Paper 8-Cost Accounting & Financial Management

Section-A Cost Accounting-Prime Cost & Overheads
(Full Marks 60)

Answer Question no.1 which is compulsory and any three from the rest in this section.

1. Answer the following (6x2)

(i) What is Imputed Cost?

Answer: Imputed Costs are hypothetical or notional costs, not involving cash outlay computed only for the purpose of decision making. In this respect, imputed costs are similar to opportunity costs.

(ii) Compute the Inventory turnover ratio from the following:
Opening stock=₹1,00,000
Closing Stock=₹1,60,000
Material Consumed=₹7,80,000

Answer:

$$\text{Inventory Turnover Ratio} = \frac{\text{Value of material consumed during the period}}{\text{Value of average stock held during the period}}$$

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

$$= \frac{1,00,000 + 1,60,000}{2}$$

$$= 1,30,000$$

$$\text{Therefore, Inventory turnover Ratio} = \frac{7,80,000}{1,30,000} = 6$$

(iii) A work measurement study was carried out in a firm for 10 hours and the following information was generated.

Units produced	**340**
Idle time	**15%**
Performance rating	**120%**
Allowance time	**10% of standard time**

What is the Standard time for task?

Answer: Calculation of standard time for task

Total time= 10X60	=600 minutes
(-) Down time or idle time @ 15%	=90 minutes
Actual time	=510 minutes
Normal time= 510X 120%	=612 minutes
(+) Relaxation allowance(10% or 1/10 on standard time i.e. 1*9 on normal time)	=68 minutes
Standard time for job	=680 minutes
Standard time for each unit=680/340	=2 minutes

(iv) Royalty paid on sale ₹15,000, Royalty paid on units produced ₹10,000, hire charges of equipment used for production ₹2,000, Design charges ₹15,000, Software development charges related to production ₹20,000. Compute the direct expenses.

Answer:
Computation of Direct Expenses

	Particulars	Amount (₹)
	Royalty paid on sale	15,000
Add	Royalty paid on units produces	10,000
Add	Hire Charges of equipment used for production	2,000
Add	Design Charges	15,000
Add	Software development charges related to production	20,000
	Direct Expenses	62,000

(v) State the treatment of Bad Debts in Cost record?

Answer: We know bad debt refer to customers who do not pay money after having purchased the product. This situation arises after the sale is done. Many experts say that bad debt is not an item of expenses but it's a financial loss and thus should be excluded for the purpose of costing. However normal bad debts may be considered as selling expense and included in the cost. An exceptional case like bankruptcy of a big institution may be excluded from the cost.

(vi) State the objective of Cost Accounting

Answer: The following are the main objectives of Cost Accounting:

(i) To ascertain the Costs under different situations using different techniques and systems of costing
(ii) To determine the selling prices under different circumstances
(iii) To determine and control efficiency by setting standards for Materials, Labour and Overheads
(iv) To determine the value of closing inventory for preparing financial statements of the concern.
(v) To provide a basis for operating policies which may be determination of Cost Volume relationship, whether to close or operate at a loss, whether to manufacture or buy from market, whether to continue the existing method of production or to replace it by a more improved method of production....etc

2.

(a) A work measurement study was carried out in a firm for 10 hours and the following information was generated:
Units produced 700; Idle time 15% ; performance rating 120%; allowance time 10% of standard time. What is the standard time for the task? (6)

Answer:
Calculation of standard time for task

Total time = 10 x 60	= 600 minutes
(-) Down time or Idle time @ 15%	= 90 minutes
Actual time	= 510 minutes
Normal Time = 510 x 120%	= 612 minutes

(+) Relaxation allowance
(10% or 1/10 on standard time
i.e. 1/9 on normal time) = 68 minutes
Standard time for job = 680 minutes
Standard time for each unit = 680/700= 0.971minutes

(b) Write short notes on Generally Accepted Cost Accounting Principles (GACAP). (4)

