

If the operations are suspended, the company may have to encounter the following problems:

- Problems of recruiting new personnel,
- Links with old customers will be broken,
- It may have an adverse effect on the image of the company.

Attaining 75% capacity utilization immediately after closer for a year may not be easy to achieve. It may therefore be seen from the above that even though the company may just save ₹ 1,75,000/-, by doing so it may have to face a lot of difficulties as listed above.

Final recommendation: The company is advised to continue production at 50% capacity utilization and never mind the small loss of ₹1,75,000/- by continuing production in view of factors discussed above.

Hope you find the above report and analysis in order.

Thanking you,

Sd.

(Cost and Management Auditor.)

Working notes:

(I) Direct Material Cost is 100% variable cost.
Direct material cost at 75% Capacity = 19,50,000/60 × 75 = ₹ 24,37,500
Direct material cost at 50% Capacity = 19,50,000/60 × 50 = ₹ 16,25,000

(II) Direct Labour Cost is 100% variable cost.
Direct Labour Cost at 75% capacity = 24,00,000/60 × 75 = ₹ 30,00,000
Direct Labour Cost at 50% capacity =24,00,000/60 × 50 = ₹ 20,00,000

(III) Production Overhead is a semi variable cost.
At 80%, Production Overhead is ₹13,80,000
At 60%, Production Overhead is ₹12,60,000
For 20% variation, difference is ₹1,20,000
Variable production overhead at 60% capacity = 1,20,000/20 × 60 = ₹3,60,000
Fixed production overhead = ₹ 12,60,000 – ₹ 3,60,000 = ₹ 9,00,000
Thus at 50% capacity,
Variable production overhead = ₹ 3,60,000/60 × 50 = ₹3,00,000.
Total production overhead = ₹9,00,000 + ₹3,00,000 = ₹12,00,000
Similarly, at 75% Capacity,
Variable production overhead = 3,60,000/60 × 75 = ₹ 4,50,000
Total production overhead = ₹ 9,00,000 + ₹ 4,50,000 = ₹13,50,000

(IV) Administrative overhead is a semi variable overhead.
At 80% capacity, Administrative overhead = ₹6,60,000
At 60% capacity, Administrative overhead = ₹6,20,000
For 20% variation, difference is = ₹40,000
At 60% capacity, Variable Administrative overhead = 40,000/20 × 60 = ₹1,20,000
Thus, Fixed Administrative overhead = ₹6,20,000 – ₹1,20,000 = ₹5,00,000
Similarly, at 50% capacity,
Variable Administrative overhead = ₹1,20,000/60 × 50 = ₹1,00,000
Total Administrative overhead = ₹5,00,000 + ₹1,00,000 = ₹6,00,000
At 75% capacity,
Variable Administrative overhead=120000/60 × 75= ₹1,50,000
Thus Total Administrative overhead = ₹5,00,000 + ₹1,50,000 = ₹6,50,000.

(V) Selling and Distribution Overhead:
This is semi variable overhead.
At 80% , S&D OH = ₹7,40,000
At 60%, S&D OH = ₹6,80,000
For 20% variation, difference is = ₹60,000
Thus, at 60% capacity, variable S&D o/h = 6000/20 × 60 = ₹1,80,000
Fixed OH at 60% capacity = ₹6,80,000 – ₹1,80,000 = ₹5,00,000
Thus at 50% capacity,
Variable S&D O/H = 1,80,000/60 × 50 = ₹1,50,000
Total S&D O/H = ₹1,50,000 + ₹5,00,000 = ₹6,50,000

Similarly at 75% capacity,

Variable O/H = 1,80,000/60 × 75 = ₹2,25,000

Total O/H = ₹2,25,000 + ₹5,00,000 = ₹7,25,000

(b) A company manufactures various types of product under review. As a Cost Auditor would you accept the absorption of 'Selling and Distribution' expenses as a percentage on Sales Values? [3]

Answer:

The method of absorption of Selling and Distribution Overheads as a percentage of Sales Value is not correct because:

(a) Some quantities of product have been consumed captively.

(b) Different advertisement and selling techniques resulting in separate expenses incurred for various types of products.

(c) Freight cost is different for different types of products.

(d) A product has different demand in different areas and their selling expenses cannot be pooled as common.

(2). (a) UPS Ltd. has its own power generation plant using steam. The data relating to the same for the period 2012-13 are:

Productions	**Steam**	**Electricity**
Units	**27,000**	**15,000**
Costs:	**₹**	**₹**
A. Fuel		
(i) Coal	**3,240**	**-**
(ii) Others	**972**	**-**
B. Steam	**-**	**2,700**
C. Utilities		
(i) Gas	**3,645**	**-**
(ii) Electricity	**648**	**-**
(iii)	**Others**	**405 450**
D. Fixed Costs	**1,215**	**450**
	10,125	**3,600**

The State Electricity Board has offered electricity at a concessional rate of ₹ 0.18 per unit between 10 p.m and 6 a.m (third shift) as against the normal rate of ₹ 0.27 per unit for the rest of the period.

Discuss the implications of accepting the offer assuming that utilities costs are partly fixed to the extent of 25%.

If utilities are fully variable, what would be the position? [8]

Answer:

Cost per unit of power generated:

= Cost of (Steam + Electricity + others) /15,000 units.

= (2,700 + 450 + 450) /15,000 units

= ₹ 0.24

Average cost per unit of power purchased:

= Rate (From 10 p.m to 6 a.m) + Rate (From 6 a.m. to 10 p.m.)/Total Hours.

= [(0.18 x 8 Hrs.) + (0.27 x 16 Hrs.)] / 24

= (1.44 + 4.32)/24

= ₹ 0.24

Hence cost of generated power and average cost of purchased power are equal. Thus purchasing power during the third shift period, i.e. 10 p.m. and 6 a.m is cheaper.

(b) TNT Ltd. has received an enquiry for supply of 2,00,000 numbers of Special Type of Machine Parts. Capacity exists for manufacture of the machine parts, but a fixed investment of ₹80,000/- and working capital to the extent of 25% of Sales Value will be required to undertake the job.

The costs estimated as follows:

Raw Materials - 20,000Kgs @ ₹2.50 per kg

Labour Hours- 9,000 of which 1,200 would be overtime hours payable at double the labour rate.

