Paper – 8: Cost Accounting & Financial Management

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

Section A-Cost Accounting

(Answer Question No. 1 which is compulsory and any three from the rest in this section)
Working Notes should form part of the answer.

Question.1

(a) The repairs and maintenance of machinery in factory is found to be a semi variable cost having some relationship with the no. of machine hours run. It was ₹ 17,500 during October, 2013 for 7500 machine hours worked and ₹ 15,400 for November, 2013 when only 5,400 machine hours were worked. What will be the budgeted cost of repairs and maintenance for December 2013 when 6,200 machine hours are expected to be worked? [2]

Answer:

Budgeted Cost of repairs and maintenance for December 2013:

Variable cost per hour= ₹ (17500 -15400)/ ₹ (7500 - 5400) = ₹ 1/hour
Fixed cost= [₹ 17,500 - (₹ 7,500x1)= ₹ 10,000
Cost of repairs & maintenance for December 2013= (6,200x1) +10,000= ₹16,200

(b) If the ordering cost per order is ₹ 40, carrying cost is 10% of average inventory value, purchase cost is ₹ 10 per unit and Economic Order Quantity (EOQ) for the product is 800 units; What is the expected annual demand for the product? [2]

Answer:

$$EOQ = \sqrt{\frac{2AO}{C}}$$

A=Annual demand of the product
O=Ordering cost
C=Carrying cost

$$=>800= \sqrt{\frac{2 \times A \times 40}{1}}$$

=>A=8,000 Units

(c) The standard time required per unit of a product is 20 minutes. In a day of 8 working hours a worker gives an output of 30 units. If he gets a time rate of ₹ 20, then what will be the total earning under Halsey Scheme? [2]

Answer:

Under Halsey scheme

$$\text{Earnings} = \text{Hours Worked} \times \text{Rate per Hour} + \left(\frac{50}{100} \times \text{Time Saved} \times \text{Rate per Hour} \right)$$

Total earning under Halsey Scheme
Time allowed for 30 units [30 × 20 minutes] =10 hrs
Time taken=8 hrs
Time saved=2 hrs
Normal wage for 8 hrs= ₹ 160
Bonus= (50% of 2hrs x ₹ 20)= ₹ 20
Total= ₹ 180

(d) Define profit centre. [2]

Answer:

A profit centre is any sub-unit of an organization to which both revenues and costs are assigned so that the profitability of the sub-unit (or division) may be measured. Thus, in profit centre the performance measurement relates to both costs and profits of the division. Profit centre is a part of responsibility accounting.

(e) Differentiate between Job Evaluation and Merit Rating. [2]

Answer:

Job Evaluation	Merit Rating
1. It is a method of ranking job.	**1.** It is method of ranking employees.
2. It ascertains the relative worth of jobs.	**2.** It ascertains the relative worth of employees.
3. Useful in bringing uniformity in wage rate.	**3.** Useful in determination of fair wages on the basis of performance of the workers.

(f) What is the basis for cost classification as per CAS-1? [2]

Answer:

As per Cost Accounting Standard 1 (CAS 1), the basis for cost classification is as follows:

(i) Nature of expense
(ii) Relation to objective-Traceability
(iii) Functions/Activities
(iv) Behavior -Fixed, Semi-Variable or Variable
(v) Management decision making
(vi) Production process
(vii) Time period

Question.2

(a) The following are the costing records for the year 2012 of a manufacturing Company.
Production 1,00,000 units; Cost of raw materials ₹ 20,00,000; Labour cost ₹ 12,00,000; Factory overheads ₹ 8,00,000; Office overheads ₹ 4,00,000; Selling Expenses ₹ 1,00,000, Rate of Profit 25% on the selling price.
The manufacturing Company decided to produce 1,50,000 units in 2013. It is estimated that the cost of materials will increase by 15%, the labour cost will increase by 10%, 50% of the overhead charges are fixed and the other 50% are variable. The selling expenses per unit will be reduced by 20%. The rate of profit will remain the same.
Prepare a cost statement for the year 2012 and 2013 showing the total profit and selling price per unit. [4+6]

Answer:

Statement of Cost & Profit (Cost Sheet)
(Output 1,00,000 units)

Particulars	Cost per unit(in ₹)	Total Cost
Raw Materials	20	20,00,000
Labour	12	12,00,000
Prime Cost	32	32,00,000
Add: Factory overhead	8	8,00,000
Work Cost	40	40,00,000
Add: Office Overhead	4	4,00,000

Cost of production	44	44,00,000
Add: Selling Expenses	1	1,00,000
Cost of sales	45	45,00,000
Add: Profit (25% on selling price or 33.33% on cost of sales)	15	15,00,000
Selling Price	60	60,00,000