Answer: Like Generally Accepted Accounting Principles (GAAP) for Financial Accounting, the Cost Accounting has the Generally Accepted Cost Accounting Principle (GACAP) which are followed by the Indian industry are summarized as below.
The broad principles as applicable to all the elements of cost are:

- **(i)** When an element of cost is accounted at standard cost, variances due to normal reasons are treated as a part of the element wise cost. Variances due to abnormal reasons will not form part of the cost.
- **(ii)** Any subsidy / grant / incentive and any such payment received / receivable with respect to the input cost is reduced from cost for ascertainment of the cost of the cost object to which such amount pertains.
- **(iii)** Any abnormal cost where it is material and quantifiable will not form part of the cost.
- **(iv)** Penalties, damages paid to statutory authorities or other third parties will not form part of the Total Cost.
- **(v)** Cost reported under various elements of cost will not include Imputed Costs.
- **(vi)** Finance costs incurred in connection with the acquisition of resources such as material, utilities and the like will not form part of the cost of such resources.
- **(vii)** Any credits or recoveries from employees or suppliers or other parties towards the costs incurred by the entity for a resource will be netted against such cost Except otherwise stated, the measurement of costs for Cost Accounting purposes will follow the same principles as set out in Generally Accepted Accounting Principles applicable to the concerned entity
- **(viii)** Except otherwise stated, the measurement of costs for Cost Accounting purposes will follow the same principles as set out in Generally Accepted Accounting Principles applicable to the concerned entity.

(c) ABC Ltd. are the manufactures of picture tubes for T.V. The following are the details of their operation during the year 2012:

Average monthly market demand	**2,000 tubes**
Ordering cost	**₹100 per order**
Inventory carrying cost	**20% per annum**
Cost of tubes	**₹500 per tube**
Normal usage	**100 tubes per week**
Minimum usage	**50 tubes per week**
Maximum usage	**200 tubes per week**
Lead time to supply	**8-10 weeks**

Compute from the above:

- **(i) Economic order quantity. If the supplier is willing to supply quarterly 1,500 units at a discount of 10% is it worth accepting?**
- **(ii) Maximum level of stock**
- **(iii) Minimum level of stock**
- **(iv) Re-order level (4 x1.5=6)**

Answer:

A	=Annual usage of tubes	=Normal usage per week X 52 weeks
	=100 tubesX52 weeks	=5,200
O	=Ordering cost per order	=₹100 per order
C	=Inventory carrying cost per unit per annum	
	=20% X ₹500	=₹100 per unit, per annum

Economic Order Quantity:

$$EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 5{,}200 \text{ units} \times ₹100}{₹100}} = 102 \text{ tubes (approx.)}$$

If the supplier is willing to supply 1,500 units at a discount of 10% is it worth accepting?

Total Cost (when order size is 1,500 units) =Cost of 5,200 units+ Ordering cost+ Carrying cost.

=5,200 units X 450+[5,200/1,500 X₹100]+ (1,500 units X 20%X ₹450)÷2
=₹23,40,000+346.67+₹67500
=₹24,07,847

Total cost (when order size is 102 units)

=5,200 units X₹500 +[5,200 units/102 units X₹100]+ (102 units X20% X₹500)÷2
=₹26,00,000+₹5,098.03+₹5,100
=₹26,10,198.03

Since the total cost under quarterly supply of 1,500 units with 10% discount is lower than that when order size is 102 units, the offer should be accepted. While accepting this offer capital blocked on order size of 1,500 units per quarter has been ignored.

Maximum Level of Stock
=Re-order Level+ Re-order Quantity- Min. Usage X Min. Re-order period
=2,000 units + 102 units - 50 unitsX8
=1,702

Minimum Level of Stock
=Re-order Level – Normal usage X Average Re-order period
=2,000 units – 100 units X9 weeks
=1,100

Re-order Level
=Maximum Consumption X Maximum Re-order period
=200 units X10 weeks
=2,000 units

3.

(a) In a factory the expenses of factory are charged on a fixed percentage basis on wages and office overhead expenses are calculated on the basis of percentage of works cost.