Labour Rate- ₹ 2 per hour.

Factory Overhead - ₹ 2 per direct labour hours.

Selling and Distribution Expenses - ₹ 23,000

Material recovered at the end of the operation will be ₹6,000 (estimated).

The Company expects a Net Return of 25% on Capital Employed.

You are Management Accountant of the Company. The Managing Director requests you to prepare a Cost and Price Statement indicating the price which should be quoted to the Customer. [7]

Answer:

Statement of Estimated Cost and Price Quotation

Product: Special Type Machine Parts.	Quantity = 2,00,000 units.	
	₹	₹
Materials (20000 Kgs. @ ₹2.50)	50,000	
Less: Estimated Scrap value	6,000	44,000
Labour-		
8000 hrs. @ ₹2	15,600	
1000 (OT) hrs. @ ₹4	4,800	20,400
Prime Costs		64,400
Add: Factory overhead (9000 hrs. @ ₹2)		18,000
Factory Cost		82,400
Add: Selling and Distribution Expenses		23,000
Total Cost		1,05,400
Add: Profit		28,360
Sales		1,33,760

Selling Price / unit = 1,33,760/2,00,000 = ₹ 0.67

Working Notes:

Calculation of Sales

Let Sales be S

S = Total Cost + 25 % of Capital Employed.

S = 1,05,400 + 25/100 x (80,000+S/4)

S = 1,05,400 + 20,000 + S /16

S – S /16 = 1,25,400

15S =1,25,400 x 16

15S = 20,06,400

S = 1,33,760

Sales = ₹1,33,760

Profit = Sales – Cost = 1,33,760 – 1,05,400 = ₹ 28,360

Working Capital = 1/4th of Sales = 1,33,760 x 1/4 = ₹33,440.

(3). (a) CDMA Ltd. operates a small machine shop that manufactures one standard product available from many other similar businesses as well as products to customer order. The accountant has prepared the annual statement shown here:

	Custom sales	Standard sales	Total sales
Sales	**50,000**	**25,000**	**75,000**
Material	**10,000**	**8,000**	**18,000**
Labour	**20,000**	**9,000**	**29,000**
Depreciation	**6,300**	**3,600**	**9,900**
Power	**700**	**400**	**1,100**
Rent	**6,000**	**1,000**	**7,000**
Heat and light	**600**	**100**	**700**
Others	**400**	**900**	**1,300**
Total expenses	**44,000**	**23,000**	**67,000**
Net income	**6,000**	**2,000**	**8,000**

The depreciation charges are for machines used in the respective product lines. The power charge is apportioned on the estimate of power consumed. The rent is for the building space, which has been leased for ten years at ₹7,000 per year. The rent as well as heat and light are apportioned to the product lines based on the amount of floor space occupied. All other costs are current expenses identified with the product line causing them.

A valued custom parts customer has asked CDMA Ltd. if its shop would manufacture 5,000 special units. CDMA Ltd. is already working at capacity and would have to give up some other business in order to take this business. The company cannot refuse on custom orders already agreed to, but it could reduce the output of its standard product by about one-half for one year while producing the specially requested custom parts. The customer is willing to pay ₹7 for each part. The material cost will be about ₹2 per unit, and the labour will be ₹3.60 per unit. CDMA Ltd. will have to dish out ₹2,000 for a special device, which will be discarded when the job is done.

Calculate and present the following costs:

(i) The incremental cost of the order,

(ii) The full cost of the order,

(iii) The opportunity cost of taking the order. [10]

Answer:

Differential Cost Analysis:
Cost of special job:

	₹
1. Material cost (5,000 @ ₹2)	10,000
2. Labour (5,000 @ ₹3.60)	18,000
3. Special expenses	2,000
Total	30,000

Costs reduced for standard products:

Material	4,000
Labour	4,500
Other costs	450
Total	8,950

Total incremental costs ₹30,000 – ₹8,950= ₹21,050

It has been assumed that depreciation, rent, heat and light are fixed and will not be affected by the acceptance of the order.

Opportunity cost = 50% of ₹25,000 – ₹8,950 = ₹3,550

(b) How are Cost Accounting Standards different from Cost Accounting Records Rules? [5]

Answer:

Cost Accounting Standards (CAS) are a set of standards designed to achieve uniformity and consistency in cost accounting practices. These are prescribed by Cost Accounting Standard Board (CASB) set up by The Institute of Cost Accountants of India.

Cost Accounting Records Rules are applicable to all companies engaged in production, processing, manufacturing and mining activities as defined under Rules 2(j), 2(k), 2(l) or 2(o) respectively and where:

(a) the aggregate value of net worth as on the last date of the immediately preceding financial year exceeds five crores of rupees; or
(b) the aggregate value of the turnover made by the company from sale or supply of all products or activities during the immediately preceding financial year exceeds twenty crores of rupees; or
(c) the company's equity or debt securities are listed or are in the process of listing on any stock exchange, whether in India or outside India.

Any company meeting the above criteria would be required to maintain cost accounting records. These Rules are not applicable to a company which is a body corporate governed by a Special Act.

On other hand CAS will be equally applicable to the companies and all product manufacturers. Therefore many experts are of the opinion that prescription of Cost Accounting through CAS with appropriate compliance audit or disclosure norms may be much more effective and useful than through complicated Cost Accounting Record Rules. Moreover this

will bring more numbers of companies under the ambit and will help Govt. to achieve its objectives.

(4). (a) The following figures are extracted from the statement prepared by the Cost Accountant and the Trial Balance of ABC Ltd., which is a single product company:

	Year ending		
	31.3.13	31.3.12	31.3.11
	(₹ in lakhs)		
Gross sales inclusive of Excise Duty	2,240	1,970	1,885
Excise Duty	295	280	265
Raw Materials consumed	1,140	1,060	975
Direct Wages	35	32	27
Power and Fuel	30	27	24
Stores and Spares	6	5	4
Depreciation charged to production cost centres	16	15	13
Factory overheads:			
Salaries and Wages	5	4	3
Depreciation	2	2	2
Rates and Taxes	1	1	1
Other overheads	6	5	4
Administrative overheads:			
Salaries and Wages	10	9	8
Rates and Taxes	2	2	2
Other overheads	162	154	148
Selling and distribution overheads:			
Salaries and Wages	7	6	5
Packing and Forwarding	6	6	5
Depreciation	1	1	1
Other overheads	124	118	108
Interest	85	74	68
Bonus and Gratuity	12	10	9
Gross Current Assets	840	724	640
Current Liabilities and Provisions	324	305	246

You are required to compute the following ratios as per requirement of Para 9 the Cost Audit Report Rules 2011:

(i) Operating Profit as percentage of Value Addition.