Statement of Cost & Profit (Cost Sheet)
(Output 1,50,000 units)

Particulars	Cost per unit (in ₹)	Total cost (in ₹)
Raw Materials (₹20X115%X1,50,000)	23	34,50,000
Labour (₹12X110%X1,50,000)	13.20	19,80,000
Prime Cost	36.20	54,30,000
Add: Factory Overhead (₹8,00,000X50%+₹4X1,50,000)	6.67	10,00,000
Work Cost	42.87	64,30,000
Add: Office Overhead (₹4,00,000X50%+₹2X1,50,000)	3.33	5,00,000
Cost of Production	46.20	69,30,000
Add; Selling Expenses (₹1X80%X1,50,000)	0.80	1,20,000
Cost of Sales	47.00	70,50,000
Add: Profit (25% on selling price or 33.33% on cost of sales)	15.66	23,49,765
Selling Price	62.66	93,99,765

(b) State the Treatment of the following Special Items:
(i) Insurance Charges
(ii) Spoiled Work **[2+2]**

Answer:

(i) Insurance Charges:
The insurance premium paid may cover several kinds of insurances.

(a) The amount of premium paid on insurance of fixed assets is allocated to particular departments or cost centres where the assets are located, as items of overhead costs.

(b) Premium for insurance of material and processed goods are treated as factory or manufacturing overhead and charged to production costs.

(c) Premium for insurance of finished goods in stock or in transit is absorbed as distribution overhead.

(d) Premium for other types of insurance such as relating to fire, burglaries etc. are related to general administration overhead.

(ii) Spoiled Work:
The loss by spoilage may be inherent to the nature of the product or it may be caused by normal circumstances. If it is of an inherent nature and cannot be avoided, it should be charged either to the specific job in which it has accrued or should be recovered as overhead charge from the entire production, where there is no specific work or job order. In case it has been caused by abnormal circumstances, it should be charged to costing Profit and Loss account. While accounting for loss by spoilage, any proceeds of the scrap should be accounted for either as deduction from spoilage or by crediting it to the account which has been debited with the spoilage.

(c) 50 items are required everyday for a machine. Fixed cost of ₹ 50 per order is incurred for placing an order. The inventory carrying cost per item amounts to ₹ 0.02 per day. The lead period is 32 days. Compute: Economic Ordering Quantity. [2]

Answer:

$$EOQ = \sqrt{\frac{2AO}{C}}$$

A=Annual demand of the product
O=Ordering cost
C=Carrying cost

In this case,
Annual consumption = 50 items × 365 days = 18,250 items
Buying cost per order = ₹ 50
Inventory carrying cost per item per annum = ₹ 0.02 × 365 = ₹ 7.30

$$EOQ = \sqrt{\frac{2 \times 18,250 \times 50}{7.30}} = 500 \text{ items}$$

Question.3

(a) A company makes components for television sets using two service departments and two production departments. The inter-departmental relationships and overhead costs are given below.

	Percentage of Service provided to			
From:	**Maintenance**	**Scheduling**	**Moulding**	**Assembly**
Maintenance	**-**	**10 %**	**40 %**	**50 %**
Scheduling	**20 %**	**-**	**50 %**	**30 %**
Total Overhead Cost (₹)	**7,50,000**	**4,00,000**	**3,78,000**	**2,76,000**

You are required to show the amount of Scheduling Department cost and Maintenance Department cost to be allocated to the Production Department, using Simultaneous Equation Method. [6]

Answer:

Let M be the overheads of Maintenance Department
Let S be the overheads of Scheduling Department
M= 7,50,000 + 0.2S……(i)
S = 4,00,000 + 0.1M……...(ii)
By solving equation we get,
S = 4,84,694 and
M = 8,46,939

Allocation of Overheads:

Departments	Service		Production	
	Maintenance	Scheduling	Moulding	Assembly
Total Overheads (₹)	7,50,000	4,00,000	3,78,000	2,76,000
Maintenance (₹)	8,46,939	84,694	3,38,775	4,23,470
Scheduling (₹)	96,939	4,84,694	2,42,347	1,45,408
			9,59,122	8,44,878

(b) The Standard labour time required for the production of a certain component has been fixed as 4 hours. An incentive scheme was introduced recently to raise labour productivity. The relevant details of the scheme are as follows:

Efficiency	Incentive as a percentage of Basic Wage
Below 100%	**No incentive**
100 % (ie 4 hours / unit)	**10%**
Above 100%	**1% additional incentive for every 1% increase in efficiency above 100%, fractions excluded**

Four Workers A, B, C and D produced 16, 12, 14 and 10 units respectively in a particular week of 48 hours. The basic wages of all workers is ₹ 15 per hour.