	I Order (₹)	**II Order (₹)**
Material	**12,500**	**18,000**
Wages	**10,000**	**14,000**
Selling price	**44,850**	**61,880**
Percentage of profit on cost	**15%**	**12%**

Find the rate of Factory OH and Office OH. (8)

Answer:
Let „X" and „Y" be the % of Works Overhead on wages and Office Overhead on works cost respectively.

Particulars	Order I	Order II
Material	12,500	18,000
Wages	10,000	14,000
Prime Cost	22,500	32,000
(+) Factory OH's	(10,000 x X/100)=100X	(14,000 x X/100)=140X
Work Cost	22,500+100X	32,000+140X
(+) Office Overheads [(100X+22,500) x Y/100] [(140X +32,000) x Y/100]	XY + 225Y	1.4XY + 320Y
Total Cost	100X+XY+225Y+22,500	140X+1.4XY+320Y+32,000
Cost	44,850 x (100/115)=39,000	61,880 x (100/112)=55,250

100X + XY + 225Y + 22,500 = 39,000
100X + XY + 225Y = 16,500 =>Equ. (1)
140X + 1.4XY + 320Y + 32,000 = 55,250
140X + 1.4XY + 320Y = 23,250 =>Equ. (2)
Equ. (1) x 1.4 =>140X + 1.4XY + 315Y = 23,100
Equ. (2) =>140X + 1.4XY + 320Y = 23,250
(–) (–) (–) (–)
5Y = 150
Therefore, Y = 150/50 = 30

Substituting the value of Y in Equ. (1), we get X
100X + 30X + 225 x 30= 16,500 =>Equ. (1)
130X + 6750 = 16,500
130X = 9,750
X = 9,750/130= 75
% of Factory OH on wages = 75%
% of Office OH on works cost = 30%

(b) Explain Bill of Material (BoM) and its relevance. (3)

Answer: A bill of materials is the record of the materials used to construct a product. It can include raw materials, sub-assemblies and supplies. A bill of materials may include not only the unit quantity required to construct the finished product, but also an estimate of scrap that will occur during the production process.
The bill of materials is used to calculate the cost of a product, as well as to order parts from Suppliers.
It is prepared by the engineering or planning department for submission of quotation and after the receipt of work order. It is a method of documenting materials required for execution of the specified job work. Bill of Material acts as an authorization to the Stores Department in procuring the materials and the concerned department in material requisition from the stores. It is an advance intimation to the concerned departments of the job, work order to be completed.

(c) A company has the option to procure a particular material from two sources:
Source I assures that defective will not be more than 2% of supplied quantity.

Source II does not give any assurance, but on the basis of past experience of supplies received from it, it is observed that defective percentage is 2.8%. The material is supplied in lots of 1,000 units. Source II supplies the lot at a price, which is lower by ₹100 as compared to Source I. The defective units of material can be rectified for use at a cost of ₹5 per unit. You are required to find out which of the two sources is more economical. (5)

Answer.

Comparative Statement of procuring material from two sources

	Material Source I	**Material Source II**
Defective (in %)	2 (Future estimate)	2.8 (Past experience)
Units Supplied (in one lot)	1,000	1,000
Total defective units in a lot	20 (1,000 units x 2%)	28 (1,000 units x 2.8%)
Additional price paid per lot (₹) (A)	100	-------
Rectification cost of defect (₹) (B)	100 (20 units x ₹5)	140 (28 units x
Total additional cost per lot (₹) [(A)+(B)]	200	140

Decision: On comparing the total additional cost incurred per lot of 1,000 units, we observe that it is more economical, if the required material units are procured from material source II.

4.