(ii) Value Addition as percentage of Net Sales.

The computation should be based on EBDIT as Operating Profit. [7]

Answer:

	(₹ in lakhs) Year ending		
	31.3.12	31.3.11	31.3.10
Gross sales inclusive of Excise Duty	2,240	1,970	1,885
Excise Duty	295	280	265
Net sales (A)	1,945	1,690	1,620
Cost of Sales excluding depreciation & Interest			
Raw Material consumed	1,140	1,060	975
Direct Wages	35	32	27
Power and Fuel	30	27	24
Stores and Spares	6	5	4
Factory overheads (excluding depreciation)	12	10	8
Administrative overheads (excluding depreciation)	174	165	158
Selling and distribution overheads (excluding depreciation)	137	130	118
Bonus and Gratuity	12	10	9
Total (B)	1,546	1,439	1,323
∴ Operating Profit (A) – (B) =	399	251	297

Value addition is defined in Para 8 of the Cost Audit (Report) Rules, 2011 as "the difference between the net output value (Net Sales) and cost of bought out materials and services for the product under reference".

The working will be:

	Year ending		
	31.3.12	31.3.11	31.3.10
(X) Net sales	1,945	1,690	1,620
Less :(i) Cost of Bought Out Materials & Service (Raw Materials and Stores & Spares)	1,146	1,065	979
(ii) Power & Fuel, other bought out services	30	27	24
(iii) Over heads (excluding Salaries & Wages, Rates & Taxes and depreciation)	298	283	265
(Y)	1,474	1,375	1,268
Value Addition : (X) – (Y) =	471	315	352

	Year ending		
	31.3.12	31.3.11	31.3.10
Hence,			
(a) Operating profit as % of Value Added	399/471	251/315	297/352
i.e.	84.71%	79.68%	84.38%
(b) Value addition as % of Net Sales	471/1,945	315/1,690	352/1,620
i.e.	24.22%	18.64%	21.73%

(b) Who is competent authority in companies to appoint cost auditor? What procedure is required to be followed by a company in respect of appointment of cost auditor? [4]

Answer:

As per provisions of section 233B(2), the Board of Directors of a Company can appoint a cost auditor after obtaining prior approval of the Central Government. Under the revised procedure, the first point of reference will be the Audit Committee to ensure that the cost auditor is free from any disqualification as specified under section 233B (5) read with section 224 and sub-section (3) or sub-section (4) of section 226 of the Companies Act, 1956. The Audit Committee should also ensure that the cost auditor is independent and is at arm's length relationship with the company. After ascertaining the eligibility, the Audit Committee will recommend to the Board of Directors for appointment.

In those companies where constitution of an Audit Committee is not required by law, the functions of the "Audit Committee" as per the procedure will be discharged by the "Board of Directors".

Procedure for appointment of cost auditor

The Company is required to e-file its application with the Central Government on www.mca.gov.in portal, in the prescribed Form 23C within ninety (90) days from the date of commencement of each financial year, along with the prescribed fee as per the Companies (Fees on Application) Rules, 1999 as amended from time to time and other documents as per existing practice i.e.

(i) certified copy of the Board Resolution proposing appointment of cost auditor; and

(ii) copy of the certificate obtained from the cost auditor regarding compliance of section 224(1B) of the Companies Act, 1956.

(c) A company, manufacturing Cotton Textile, wrote off in the same year, the expenditure in replacement of Copper Rollers used for printing fabrics and Stainless Steel frames used for Dying Yarn whose life are more than one year. State whether the Cost Auditor can qualify the report for these? [4]

Answer:

The Cost Auditor is justified in qualifying his report since as per the Cost Accounting Records (Textiles) Rules, cost of items like Copper Rollers used for printing fabrics and the stainless steel frames used for dying yarn put into use in the relevant year shall be treated as deferred revenue expenditure and spread over the effective life of such items. Thus writing off such items in same year is not correct.

(5). (a) A sugar mill has a boiler which uses its own by product, bagasse as fuel. The steam generated is first used for generation of power and the exhaust steam is used in the process of sugar manufacture. The following details are extracted from the financial accounts and cost accounting records of the sugar mill:

Sugar produced	**49,00,000 quintals**
Steam generated and consumed	**24,90,000 tonnes**
Fuel (Bagasse) consumed for production of stream	**12,46,900 tonnes**
Cost of generation of steam including cost of water (other than fuel cost)	**₹ 11,50,80,000**
Steam used for generation of power	**11,50,000 tonnes**

Power purchased from Electricity Board @ ₹5.75 per KWH	**97,00,000**	**KWH**
Power generated from steam turbine	**9,64,30,000**	**KWH**
Variable conversion cost for generation of power (excluding cost of steam)	**₹7,74,28,000**	

Additional Information:

(1) The sales value of bagasse, if sold in the open market is ₹1,750 per tonne.

(2) The exhaust steam (after generation of power) transferred to sugar manufacturing process is valued at 85% of the cost of production of steam.