Calculate the efficiency, incentive bonus, total earnings and labour cost per unit in respect of each of the four workers. [2+2+2+2]

Answer:

Calculation of Efficiency and Incentive Bonus					
Worker	No of Units	Standard Time (ST)	Actual Time (AT)	Efficiency*	Incentive in %
A	16	64	48	133 %	(10+33) = 43
B	12	48	48	100 %	10
C	14	56	48	116 %	(10+16) = 26
D	10	40	48	83 %	-

$$*\text{Efficiency} = \frac{ST}{AT} \times 100$$

Computation of Total earnings per worker and Labour cost per unit of component						
Worker	Basic Wages* (₹)	Incentives		Total Earnings	No. of units Produced	Labour Cost per unit (₹)
		%	Amount			
A	720.00	43	309.60	1029.60	16	64.35
B	720.00	10	72.00	792.00	12	66.00
C	720.00	26	187.20	907.20	14	64.80
D	720.00	-	-	720.00	10	72

*Basic Wages: 48 Hours × ₹ 15 = ₹ 720

(c) List out the duties of Store Keeper. [2]

Answer:

The duties of store keeper are as follows:-

(a) To exercise general control over all activities in store department.

(b) To ensure safe storage of the materials.

(c) To maintain proper records.

(d) To issue materials only in required quantities against authorized requisition documents.

Question.4

(a) A manufacturing unit has pre-determined overhead recovery rates as 400% on direct wages, 20% on works cost and 25% on cost of production for works expenses, management expenses and commercial expenses respectively.

At the end of the year, it has been found that the works overhead stands unabsorbed to the extent of 30% of the total productive wages, management overhead shows under recovery of one-eighth of the absorbed amount, and the recovery of commercial expenses result in an over absorption of the total amount absorbed.

If the prime cost of the three jobs is as under, find the profit / loss on the respective selling prices (both on the basis of standard cost and on the basis of full absorption overheads)

Costs	Job A (₹)	Job B (₹)	Job C (₹)
Direct Material	**45.50**	**32.60**	**26.80**
Direct Wages	**15.20**	**8.60**	**7.20**

	60.70	**41.20**	**34.00**
Selling Price	**200.00**	**130.00**	**90.00**

[5+5]

Answer:

Statement for ascertaining Cost of Sales (at standard recovery and on full absorption of overheads)			
	Job A (₹)	**Job B (₹)**	**Job C (₹)**
Direct Material	45.50	32.60	26.80
Direct Wages	15.20	8.60	7.20
Works Overhead (400% on Direct Wages)	60.80	34.40	28.80
Works Cost	121.50	75.60	62.80
Management Expenses (20% on works Cost)	24.30	15.12	12.56
Cost of Production	145.80	90.72	75.36
Commercial Expenses (25 % on Cost of Production)	36.45	22.68	18.84
Cost of Sales (At Standard Recovery)	182.25	113.40	94.20
Add: Under recovery of Works Overhead (30% of productive wages)	4.56	2.58	2.16
Add: Under Recovery of management expenses (1/8 of the absorbed amount)	3.04	1.89	1.57
Total	189.85	117.87	97.93
Less: Over absorption of commercial expenses (1/3 of the absorbed)	12.15	7.56	6.28
Cost of Sales (On full absorption of overhead)	177.70	110.31	91.65

Statement of Profit / Loss			
	Job A (₹)	Job B (₹)	Job C (₹)
Selling Price	200.00	130.00	90.00
Cost of Sales at Standard Absorption	182.25	113.40	94.20
Profit / Loss at Standard Cost	17.75	16.60	(4.20)
Cost of Sales on full absorption of Overhead	177.70	110.31	91.65
Profit / Loss on full absorption of Overhead	22.30	19.69	(1.65)

(b) The Budgeted annual production of a company is 1,20,000 units, each unit requiring 2½ hours at an hourly wage rate of ₹ 15. Currently the average efficiency of the production workers is only 60%. The management has a scheme to raise this to 75 %. The scheme involves realigning the machinery and intensive training of the production workers, at a onetime cost of ₹ 10 lakhs. The scheme also proposes to raise the wage rate to ₹ 16 to ensure the full co-operation of workers. Calculate the scheme and state whether it can be accepted. [3+1]

Answer:

Budgeted annual Production = 1,20,000 units

Standard Hours required for production @ 2½ hours per unit = 3,00,000 hours

Statement of Comparative labour cost before and after the implementation of the scheme		
	Before	After
Standard Time required for production	3,00,000 hrs	3,00,000 hrs
Labour efficiency	60 %	75 %
Estimated labour hours likely to be taken	5,00,000 hrs	4,00,000 hrs

	(3,00,000 / 60%)	(3,00,000 / 75%)
Wage Rate / hour	₹ 15	₹ 16
Total estimated wages per year	₹ 75,00,000	₹ 64,00,000

So, net savings for change of scheme is (75-64) = 11 lakhs
Since the net savings i.e. ₹ 11 lakhs exceeds the total cost of implementing the project i.e. ₹ 10 lakhs the scheme should be accepted by the management.

(c) XYZ Co. Ltd. is having 400 workers at the beginning of the year and 500 workers at the end of the year. During the year 20 workers were discharged and 15 workers left the company. Calculate the Labour Turnover rate under 'separation method'. [2]

Answer:

Average No. of workers (400 + 500) / 2 = 450 Labour Turnover rate (Separation Method)
The Labour Turnover rate under separation method

$$= \frac{\text{Number of separations during the year}}{\text{Average number of workers}} \times 100 = \frac{20+15}{450} \times 100 = 7.78\%$$

Question.5

(a) For the manufacture of certain product two components X and Y are used. The following particulars about these components are available:

	X	Y
Normal usage (Per Week)	**60 nos.**	**60 nos.**
Maximum usage (Per week)	**80 nos.**	**80 nos.**
Minimum usage (Per week)	**30 nos.**	**30 nos.**
Reorder quantity	**400 nos.**	**600 nos.**
Reorder period	**4 to 6 weeks**	**2 to 4 weeks**

You are required to calculate for each component:
(i) Reorder level
(ii) Minimum level
(iii) Maximum level
(iv) Average stock level. [2x4=8]

Answer:

	Components (Units)	
	X	Y
(i) Reorder level: (Maximum usage x Maximum Reorder period) X=80 x 6 =480 Y=80 x 4 =320	480	320
(ii) Minimum level: Reorder level - (Normal usage x Normal re-order period) X=480-(60 x 5) =180 Y=320-(60 x 3) =140	180	140
(iii) Maximum level: (Re-order level + Reorder quantity)-(Minimum usage x minimum reorder period) X=480 + 400 - 30 x 4 =760 Y=320 + 600 – 30 x 2 =860	760	860

(iv) Average stock level: (Minimum level + Maximum Level)/2 X=(180 + 760) /2 =470 Y=(140 + 860) /2 =500 Alternative: Average stock level Minimum level + (Re-order quantity)/2 X=180 + (400/2) =380 units Y=140 + (600/2) =440 units	470 380	500 440

(b) A company manufactures a standard component. The detail of current operation of the company is as follows.

Number of workers employed	**100**
Weekly working hours	**48**
Average number of hours lost due to idle time per employee per week	**8**
Standard time required per unit	**2 Hours**
Hourly wage Rate	**₹ 15**
Current Level of Efficiency	**80%**

For every unit sold the company is getting a cash profit of ₹ 120 before charging labour cost.

In view of the increased demand for the product, the company has come to an agreement with the labour union to raise the wage rate by ₹ 3 per hour in return for the workers reducing idle time by 4 hours and raising operational efficiency to 90%

You are required to calculate:

(i) Net profit at current operation

(ii) Net profit after the agreement **[2.5x2=5]**

Answer:

(i) Calculation of Net profit at current operation:

Total Hours of work= [(48-8) x 80%] x 100=3200 hours

Number of units produced = $\frac{3200}{2} = 1600$

	₹
Total Cash Profit = 120 × 1600	1,92,000
Less: Labour cost (4800 × 15)	(72,000)
Net profit	1,20,000

(ii) Calculation of Net profit after the agreement:

Total Hours of Work = $(48-4) \times 90\% \times 100 = 3,960$ Hours

Number of Units produced = $\frac{3960}{2}$ = 1980 units

	₹
Total Cash Profit = 120 × 1980	2,37,600
Less: Labour cost (4800 × 18)	(86,400)
Net profit	1,51,200

(c) A manufacturing organization has imported four types of materials. The invoice reveals the following data:

	Quantity kgs.	**Rate US $ per kg.**

Material		
P	1,000	1.50
Q	2,000	1.25
R	1,500	2.00
S	3,000	1.00

Import duty 23% of invoice value
Insurance 2% of invoice value
Freight and cleaning ₹ 30,000
Exchange Rate US $ 1= ₹ 16.00
50% of the materials imported are issued to production centers. While determining the value of closing stock 10% allowance is provided to cover up storage loss. Determine the value of closing stock of each type of materials. [3]