(a) ABC Ltd. company having 25 different types of automatic machine, furnishes you the following data for 2011-2012 in respect of machine B:

1.	**Cost of machine**	**₹50,000**
	Life-10 years	**Scrap value is nil**
2.	**Overhead expenses are:**	
	Factory rent	**₹50,00 p.a**
	Heating & lighting	**₹40,000**
	Supervision	**₹1,50,000 p.a**
	Reserve equipment of machine B	**₹6,000 p.a**
	Area of the factory	**80,000 sq.ft.**
	Area occupied by machine B	**3,000 sq.ft.**
3.	**Wages of operator is ₹24 per day of 8 hours including all fringe benefits. He attends to one machine when it is under set up and two machines while under operation.**	
4.	**Estimated production hours**	**3,600 p.a.**
	Estimated set up time	**400 hrs. p.a.**
	Power 0.5 per hour	

Prepare a schedule of comprehensive machine hour rate and find the cost of the following jobs:

	Job 1002	**Job 1008**
Set up time (hrs.)	**80**	**40**
Operation time (hrs.)	**130**	**160**

(8)

Answer:

Computation of machine hour rate when machine is in operation

Particulars		Amount (₹)
Standing charges:		
Rent	50,000×3/8	=1,875
Heating & Lighting	40,000×3/80	=1,500
Supervision	1,50,000×1/25	=6,000
Reserve equipment		=6,000
		15,375
Cost per hour	15,375/4,000	3.84
Machine Expenses:		
Depreciation	[50,000÷(10×3,600)]=1.39	
Wages	[24/8×1/2]=1.50	
Power	=0.50	3.39
Machine hour rate		7.23

Computation of machine hour rate when machine is under set up

Particulars		Amount (₹)
Standing charges:		
Rent	50,000×3/80	=1,875
Heating & lighting	40,000×3/80	=1,500
Supervision	1,50,000×1/25	=6,000
Reserve equipment		=6,000
		15,375
Cost per hour	15,375/4,000	3.84
Machine expenses:		
Depreciation	[50,000×(10×3,600)]	=1.39
Wages	[24/8]	=3.00
Power		-------
Machine Hour Rate		=8.23

Computation of cost of the jobs

Particulars	Job 1002	Job 1008
Set up cost		
Job 1102: 80×8.23	658.40	
Job 1308: 40×8.23		329.2
Operation Cost		
Job 1102: 130×7.23	939.9	
Job 1308: 160×7.23		1,156.8
Total Cost of the Job	**1,598.30**	**1,486.00**

(b) A manufacturing unit produces two products X and Y. The following information is furnished:

Particulars	Product X	Product Y
Units Produced (Qty)	**20,000**	**15,000**
Units Sold (Qty)	**15,000**	**12,000**
Machine Hours Utilised	**10,000**	**5,000**
Design Charges	**15,000**	**18,000**
Software development charges	**24,000**	**36,000**

Royalty paid on sales ₹54,000 [@ ₹2 per unit sold, for both the products]; Royalty paid on units produced ₹35,000 [@ Re.1 per unit purchased, for both the products], Hire charges of equipment

used in manufacturing process of Product X only ₹5,000, Compute the Direct Expenses as per CAS 10. (8)

Answer:

Computation of Direct Expenses

	Particulars	Product X	Product Y
	Royalty paid on sales	30,000	24,000
Add	Royalty paid on units produced	20,000	15,000
Add	Hire charges of equipment used in manufacturing process of product X only	5,000	----------
Add	Design Charges	15,000	18,000
Add	Software development charges related to production	24,000	36,000
	Direct Expenses	94,000	93,000

Note

(i) Royalty on production and royalty on sales are allocated on the basis of units produced and units sold respectively. These are directly identifiable and traceable to the number of units produced and units sold. Hence, this is not an apportionment.

(ii) No adjustments are made related to units held, i.e. closing stock.

5.

(a) XYZ Ltd. Company produced a simple product in three sizes X, Y and Z. Prepare a statement showing the selling and distribution expenses apportioned over these three sizes applying the appropriate basis for such apportionment in each case from the particulars indicated:

Express the total of the costs so apportioned to each size as:

(i) Cost per unit sold (nearest paise).

(ii) A percentage of sales turnovers (nearest to two places for decimal).