Prepare two separate cost sheet for steam and power as per Cost Accounting Record Rules and compute the average cost of power as per Para 5 of the Annexure to the Cost Audit Report Rules, 2011. [10]

Answer:

Cost of Steam		
Cost of Fuel- Bagasse 12,46,900 tonnes @ ₹ 1750 per tonne	₹	218,20,75,000
Conversion Cost including Cost of water	₹	11,50,80,000
Total Cost	₹	229,71,55,000
Steam generated (Tonnes)		24,90,000
Gross Cost of steam per tonne	₹	922.55
Steam directly used for sugar production = (24,90,000 – 11,50,000) tones × 922.55 =	₹	123,62,17,000
Value of exhaust steam from steam turbine At 85% of cost = 11,50,000 × 922.55 × 85% =	₹	90,17,92,625(A)
Total cost of steam used for Sugar Production =	₹	213,80,09,625
Average cost of steam per tonne =	₹	858.64

For disclosure in Para 5 of the Annexure to the Cost Audit Report:

Steam Consumption per quintal of sugar = $\frac{24,90,000 \text{ tonnes}}{49,00,000 \text{ quintals}}$ = 0.51 tonnes

Steam cost per quintal of sugar = 436.32

Cost of Power		
Cost of high pressure steam sent to steam turbine = 11,50,000 tonnes × ₹ 922.55	₹	106,09,32,500
Conversion cost for generation of Power	₹	7,74,28,000
Total	₹	113,83,60,500
Less : Credit for exhaust steam transferred to sugar manufacture (A) in Steam Cost	₹	90,17,92,625
Net cost of Power generated	₹	23,65,67,875
Power generated		9,64,30,000 KWH
Cost of Power generated	₹	2.45 per KWH

For disclosures in Para 5 of the Annexure to the Cost Audit Report

Quantity & Cost of Power	KWH	₹	₹ /KWH
(a) Own generation	9,64,30,000	23,65,67,875	2.45

(b) Purchased	97,00,000	5,57,75,000	5.75
	10,61,30,000	29,23,42,875	2.755

Power consumed per quintal of sugar = $\frac{9,64,30,000 + 97,00,000}{49,00,000}$ = 21.66 KWH

Power cost per quintals of sugar
= 21.66 KWH × 2.755 = ₹ 59.67

Note: The figure for the year under audit and figures for the immediately preceding financial year are required to be provided.

(b) In dealing with the financial position of a company as per para 9 of the Annexure to the Cost Audit Report, state your opinion regarding: [5]

(i) Is the Capital Employed to be computed as at the beginning of the accounting period or at the end of the accounting period or average of both?

(ii) Should investments like National Savings Certificates deposited with Government authorities for Sales Tax, Excise etc. as security be treated as investments outside the business?

(iii) How is 'net worth' defined in this para? The para also states "if there is any change in the composition of the net worth during the year, special mention may be made along with the reasons there for." How would you take care of this provision?

(iv) Should the net sales figure include other service charges and jobbing income?

(v) In case the financial accounts of the company are yet to be finalized and audited, should the cost auditor provide the data under para 9?

Answer:

(i) Capital employed has been defined in the Rules as average of net fixed assets plus net current assets existing at the beginning and close of the financial year.

(ii) Such investments are in normal course of business and for the business, therefore these cannot be treated as investments outside the business.

(iii) The term 'net worth' has been defined as share capital plus reserves and surplus (excluding revaluation reserve) less accumulated losses and intangible assets. In other words it can be calculated as under:

Share Capital (paid up capital- equity and preference)	**
Add: Reserves and Surplus	**
Less: Revaluation Reserve	**
Less: Intangible Assets	**
Less: Profit and Loss A/c(Debit balance)	**
Less: Misc/ deferred expenditure	**

A reconciliation of net worth in following form may be provided:

Net worth at the beginning of the year	**
Add : increase in capital	
Add : increase in reserve	
Less: Decrease in reserves	
Less: Any loss during the year	
Less: Any acquisition of intangible asset	

or incurrence of expenses treating as deferred

Net worth at the end of the year **

(iv) If other service charges and jobbing income are a regular part of the activity and are of material value these can be treated as sales, otherwise not to be so considered.

(v) Where the financial accounts have not been finalized at the time of submission of the Cost Audit Report, Cost Auditor may indicate in his report all financial data under para 9 are on the basis of the unaudited or provisional accounts. This is necessary as all cost statements contain a lot of data which have a linkage to the financial accounts. After the accounts have been finalized, a supplementary cost audit report should be submitted as soon as the audited accounts are made available.

Section B

Answer any two Questions [2x10]

(6). (a) Give an "Audit Programme" as an Internal Auditor of Wage Audit. [5]

Answer:

Audit Programme as an Internal Auditor of Wage Audit:

(1) (i) Name of the Auditee
(ii) Address/Location
(iii) Period to be covered
(iv) Estimated time (days) required
(v) Audit Team members consists of Partner/Qualified/Semi qualified etc.
(vi) Quarries of the Auditor to be settled by the representative of the concern
(vii) Report to be submitted to the representative of the company

(2) Study of various records:
(i) Wages related policy manuals
(ii) Grade Structure
(iii) Incentive Rules
(iv) Overtime Rule
(v) Bonus Scheme
(vi) Various Statutory deduction schemes as for example ESI, PF, EPF etc.

(3) Verification of:
(i) Payroll package is properly updated with employee's details and it is properly functioning.
(ii) Take out the list of employees for the purpose of verification that no entry is Bogus i.e. Ghost Worker.
(iii) Where the payment is made in cash whether it is done in presence of responsible officer.
(iv) Cross verify wage with certain employee, so that there will be assurance with system.
(v) Checking of Daily Attendance sheet, Absenteeism Statement, Manpower Planning and deployment.
(vi) Checking of Employee Signature at the Time of payment and Attendance Register.

(vii) Checking of Appointment/Retirement of Employee.

(b) What is the role of the Audit Committee as per SEBI guideline and as stipulated in Section 292A of the Companies Act? [5]

Answer:

Role of the Audit Committee:

A. As per SEBI Guidelines:

1. Oversight of the Company's Financial reporting process and disclosure of correct financial information.
2. Recommending the appointment, removal and fixation of remuneration of the external auditor.
3. Review of annual financial statements before submission to the Board, with particular reference to statutory compliance, related party transactions, major accounting entries which have impact on company's profitability and financial strength etc.
4. Review of internal control system.
5. Review of adequacy of internal audit systems, the internal audit reports, corrective actions taken on the audit points etc., including frauds, malpractices.
6. To look into the reasons for substantial defaults in payments to the lenders and creditors.

B. As per sec. 292A of the Companies Act, 1956:

1. To have discussions with statutory auditors periodically about internal control systems, the scope of audit, observations of auditors and review annual and half yearly financial statements before submission to the Board.
2. To investigate any matter in relation to any of the above matters or referred to it by the Board.