Answer:

Statement showing computation of total cost of material purchase and value of closing stock:

	Particulars	P	Q	R	S
(a)	Basic cost of material in $	1,500	2,500	3,000	3,000
(b)	Insurance & import duty @ 25%	375	625	750	750
	Cost in $	1,875	3,125	3,750	3,750
	Cost in Rupees	30,000	50,000	60,000	60,000
(c)	(+) Freight & clearing (on weight basis) (1:2:1.5:3)	4,000	8,000	6,000	12,000
		34,000	58,000	66,000	72,000
(d)	(-) Issued to production (50%)	17,000	29,000	33,000	36,000
		17,000	29,000	33,000	36,000
(e)	(-) Storage loss @ 10%	1,700	2,900	3,300	3,600
	Closing Stock	15,300	26,100	29,700	32,400

Section B–Financial Management

(Answer Question no.6 which is compulsory and any two from the rest in this section.)

Question.6.Choose the most appropriate one from the stated options.

(a) A bond costing @ ₹ 800 is redeemable after 5 years @ ₹ 1,000. No interest is to be received and the discounting rate is 10%. What would be the NPV of bond? [2]
(a) ₹ 720
(b) ₹ (720)
(c) ₹ (179)
(d) ₹ 179

Answer:

(c) ₹ (179)

Outflow in purchasing a bond of ₹ 800
Inflow on Redemption of bond at the end of 5th year= ₹1,000
Present value of inflow=1000 x PVIF (10%, 5th year)

=1000 x 0.62092 = ₹ 620.92 i.e. 621
NPV= Present value of inflow - Present value of outflow
NPV= ₹621 - ₹800
NPV= ₹ (179)

(b) The following data relate to SSCO Ltd:

	₹
Earnings before interest and tax (EBIT)	**10,00,000**
Fixed Cost	**20,00,000**
Earnings before tax (EBT)	**8,00,000**

Required combined leverage will be….. [2]

(a) 2.75
(b) 3.75
(c) 4.75
(d) 0.75

Answer:

(b) 3.75

Contribution:
C=S-V and
EBIT=C-F
Where,
C=Contribution;
S= Sales;
V= Variable Cost
F= Fixed Cost
10,00,000=C-20,00,000
C=30,00,000
Operating leverage (OL)= C/EBIT
=30,00,000/ 10,00,000 =3 times
Financial leverage (FL) =EBIT/EBT
=10,00,000/ 8,00,000
=1.25 times
Combined leverage=OL x FL=3 x 1.25 =3.75 times

(c) The current market price of an equity share of a company is ₹ 90. The current dividend per share is ₹ 4.50. In case the dividends are expected to grow at the rate of 7%, then the cost of equity capital will be…. [2]

(a) 10%
(b) 11%
(c) 12%
(d) 13%

Answer:

(c)12%

K_e=Cost of equity capital
D_1=Expected dividend per share
NP=Net proceeds of per share (Issue price- Flotation Cost)
g=growth in expected dividend
$K_e=D_1/NP +g$
$K_e=4.50/90 +0.07$
$K_e=0.05+0.07=0.12=12\%$

Note: Here market price is taken as net proceed (NP). Here there is no under writing expenses so full amount that is ₹ 90 will be taken.

(d) A company's expected annual net operating income (EBIT) is ₹ 50,000. The company has ₹ 2,00,000, 10% debentures. The equity capitalization rate (K_e) of the company is 12.5%. Find the value of the firm under Net Income approach. [2]

(a) ₹ 4,80,000
(b) ₹ 4,60,000
(c) ₹ 4,45,000
(d) ₹ 4,40,000

Answer:

(d) ₹ 4,40,000

Calculation of value of firm under Net Income approach
Value of firm=MV of Equity + MV of Debt

EBIT	50,000
Less: Interest (2,00,000 x 10%)	20,000
EBT	30,000
Equity Capitalisation Rate (K_e)	12.5%

Therefore

Value of Equity=30,000/12.5%	₹ 2,40,000
Value of Debt (given)	₹ 2,00,000
Value of firm	₹ 4,40,000

Question.7

(a) How does financial leverage increase the potential reward to the shareholders? [6]

Answer:

Financial leverage is based on the assumption that firm is to earn more on the assets that acquired by the use of Funds on which a Fixed Rate of interest/dividend is to be paid. Financial leverage can be calculated as follows:

Financial leverage=EBIT/EBT

The Financial leverage increase the reward to the shareholders, as by increasing the debt, the organization enjoys the tax benefit as the interest on the debt capital is chargeable to the profit, thus reducing the tax burden. Again the Profit Before Tax (PBT) will be higher with lower or nil interest on debt, leading to high incidence of Corporation tax. The Balance representing Profit After Tax (PAT) become proportionately lower when such PAT is related to the higher equity capital and lower or nil debt capital. As the shareholder's reward is the PAT earned against the volume of capital invested, the financial leverage increase the potential reward to the shareholders. Further, Increase in Equity to finance low risk activities will lead to lower return for shareholders. Companies having lower risk cash flow can therefore enhance the shareholders return by increasing the debt instead of Equity. The net operating surplus represents PAT when related to the lower level of paid up share capital shows a higher reward to the shareholder.

(b) ABC Limited has made plans for the year 2013-2014. It is estimated that the Company will employ total assets of ₹ 25,00,000; 30% of assets being financed by debt at an interest cost of 9%p.a. The direct cost for the year are estimated at ₹ 15,00,000 and all other operating expenses are estimated at ₹ 2,40,000. The sales revenue is estimated at ₹ 22,50,000. Tax rate is assumed to be 50%. Required to calculate:

(i) Net profit margin
(ii) Return on assets

(iii) Assets turnover and
(iv) Return on equity. **[1.5 x 4 = 6]**

Answer:

The net profit is calculated as follows:

Sales revenue	22,50,000
Less: Direct Costs	15,00,000
Gross profits	7,50,000
Less: Operating Expenses	2,40,000
EBIT	5,10,000
Less: Interest (9% x 7,50,000)	67,500
EBT	4,42,500
Less: Taxes @ 50%	2,21,250
PAT	2,21,250

Debt= 25,00,000 × 30% = ₹ 7,50,000
Equity= 25,00,000 × 70% = ₹ 17,50,000

(i) Net Profit Margin= EBIT (1 - t) x 100/Sales
=5,10,000 (1 - 0.5) x 100/ 22,50,000
=11.33%

(ii) Return on Assets (ROA)
ROA=EBIT (1 - t)/ Total Assets
=5,10,000 (1 - 0.5)/ 25,00,000
=3,06,000/ 25,00,000
=0.102
=10.2%

(iii) Assets Turnover=Sales/Assets
=22,50,000/ 25,00,000
=0.9

(iv) Return on Equity (ROE)
ROE=PAT/ Equity
=2,21,250/ 17,50,000
=12.64%

(c) Discuss about the evolution of Zero Based Budgeting and state its advantages. **[1+3]**

Answer:

Zero Based Budgeting (ZBB):

Evolution: ZBB was first introduced by Peter A. Pyhrr, a staff control manager at Texas Instruments Corporation, U.S.A. He developed this technique and implemented it for the first time during the year 1969-70 in Texas in the private sector and popularized its wider use. He wrote an article on ZBB in Harvard Business Review and later wrote a book on the same. The ZBB concept was first applied in the State of Georgia, U.S.A. when Mr. Jimmy Carter was the Governor of the State. Later after becoming the President of U.S.A. Mr. Carter introduced and implemented the ZBB in the country in the year 1987, ZBB has a wide application not only in the Government Departments but also in the private sector in a variety of business. In India, the ZBB was applied in the State of Maharashtra in 80s and early 90s.

Benefits from ZBB can be summarized in the following manner.

1. ZBB facilitates review of various activities right from the scratch and a detailed cost benefit study is conducted for each activity. Thus an activity is continued only if the cost benefit study is favorable. This ensures that an activity will not be continued merely because it was conducted in the previous year.
2. A detailed cost benefit analysis results in efficient allocation of resources and consequently wastages and obsolescence is eliminated.
3. A lot of brainstorming is required for evaluating cost and benefits arising from an activity and this results into generation of new ideas and also a sense of involvement of the staff.
4. ZBB facilitates improvement in communication and co-ordination amongst the staff.
5. Awareness amongst the managers about the input costs is created which helps the organization to become cost conscious.
6. An exhaustive documentation is necessary for the implementation of this system and it automatically leads to record building.