The expenses are;

Expenses	Amount (₹)	Basic of apportionment
Sales salaries	10,000	Direct charges
Sales commission	6,000	Sales turnover
Sales office expenses	2,096	Number of orders
Advt. General	5,000	Sales turnover
Advt. specific	22,000	Direct charges
Packing	3,000	Total volume cu.ft. product sold
Delivery expenditure	4,000	-do-
Warehouse expenses	1,000	-do-
Expenses credit collection	1,296	Number of orders

Data available relating to the three sizes are as follows:

	Total	Size X	Size Y	Size Z
(i) No. of salesmen, all paid same salary	10	5	1	4
(ii) Units sold	10,400	3,400	4,000	3,000
(iii) No. of orders	1,600	700	800	100
(iv) % of specific advt.	100%	30%	40%	30%
(v) Sales turnover	2,00,000	58,000	80,000	62,000
(vi) Volume of cu.ft. per unit of finished products	-	5	8	17

(7)

Answer:

Statement showing apportionment of selling expenses over the sizes and computation of cost per unit and % of sales:

(₹)

Particulars	Basis	Total	X	Y	Z
Sales Salaries	(5:1:4)	10,000	5,000	1,000	4,000
Sales commission	(29:40:31)	6,000	1,740	2,400	1,860
Sales office expenses	(7:8:1)	2,096	917	1,048	131
Advt. General	(29:40:31)	5,000	1,450	2,000	1,550
Advt. Specific	(3:4:3)	22,000	6,600	8,800	6,600
Packing	(17:32:51)	3,000	510	960	1,530
Delivery	(17:32:51)	4,000	680	1,280	2,040
Warehouse	(17;32:51)	1,000	170	320	510
Credit collection	(7:8:1)	1,296	567	648	81
		54,392	17,634	18,456	18,302

	Particulars	X	Y	Z
(i)	Cost per unit sold	(17,634/3,400)= 5.19	(18,456/4,000)= 4.61	(18,302/3,000)= 6.10
(ii)	% on sales	(17,634/58,000)X100 =30.40	(18,456/80,000)X100 =23.07	(18,302/62,000)X100 =29.52

Working:

	X	Y	Z
Volume of cu.ft. per unit of finished products	5	8	17
Units sold	3,400	4,000	3,000
Total volume of cu.ft.	17,000	32,000	51,000

(b) "The more kilometers you travel with your own vehicle, the cheaper it becomes." Comment briefly on this statement. (2)

Answer: The cost per kilometre, (if one travels in his own vehicle) will decline when he travels more kilometers. This is because the majority of costs for running and maintaining vehicles are of fixed nature and the component of fixed cost per kilometre goes on decreasing with an increase in kilometre travel. Hence, the given statement is true.

(c) State the treatment of the following transactions:
(i) Cost of special packing at the request of the customer;
(ii) Cost of research relating to marketing activities;
(iii) Cost of unsuccessful research; (1x3 =3)

Answer:

(i) This packing cost is treated as S & D Overhead.

(ii) Many times organizations appoint professional bodies or conduct by themselves a study of potential market for their products. This study is aimed at finding the customer needs, their habits, changing market for the products, technological changes in the product, competition etc. This is treated as S & D cost.

(iii) Cost of unsuccessful research is treated as factory overhead, provided the expenditure is normal and is provided in the budget. If it is not budgeted, it is written off to the profit and

loss account. If the research is extended for long time, some failure cost is spread over to successful research.

(d) In a factory guaranteed wages at the rate of ₹1.80 per hour are paid in a 50 hour week. By time and motion study it is estimated that to manufacture one unit of a particular product 20 minutes are taken, the time allowed is increased by 25%. During the week A produced 180 units of the product. Calculate his wages under the following method:

(i) Time rate.

(ii) Piece rate with a guaranteed weekly wages.

(iii) Halsey premium bonus.