(7). (a) "Management Audit can be potent tool for managerial control and reduction of cost". Do you agree with the above statement? Briefly comment on the potential of management audit as a tool for managerial control and reduction of costs. [5]

Answer:

The importance for Management Audit may be understood from the following points -

(i) Management Index: Management Audit serves as a tool to improve Management performance. It recognizes facts and information about Management, presented after an appropriate examination, verification and evaluation, by professionally qualified and competent people.

(ii) Efficiency Analysis: Management Audit focuses on a comprehensive and constructive examination of the organization& structure, its components i.e. divisions, departments, ventures, plans, policies, its financial control system, its method of operation, its appropriate use of human, physical and financial resources.

(iii) Detecting Managerial Deficiencies: Management Audit is required for detecting and overcoming current managerial deficiencies (and resulting operational problems) in

ongoing operations. If certain Managers are ineffective in their present positions, appropriate corrective action should be taken.

(iv) Forward Looking: Management Audit represents a positive, forward-looking approach that evaluates -
   (a) how well Management accomplishes its stated organizational objectives,
   (b) how effective Management is in planning, organizing, directing, and controlling the organisation's activities, and
   (c) how appropriate Management's decisions are for reaching the stated organisation objectives.

(v) System Flow: A Management Audit Questionnaire helps to evaluate managerial performance. This questionnaire helps in understanding the flow of systems, procedures and method of work within the organisation.

(vi) Current Control and Pre-control: Managerial problems and related operational difficulties can be spotted immediately in Management Audit, unlike a Financial Audit. Periodic Management Audits pinpoint problems as they develop from a small scale.

(vii) Business Re-Engineering: Management Audit helps ailing industries to identify their problems & overcome them. Management Audit is more relevant in the case of Industries which face problems like - (a) High volume of Stocks and Stores, (b) Machine Breakdowns, (c) Operational Failures, and (d) Under-utilisation of capacities, etc.

(b) Discuss the aspects of Internal Control system in relation to Stores including WIP. [5]

Answer:

(i) Objective: The stock control procedures should ensure that stock held are adequately protected against loss or misuse. They should be properly applied in the operations of the business and duly accounted for.

(ii) Classification: Stock should be classified into different categories such as Raw Materials, Consumable Stores, Components, Work-In-Progress and Finished Goods, based on the nature of business. Stock items should also be classified based on their importance and value using Pareto / ABC Analysis.

(iii) Documentation: Specific forms and reports should be designed and used for monitoring movement of stock items effectively. Some documents are Stores Requisition, Material Transfer Note, Shop Credit Note (for return of excess material from production department to stores), Daily Production Reports, and Quality Control Reports etc.

(iv) Receiving, checking and recording goods in works: Responsibility should be fixed on independent persons to receive the goods, record their receipts and issues etc. Steps to be followed on receipt and issue of stores for production purposes should be laid down.

(v) Safeguarding of Stocks: A responsible person should be appointed for safeguarding the stocks. Proper precautions should also be taken against theft, misuse and deterioration. The stock should be adequately covered by insurance.

(vi) Stock Levels: For effective control of stock holding quantities, the Firm should lay down stock levels such as Maximum and Minimum Stock Levels, Reorder Level and Danger Level. The Economic Order Quantity should be determined for major items of materials.

(vii) Recording: Movement of stock should be recorded using Stock Ledgers, independent Control Accounts and Continuous Stock Records such as Bin Cards. Independent persons should he assigned responsibility for recording sales and purchase.

(viii) Reconciliation: Stock records should be reconciled with the financial accounts at regular intervals and differences should be dealt with suitably.

(ix) Intra-Firm movement: Stock movements out of store or from one process or department to another should be authorised by a responsible official. Such transfers should be evidenced by appropriate documents and immediately recorded.

(x) Returnable Containers: Returnable containers should be differentiated as to those belonging to the Firm and those belonging to the suppliers. They should be dealt with appropriately.

(xi) Stocks held on behalf of others: The Firm may hold certain stock on behalf of third parties e.g. materials received for job work. Sufficient controls should be exercised over such items. (goods belonging to others should be distinguished from own goods, withdrawals should be authorised, and evidenced).

(xii) Stock Verification Procedures: The guidelines for periodic stock verification should be laid down. Independent persons should physically verify selected items of stocks on rotation basis and at regular intervals during the year. Physical counts should be evidenced by Stock Verification Sheets. Book stocks should be properly reconciled with physical stocks. Normal and abnormal losses should be properly accounted for.

(xiii) Cut-off Procedures: Cut-off procedures should be operated to ensure that stocks are adjusted properly to account for year-end sales and purchases invoices.

(xiv) Stock Valuation: Guidelines should be laid down for proper valuation of stock in accordance with recognised accounting principles and should be applied consistently from year to year. Responsible persons should perform and check the calculations for stock valuation.

(xv) Review of slow and non-moving items: Arrangements should be specified for periodic review of the condition of stocks, treatment of damaged, slow-moving and obsolete stocks. Write-offs of such stocks should be properly authorised.

(xvi) Waste, Scrap etc.: Guidelines should be laid down for control and accounting for scrap and waste, and receipts from disposal of such items. Separate records should be maintained in respect of waste generated during process, sale of scrap etc.

(8). (a) What are the basic differences between 'Management Audit' and 'Operational Audit'?

[5]

Answer:

Distinguish between Management Audit and Operational Audit.

Particulars	Management Audit	Operational Audit
Definition	The Audit of the Management focuses on evaluating Managers' ability to manage.	Review and appraisal of operations of an organization carried on by a competent independent person.
Areas Covered	It is concerned with appraising - • Management's accomplishment of organizational objectives, • Management functions of planning, organizing, directing, and controlling, and • Adequacy of Management's	Operational Areas where standards and actual performance defined and expressed in quantitative terms are considered.

	decisions and action in moving towards its objectives.	
Focus	Focus is on effectiveness of Management decisions and actions.	Focus is on efficiency and economy in operations.
Standards	Standards are not defined in quantitative or monetary terms.	Expectations or standards are expressed in quantitative terms, for comparison of actual therewith.
Evaluation	Evaluation is comparatively subjective, since standards are not defined in monetary terms.	It is objective in nature, since standards are quantifiable.
Technical Background	Management Auditor should have conceptual background. Technical Background is desirable, but not compulsory.	Operational Auditor should have a strong technical and operational background.