Question.8

(a) The Beta co-efficient of Target Ltd. is 1.4. The Company has been maintaining 7% rate of growth in dividends. The last dividend paid was ₹ 4 per share. Return on Government securities is 10%. Return on market portfolio is 15%. The current market price of one share of Target Ltd. is ₹ 36.
What will be the equilibrium price per share of Target Ltd.? [3]

Answer:

CAPM formula= $E(R) = R_f + b\ [R_m - R_f]$
Where,
E(R) =Expected rate of return on the security
R_f =risk free returns
(R_m) =market rate of return
β =Beta co-efficient (given 1.4)

Substituting the values
E (R) =10+1.4 (15% - 10%)
E (R) =17% or K_e = 17%
Dividend growth model =(D_1/P_0) +G
Where,
D_1, is dividend per share in year 1, [dividend (1+G)]
G is growth rate of dividends,
P_0=Market price/ share in year 0.
E (R) or K_e being 17, we can make the equation as
$P_0=D_1/ K_e - G$
P_0=4 (1.07)/ 0.17- 0.07
= ₹ 42.80

(b) A chemical company is considering replacing an existing machine with one costing ₹ 65,000. The existing machine was originally purchased two years ago for ₹ 28,000 and is being depreciated by the straight line method over its seven-year life period. It can currently be sold for ₹ 30,000 with no removal costs. The new machine would cost ₹ 10,000 to install and would be depreciate over five years. The management believes that the new machine would have a salvage value of ₹ 5,000 at the end of year 5. The management also estimates an increase in net working capital requirement of ₹10,000 as

a result of expanded operations with the new machine. The firm is taxed at a rate of 55% on normal income and 30% on capital gains. The company's expected after-tax profits for next 5 years with existing machine and with new machine are given as follows:

₹

	Expected after-tax profits	
Year	**With existing machine**	**With new machine**
1	**2,00,000**	**2,16,000**
2	**1,50,000**	**1,50,000**
3	**1,80,000**	**2,00,000**
4	**2,10,000**	**2,40,000**
5	**2,20,000**	**2,30,000**

(a) Calculate the net investment required by the new machine.

(b) If the company's cost of capital is 12%, determine whether the new machine should be purchased. [3+6]

Answer:

(a) Net Investment required by the New Machine:

Calculation of present value of net investment required:		₹
Cost of new asset		65,000
Add: Installation cost		10,000
		75,000
Add: Additional WC		10,000
		85,000
Less: Sale proceeds of old machine	30,000	
Less: Tax	5,000	
[8,000 x 55/100 + 2000 x 30/100]		25,000
Net Investment required		60,000

(b) Appraisal of Replacement decision under NPV Method:

Calculation of Present Value of Incremental Operating cash inflows for 5 years.

Year	CIAT (PAT + Dep)		Incremental	PV factor at 12%	Present Value
	Old	New			
1	2,04,000	2,30,000	26,000	0.8928	23,213
2	1,54,000	1,64,000	10,000	0.7971	7,971
3	1,84,000	2,14,000	30,000	0.7117	21,351
4	2,14,000	2,54,000	40,000	0.6355	25,420
5	2,24,000	2,44,000	20,000	0.5674	11,348
PV of cash inflows for 5 years					**89,303**

Calculation of PV of terminal cash inflow	₹
Salvage value of asset	5,000
[No taxes because book value and salvage value are equal]	
Working capital recovered [100% recovered]	10,000
Terminal cash inflows	15,000
Its PV at the end of 5th year	= 15,000 x 0.5674 = 8,511

Calculation of NPV	₹
PV of total cash inflows [89,303 + 8,511]	= 97814
(–) Outflow (Net Investment Required)	= 60,000
NPV	**= 37,814**

Comment:
As NPV is positive, it is advised to replace.
Note 1:
Depreciation for old Machine = 28,000 / 7 = ₹ 4,000
Depreciation for new Machine = [(₹65,000 + ₹10,000 - ₹5,000) ÷ 5] = ₹ 14,000

(c) List out the importance of Cash Management. [4]

Answer:

Some of the importance of Cash Management is:

(i) Cash Management ensures that the firm has sufficient cash during peak times for purchase and for other purposes.
(ii) Cash Management help to meet obligatory cash out flows that are all due.
(iii) Cash Management assists in planning capital expenditure projects.
(iv) Cash Management helps to arrange for outside financing at favorable terms and conditions, if necessary.
(v) Cash Management helps to allow the firm to take advantage of discount, special purchases and business opportunities.
(vi) Cash Management helps to invest surplus cash for short or long term periods to keep the idle funds fully employed.