(iv) Rowan premium Bonus. **(4)**

Answer:

(i) Calculation of wages under Time Rate system:

Earning under time wages=TR

=50×1.8=₹90

(ii) Calculation of wages under piece rate with Guaranteed Wage Rate

Normal time for one unit	=20 minutes
(+) Relation allowance@25%	=5 minutes
Standard time	=25 minutes
No. of pieces per hour	60/25 pieces
Piece rate	=Hourly Rate/No. of piece per hour
	=1.8÷(60/25)
	=0.75
Earning under Piece Rate	=180×0.75=₹135

(iii) Calculation of wages under Halsey premium Bonus

Standard time for actual production	=180×25/60	=75 hours
Earning under Halsey plan	=(50×1.8)+50/100(75-50)×1.8	
	=90+22.5	=₹112.50

(iv) Calculation of wages under Rowan premium Bonus

Standard time for actual production	=180×25/60	=75 hours
Earning under rowan plan	=(50×1.8)+(75-50/75)×(50×1.8)	
	=90+30.00	=₹120.00

Section B – Financial Management
(Full Marks: 40)

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

6. (a) Cost of Equity=18%

The average income tax rate of shareholders is 30%. Brokerage cost of 2% is expected to be incurred while investing their dividends in alternative securities. What is the Cost of retained earnings ? [2]

Answer.

Cost of retained earnings =18(1- 0.30)(1- 0.02)
=18*0.7*0.98
=12.348 or 12.35

(b) The average daily sales of a company are ₹ 5 lac.The company normally keeps a cash balance of ₹ 80000.If the weighted operating cycle of the company is 45 days, what is the working capital requirement? [2]

Answer.

The working capital requirement is for 45 days of the weighted operating cycle plus normal cash balance = Sales per day × weighted operating cycle+ cash balance requirement
= ₹ 5 lac × 45 + ₹ 0.80 lac = ₹ 225.80 lac.

(c) Define EVA. [4]

Answer.

EVA (Economic Value Added) measures economic profit/loss as opposed to accounting profit/loss. EVA calculates profit/loss after taking into account the cost of capital, which is weighted average cost of equity and debt. Accounting profit, on other hand , ignores cost of equity and thus overstates profit or understates loss.
EVA = NOPAT – K × WACC
Where, NOPAT = Net Operating Profit after Tax = EBIT × (1 – T)
K = Capital employed (equity + debt)
WACC = Weighted average cost of capital.
The estimates are fine tuned through several adjustments. For instance, NOPAT is estimated excluding nonrecurring income or expenditure.
EVA is a residual income which a company earns after capital costs are deducted. It measures the profitability of a company after having taken into account the cost of all capital including equity. Therefore, EVA represents the value added to the shareholders by generating operating profits in excess of the cost of capital employed in the business.

7. (a) Your client is holding the following securities:

Particulars of Securities	Cost	Dividends/Interest	Market price	Beta
	₹	₹	₹	
Equity Shares:				

Gold Ltd.	**10,000**	**1,725**	**9,800**	**0.6**
Silver Ltd.	**15,000**	**1,000**	**16,200**	**0.8**
Bronze Ltd.	**14,000**	**700**	**20,000**	**0.6**
GOI Bonds	**36,000**	**3,600**	**34,500**	**1.0**

Average return of the portfolio is 15.7%, calculate:
(i) Expected rate of return in each, using the Capital Asset Pricing Model (CAPM).
(ii) Risk free rate of return. **[4+2=6]**

Answer

Particulars of Securities	**Cost**	**Market Price**	₹ **Capital gain**
Gold Ltd.	10,000	9,800	–200
Silver Ltd.	15,000	16,200	1,200
Bronze Ltd.	14,000	20,000	6,000
GOI Bonds	36,000	34,500	–1,500
Total	75,000	7,025	5,500

Expected rate of return on market portfolio

$$= \frac{\text{Dividend Earned} + \text{Capital appreciation} * 100}{\text{Initial investment}}$$

$$= \frac{\text{Rs. } 7,025 + \text{Rs. } 5,500 \ * 100}{75,000}$$

= 16.7%

Risk free return

$$\text{Average of Betas} = \frac{0.6 + 0.8 + 0.6 + 1.0}{4}$$

Average of Betas = 0.75

Average return = Risk free return + Average Betas (Expected return – Risk free return)
15.7 = Risk free return + 0.75 (16.7 – Risk free return)
Risk free return = 12.7%

Expected Rate of Return for each security is

Rate of Return	= $R_f + \beta(R_m - R_f)$	
Gold Ltd.	= 12.7 + .6 (16.7 – 12.7)	= 15.10%
Silver Ltd.	= 12.7 + .8 (16.7 – 12.7)	= 15.90%
Bronze Ltd.	= 12.7 + .6 (16.7 – 12.7)	= 15.10%
GOI Bonds	= 12.7 + 1.0 (16.7 – 12.7)	= 16.70%

(b) The following is the condensed Balance sheet of NHPC Ltd. at the beginning and end of the year.