(b) What are the points should be considered by the management auditor in the evaluation and measurement of capacity utilization? [5]

Answer:

The following points should be considered by the management auditor in the evaluation and measurement of capacity utilization -

- Under utilization of Capacities
- Idle Capacities
- Non-Productive Assets
- Trend Analysis
- Opportunity Analysis
- Outsourcing/ Sub-Contracting Vs. Internal Capacities
- Plant Break-down hours with impact on productivity, costs and profitability
- Scope of Expansion and likely cost-benefit analysis

Section c

Answer any two questions [2x10=20]

(9). (a) Balance sheets for 2010 and 2011 and an income statement for 2011 of Sipow Inc. are shown below: The extract balance sheets and income statement were prepared using the LIFO inventory cost flow method. Calculate & analysis current ratio, inventory turnover, long term debt to equity ratio and operating profit margin for 2011 for LIFO and FIFO inventory valuation methods.

Balance Sheet of Sipow Inc.	2011	2010
Assets	₹	₹
Cash	105	95
Receivables	205	195
Inventories	310	290
Total current assets	620	580
Gross property, plant, and equipment	1,800	1,700
Accumulated depreciation	360	340
Net property, plant, and equipment	1,440	1,360
Total assets	2,060	1,940
Liabilities and equity	₹	₹
Payables	110	90
Short-term debt	160	140
Current portion of long-term debt	55	45
Current liabilities	325	275
Long-term debt	610	690
Deferred taxes	105	95
Common stock	300	300
Additional paid in capital	400	400
Retained earnings	320	180
shareholders' equity	1,020	880
Total liabilities and equity	2,060	1,940

Income Statement

Year	2011 (₹)
Sales	4,000
Cost of goods sold	3,000
Gross profit	1,000
Operating profit	350
Interest expense	50
Earnings before taxes	300
Taxes	100
Net income	200
Dividends	60

Additional Information:

The company uses the LIFO inventory cost flow assumption to account for inventories. As compared to FIFO, inventories would have been ₹100 higher in 2011 and ₹90 higher in 2010.

Answer:

Under LIFO Method

(i) Current ratio = $\frac{\text{Current Assets (CAs)}}{\text{Current Liabilities (CLs)}}$

For 2011 = $\frac{620}{325}$ = 1.91 (approx.)

For 2010 = $\frac{580}{275}$ = 2.11 (approx.)

Comments:

This ratio indicates whether an enterprise possesses sufficient Current Assets to pay off its Current liabilities. This ratio is an indicator of short term solvency or liquidity position of an enterprise. Ideal ratio is 2:1 i.e., the enterprise should have twice the Current Assets than the Current liabilities, to exhibit ideal short term solvency position.

(ii) Inventory turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Average stock}}$

Average Stock = $\frac{\text{Opening stock} + \text{Closing stock}}{2}$

Average stock = $\frac{310 + 290}{2}$ = 300

For 2011:

Inventory turnover ratio = $\frac{3,000}{300}$ = 10 times

For 2010:

Data relating to Cost of goods sold not available, it is not possible to calculate the turnover ratio for the same year.

Comments:

This ratio indicates the movement of stock during a particular period. In other words, it indicates how fast goods are sold out from the stock of those goods. Higher ratio indicates a faster movement of stock.

(iii) Long term debt to equity ratio = $\frac{\text{Long term debt}}{\text{Equity}}$

For 2011 = $\frac{610}{1,020}$ = 0.60 (approx.)

For 2010 = $\frac{690}{880}$ = 0.78 (approx.)

Equity = Common Stock + Additional paid in capital + Retained earning

For 2011 = 300 + 400 + 320 = 1,020

For 2010 = 300 + 400 + 180 = 880

Comments:

This ration indicates the proportion of Debt Capital and Owners' Capital included in the Capital structure. This is an indicator of the Capital Structure of an enterprise. It also shows the efficiency of the management in financial planning. Ideal ratio is 1:2, i.e., an enterprise should have twice their own capital than the debt capital.

(iv) Operating profit margin ratio = $\frac{\text{Operating Profit}}{\text{Net sales}} \times 100$

For 2011= $\frac{350}{4{,}000} \times 100 = 8.75\%$

For 2010: Data relating to Operating Profit & Net sales not available, it is not possible to find out the ratio for the same year.

Comments:

Normally, this ratio is expressed as a percentage.

This ratio indicates the operating profitability of an enterprise. By means of Operating Ratio, the amount and rate of profit earned by an enterprise from its operating / trading activity can be known. Higher Ratio exhibits a better operating profitability position of the enterprise.

Common Stock:

A security that represents ownership in a corporation. Holders of common stock exercise control by electing a board of directors and voting on corporate policy. Common stockholders are on the bottom of the priority ladder for ownership structure. In the event of liquidation, common shareholders have rights to a company's assets only after bond holders, preferred shareholders and other debt holders have been paid in full.

Under FIFO Method

Computation of revised figures due to change in valuation of closing or opening inventories

Revised Cost of Goods sold = 3,000 + (90-100) = 2,990

Revised Operating Profit = 350 – 90 -100 = 360

Net Income = 360 -50 -100 = 210 [ignore tax effect for stock valuation under LIFO]

Revised total Current Assets:

For 2011 = 620 + 100 = 720

For 2010 = 580 + 90 = 670

Revised shareholders' Equity:

For 2011 = 300 + 400 +320 +(90 +10) = 1,120

For 2010 = 300 + 400 +180 +90 = 970

(i) Current ratio = $\frac{\text{Current Assets (CAs)}}{\text{Current Liabilities (CLs)}}$

For 2011 = $\frac{720}{325}$ = 2.21 (approx.)

For 2010 = $\frac{670}{275}$ = 2.44 (approx.)

(ii) Inventory turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Average stock}}$

Average Stock = $\frac{\text{Opening stock} + \text{Closing stock}}{2}$

For 2011:

Average stock = $\frac{400 + 390}{2}$ = 395

Inventory turnover ratio = $\frac{2,990}{395}$ = 7.57 times

For 2010:

Data relating to Cost of goods sold not available, it is not possible to calculate the turnover ratio for the same year.