Question.9

(a) From the following figures, prepare a statement showing the changes in the working capital and fund flow statement during the year 2013:-

Assets	**Dec.31,2012**	**Dec.31,2013**
Fixed Assets (net) ₹	**5,10,000**	**6,20,000**
Investment	**30,000**	**80,000**
Current Assets	**2,40,000**	**3,75,000**
Discount on debentures	**10,000**	**5,000**
	7,90,000	**10,80,000**
Liabilities		
Equity share capital	**3,00,000**	**3,50,000**
Preference share capital	**2,00,000**	**1,00,000**
Debentures	**1,00,000**	**2,00,000**
Reserves	**1,10,000**	**2,70,000**
Provision for doubtful debts	**10,000**	**15,000**
Current liabilities	**70,000**	**1,45,000**
	7,90,000	**10,80,000**

You are informed that during the year:
(a) A machine costing ₹ 70,000 book value ₹ 40,000 was disposed of for ₹ 25,000.
(b) Preference share redemption was carried out at a premium of 5% and
(c) Dividend at 10% was paid on equity share for the year 2012.
Further:
(i) The provision for depreciation stood at ₹ 1,50,000 on 31.12.12 and at ₹ 1,90,000 on 31.12.13; and

(ii) Stock which was valued at ₹ 90,000 as on 31.12.12; was written up to its cost, ₹ 1,00,000 for preparing Profit and Loss account for the year 2013. [3+5]

Answer:

Change in working capital

	2012	2013
Current Assets	2,40,000	3,75,000
(+) Stock under valued	10,000	
Current liabilities	70,000	1,45,000
Net working capital	1,80,000	2,30,000
Increase in working capital	50,000	

Fund flow statement

Sources	Amount (₹)	Applications	Amount (₹)
Sale of fixed assets	25,000	Increase in working capital	50,000
Fund from operation	2,80,000	Purchase of fixed assets	2,20,000
Issue of shares	50,000	Purchase of investment	50,000
Debentures	1,00,000	Redemption of preference shares	1,05,000
		Dividend paid	30,000
	4,55,000		4,55,000

Working note

1. Depreciation

	(₹)
Opening provision	1,50,000
(-) Provided on sale of asset	30,000
	1,20,000
(+) Provided during the year (b /f)	70,000
Closing provision	1,90,000

2. Purchase & Sale of Fixed Assets

	(₹)
Opening (2013)	5,10,000
(-) Provided on sale of asset	40,000
Sold	4,70,000
(-) Depreciation provided	70,000
	4,00,000
(+) Purchases (b /f)	2,20,000
Closing 2013	6,20,000

3. P & L Adjustment A/c

Particulars	Amount (₹)	Particulars	Amount (₹)
To depreciation	70,000	By balance b/d (1,10,000+10,000)	1,20,000
To loss on sale of fixed assets	15,000	By fund from operations (Bal. figure)	2,80,000
To loss on redemption of shares	5,000		
To discount written off	5,000		
To provision for doubtful debt	5,000		

To dividend	30,000		
To balance c/d	2,70,000		
	4,00,000		4,00,000

(b) A Company provide the following data:

	Cost per unit (₹)
Raw materials	**52.00**
Direct labour	**19.50**
Overheads	**39.00**
Total cost	**110.50**
Profit	**19.50**
Selling price	**130.00**

The following additional information is available:-
(a) Average raw materials in stock: one month.
(b) Average materials in process: half-a-month
(c) Average finished goods in stock: one month
(d) Credit allowed by suppliers: one month
(e) Credit allowed to debtors: two month
(f) Time lag in payment of wages: one and a half weeks.
(g) Overheads: one month
(h) One-fourth of sales are on cash basis.
(i) Cash balance is expected to be ₹ 1,30,000
You are required to prepare a statement showing the working capital needed to finance a level of activity of 70,000 units of annual output. The production is carried evenly throughout the year and wages and overheads accrue similarly. (Calculation is made on the basis of 30 days a month and 52 weeks a year.) [8]

Answer:

Statement showing estimate of Working Capital

Particulars	Amount (₹)	Amount (₹)
Current Assets:		
Stock of Raw material (70,000 units x 52 x 30/ 360)		3,03,333
Work in progress:		
Raw materials (70,000 units x 52 x 15/ 360)	1,51,667	
Direct labour (70,000 units x 19.50 x 30/ 360 x1/2 × 50%)	28,437	
Overheads (70,000 units x 39 x 30/ 360 x ½ × 50%)	56,875	2,36,979
Stock of finished goods (70,000 units x 110.50 x 30/ 360)		6,44,583
Debtors (70,000 units x 130 x 60/ 360)		15,16,667
Cash balance		1,30,000
(a)		28,31,562
Current Liabilities:		
Creditors for raw material (70,000 units x 52 x 30/ 360)		3,03,333
Creditor for wages (70,000 units x 19.50 x 1.5/ 52)		39,375
Creditors for overheads (70,000 units x 39 x 30/ 360)		2,27,500
(b)		5,70,208
Net working Capital (a) – (b)		**22,61,354**