(iii) Long term debt to equity ratio = $\frac{\text{Long term debt}}{\text{Equity}}$

For 2011 = $\frac{610}{1,120}$ = 0.54 (approx.)

For 2010 = $\frac{690}{970}$ = 0.71 (approx.)

Equity = Common Stock + Additional paid in capital + Retained earning

For 2011 = 300 + 400 + 320 +100 = 1,120

For 2010 = 300 + 400 + 180 +90 = 970

(iv) Operating profit margin ratio = $\frac{\text{Operating Profit}}{\text{Net sales}}$ x 100

For 2011= $\frac{360}{4,000}$ x 100 = 9.00%

For 2010:

Data relating to Operating Profit & Net sales not available, it is not possible to find out the ratio for the same year.

(b) AZ Transport Group plc comprises three divisions AZ Buses, AZ Taxis and Maintenance.

AZ Buses operates a fleet of eight vehicles on four different routes. Each vehicle has a capacity of 30 passengers. There are two vehicles assigned to each route, and each vehicle completes five return journeys per day, for six days each week, for 52 weeks per year.

AZ Buses is considering its plans for year ending 31 December. Data in respect of each route is as follows:

	Route W	Route X	Route Y	Route Z
Return travel distance (km)	42	36	44	38
Average number of passengers per trip				
Adults	15	10	25	20
Children	10	8	5	10
Return journey fares per trip (₹)				
Adults	3.00	6.00	4.50	2.20
Children	1.50	3.00	2.25	1.10

The following cost estimates have been made for AZ Buses	₹
Fuel and repairs per kilometre	0.1875
Drivers wages per vehicle per work-day	120
Vehicle fixed cost per vehicle per annum	2,000
General fixed cost per annum	3,00,000

Required:

1 **Prepare a statement showing the planned contribution of each route and the total contribution and profit of the AZ Buses division for the year ending 31 December.**

2 **Assuming no change in the child fare, calculate the effect on the contribution of route W of increasing the adult fare to ₹3.75 per return journey if this reduces the number of adult passengers using this route by 20% and assuming that the ratio of adult to child passengers remains the same. Recommend whether or not AZ Buses should amend the adult fare on route W.**

The Maintenance division comprises two fitters who are each paid an annual salary of ₹15,808, and a transport supervisor who is paid an annual salary of ₹24,000.

The work of the Maintenance division is to repair and service the buses of the AZ Buses division and the taxis of the AZ Taxis division. In total there are eight buses and six taxis which need to be maintained. Each vehicle requires routine servicing on a regular basis on completion of 4,000 kilometres and every two months each vehicle is fully tested for safety.

The annual distance travelled by each taxi in the fleet is 1,28,000 kilometres.

The projected material costs associated with each service and safety check are ₹100 and ₹75 respectively. The directors of AZ Transport Group plc are concerned over the efficiency and cost of its own Maintenance division and have decided to employ an additional new employee at an annual salary of ₹20,000 to improve overall efficiency.

The company has also invited its local garage to tender for the Maintenance contract for its fleet and the quotation / received was for ₹ 90,000 per annum including parts and labour.

If the Maintenance division is closed down the two fitters are made redundant with a redundancy payment of 6 months' salary to each fitter. The transport supervisor will be retained at the same salary but will be redeployed elsewhere in the Group where his services can be used.

Required:

i. Calculate the cost of the existing Maintenance function.

ii. Analyse & advise whether to award the Maintenance contract to the local garage on financial grounds.

Answer:

Computation of Contribution and Profit

	₹	Route W	Route X	Route Y	Route Z	Total
1	Revenue from adults per trip	45.00	60.00	112.50	44.00	
2	Revenue from children per trip	15.00	24.00	11.25	11.00	
	Total Revenues per bus per trip	60.00	84.00	123.75	55.00	
3	Variable costs for fuel & repairs per trip	7.875	6.75	8.25	7.125	
	Contribution from buses per trip	52.125	77.25	115.50	47.875	
4	Total contribution from buses	1,62,630	2,41,020	3,60,360	1,49,370	
5	Specific fixed costs on wages	74,880	74,880	74,880	74,880	74,880
6	Specific fixed costs on vehicles	4,000	4,000	4,000	4,000	4,000
	Contribution from routes	83,750	1,62,140	2,81,480	70,490	5,97,860
	General administration					3,00,000
	Net profit					2,97,860

Notes	
1	Revenue from adults per trip
	For Route W = 15 x 3 = 45
	For Route X = 10 x 6 = 60
	For Route Y = 25 x 4.5 = 112.5
	For Route Z = 20 x 2.20 = 44
2	Revenue from children per trip
	For Route W = 10 x 1.5 = 15
	For Route X = 8 x 3 = 24
	For Route Y = 5 x 2.25 = 11.25
	For Route Z = 10 x 1.10 = 11
3	Variable costs on fuel and repairs per trip
	For Route W = 42 x 0.1875 = 7.875
	For Route X = 36 x 0.1875 = 6.75
	For Route Y = 44 x 0.1875 = 8.25
	For Route Z = 38 x 0.1875 = 7.125
4	Total no of trips in a year = 2 x 5 x 6 x 52 = 3120 bus trip per route.
	Total contribution from buses
	For Route W = 3120 x 52.125 = 1,62,630
	For Route X = 3120 x 77.25 = 2,41,020
	For Route Y = 3120 x 115.50 = 3,60,360
	For Route Z = 3120 x 47.875 = 1,49,370

5	Specific fixed costs on wages = 2 x 120 x 6 x 52 = 74,880
6	Specific fixed costs on vehicles = 2 x 2,000 = 4,000

Relevant differential costs for Route W

	₹	Adults	Children	Total
1	Existing revenue per trip	45	15	60
2	Revised revenue per trip	45	12	57
	Net gain or loss			- 3

Notes	
1	Existing revenue per trip for adults = 3 x 15 = 45
	Existing revenue per trip for children = 1.5 x 10 = 15
2	Revised revenue per trip for adults = 3.75 x 15 x 0.8 = 45
	Revised revenue per trip for children = 1.5 x 10 x 0.8 = 12

Annual cost of maintenance function

	₹	₹	₹
	Salaries		
	Paid to fitters (2 x 15,808)	31,616	
	Paid to supervisor	24,000	55,616
	Material costs		
1	Bus servicing	12,480	
2	Taxi servicing	19,200	
	Bus safety checks (6 x 75 x 8)	3,600	
	Taxi safety checks (6 x 75 x 6)	2,700	37,980
	Total annual costs		93,596

Notes	
	Total distance travelled by buses per trip = 42 + 36 + 44 + 38 = 160
	Total distance travelled by all buses =160 x 3,120 = 4,99,200
1	Bus servicing costs = 4,99,200 x $\frac{100}{4,000}$ = 12,480
	Total distance travelled by all taxis = 1,28,000 x 6 = 7,68,000
2	Taxi servicing costs = 7,68,000 x $\frac{100}{4,000}$ = 19,200

Relevant costs for keeping or outsourcing maintenance function

		Keep	Outsource
	Annual operating costs	93,596	
	Cost of new employee	20,000	
	Cost of contract		90,000
	Redundancy cost for fitters for the first year		15,808
	Total relevant costs	1,13,596	1,05,808

Decision

Outsource the maintenance function

Savings in the first year = 1,13,596 – 1,05,808 = 7,788

Savings in subsequent years = 7,788 + 15,808 = 23,596

(c) In a meeting held at Malaysia towards the end of 2013, the Directors of HTML Inc. have taken a decision to diversify. At present HTML Inc. sells all finished goods from its own warehouse. The company issued debentures on 01.01.2013 and purchased fixed assets on the same day. The purchase prices have remained stable during the concerned period. Following information is provided to you:

Income Statements

	2012 (₹)		2013 (₹)	
Cash Sales	30,000		32,000	
Credit Sales	2,70,000	3,00,000	3,42,000	3, 74,000
Less: Cost of goods sold		2,36,000		2,98,000
Gross Profit		64,000		76,000
Less: Expenses				
Warehousing	13,000		14,000	
Transport	6,000		10,000	
Administrative	19,000		19,000	
Selling	11,000		14,000	
Intereston Debenture	-	49,000	2,000	59,000
Net Profit		15,000		17,000

Balance Sheet

	2012 (₹)		2013 (₹)	
Fixed Assets (Net Block)	-	30,000	-	40,000
Debtors	50,000		82,000	
Cash at Bank	10,000		7,000	
Stock	60,000		94,000	
Total Current Assets (CA)	1,20,000		1,83,000	
Creditors	50,000		76,000	
Total Current Liabilities (CL)	50,000		76,000	
Working Capital (CA - CL)		70,000		1,07,000
Total Assets		1,00,000		1,47,000
Represented by:				
Share Capital		75,000		75,000
Reserve and Surplus		25,000		42,000
Debentures		-		30,000
Total Liabilities		1,00,000		1,47,000

Assume opening stock of ₹40,000 for the year 2012. You are required to calculate & analyse the following ratios for the years 2012 and 2013.

(i) Gross Profit Margin Ratio
(ii) Operating Profit Ratio
(iii) Stock turnover ratio
(iv) Profitability ratio

Answer:

(i) Gross Profit Margin ratio = $\frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$

For 2012 = $\frac{64,000}{3,00,000} \times 100 = 21.33\%$ (approx.)

For 2013 = $\frac{76,000}{3,74,000} \times 100 = 20.32\%$ (approx.)

(ii) Operating Profit ratio = $\frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$

For 2012 = $\frac{15,000}{3,00,000} \times 100 = 5\%$

For 2013 = $\frac{19,000}{3,74,000} \times 100 = 5.08\%$

[Operating profit (i.e., EBIT) = Net profit before Interest and Tax + Non-Operating Expenses debited to P/L A/c – Non-Operating incomes credited to P/L A/c.
For 2012 = 15,000
For 2013 = 17,000 + 2,000 (Interest) = 19,000]

(iii) Stock turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Average stock}}$

Average Stock = $\frac{\text{Opening stock} + \text{Closing stock}}{2}$

For 2012 = $\frac{40,000 + 60,000}{2} = 50,000$

For 2013 = $\frac{60,000 + 94,000}{2} = 77,000$

Stock turnover ratio =

For 2012 = $\frac{2,36,000}{50,000} = 4.72$ times

For 2013 = $\frac{2,98,000}{77,000} = 3.87$ times

(iv) Profitability ratio – Owners point of view

(a) Return on Capital Employed (ROCE) = $\frac{\text{Total Earning}}{\text{Capital Employed}}$

Total Earning = Profit after Taxation + Interest on Debt Funds + Non –Operating Adjustments (Ignore the effect of tax)

For 2012 = Total Earning = 15,000

For 2013 = Total Earning = 17,000 +2,000 (Interest) = 19,000

Capital Employed = Fixed Assets + Net Working Capital

For 2012 = 30,000 + 70,000 = 1,00,000

For 2013 = 40,000 + 1,07,000 = 1,47,000

Return on Capital Employed

For 2012 = $\frac{15,000}{1,00,000}$ x 100 = 15%

For 2013 = $\frac{19,000}{1,47,000}$ x 100 = 12.92%

(b) Return on Equity or Return on Net Worth = $\frac{\text{Equity Earnings}}{\text{Shareholders' funds}}$

Equity Earning = Profit after taxation
For 2012 = 15,000 (Ignore tax impact)
For 2013 = 17,000

Shareholders' Funds = Net Fixed Assets + Net working Capital – External liabilities (Long term)

For 2012 = 30,000 + 70,000 = 1,00,000

For 2013 = 40,000 + 1,07,000 – 30,000 = 1,17,000

∴ Return on Return on Equity or Return on Net Worth

For 2012 = $\frac{15,000}{1,00,000}$ x 100 = 15%

For 2013 = $\frac{17,000}{1,17,000}$ x 100 = 14.53%

(c) Return on Assets (ROA) = $\frac{\text{Net Profits after Taxes}}{\text{Average Total Assets}}$ x 100

(Ignore impact of tax)

Average Total Assets = ½ of (Opening Fixed Assets + Closing Fixed Assets)

For 2012 = $\frac{15,000}{1/2(30,000+30,000)}$ x 100 = 50%

For 2013 = $\frac{17,000}{1/2(40,000+40,000)}$ x 100 = 42.50%