Balance Sheets
As at ……..

Particulars	**31.12.2011**	**31.12.2012**
Cash	**50,409**	**40,535**
Sundry debtors	**77,180**	**73,150**

Temporary investments	**1,10,500**	**84,000**
Prepaid expenses	**1,210**	**1,155**
Inventories	**92,154**	**1,05,538**
Cash surrender value of Life Insurance Policy	**4,607**	**5,353**
Land	**25,000**	**25,000**
Building, machinery etc.	**1,47,778**	**1,82,782**
Debenture discount	**4,305**	**2,867**
	5,13,143	**5,20,380**
Sundry creditors	**1,03,087**	**95,656**
Outstanding expenses	**12,707**	**21,663**
4% mortgage debentures	**82,000**	**68,500**
Accumulated depreciation	**96,618**	**81,633**
Allowance for inventory loss	**2,000**	**8,500**
Reserve for contingencies	**1,06,731**	**1,34,178**
Surplus in P & L A/c	**10,000**	**10,250**
Share capital	**1,00,000**	**1,00,000**
	5,13,143	**5,20,380**

The following information concerning the transaction are available :

i. **Net profit for 2010 as per Profit and loss account was ₹ 49,097**
ii. **A 10% cash dividend was paid during the year.**
iii. **The premium of Life Insurance Policies were ₹ 2,773 of which ₹ 1,627 was charged to Profit and Loss Account of the year.**
iv. **New machinery was purchased for ₹ 31,365 and machinery costing ₹ 32,625 was sold during the year. Depreciation on machinery sold had accumulated to ₹ 29,105 at the date of sale. It was sold as scrap for ₹ 1,500. The remaining increase in Fixed Assets resulted from construction of a Building.**
v. **The Mortgage Debentures mature at the rate of ₹ 5,000 per year. In addition to the above, the company purchased and retired ₹ 8,500 of Debentures at ₹ 103. Both the premium on retirement and the applicable discount were charged to Profit and Loss Account.**
vi. **The allowance for Inventory Loss was created by a charge to expenses in each year to provide for obsolete items.**
vii. **A debit to reserve for contingencies of ₹ 11,400 was made during the year. This was in respect of a past tax liability.**

You are required to prepare a statement showing the Sources and Applications of funds for the year 2012. [10]

Answer.

a) Statement of Sources and Applications of Funds
For the year ended 31st December 2012

Sources	₹	Applications	₹
Sale of Machinery	1,500	Purchase of machinery	31,365
Trading profit (adjusted)	75,457	Payment for construction of building	36,264
	76,957	Dividend paid	10,000
Add: Decrease in working capital	28,600	Redemption of debentures	13,755
		Tax liability paid	11,400
		Premium on Life Policy (1,146 + 1,627)	2,773

	1,05,557		1,05,557

Workings :

Statement of Change in Working Capital

	2009 ₹		2010 ₹	
Current Assets :				
Cash		50,409		40,535
Sundry debtors		77,180		73,150
Temporary investments		1,10,500		84,000
Prepaid expenses		1,210		1,155
Inventories		92,154		1,05,538
		3,31,453		3,04,378
Less : Current Liabilities :				
Sundry creditors	1,03,087		95,656	
Out. Expenses	12,707		21,663	
		1,15,794		1,17,319
Working capital		2,15,659		1,87,059
Decrease in working capital		-		28,600
		2,15,659		2,15,659

4% Mortgage Debenture A/c.

Dr. Cr.

Particulars	₹	Particulars	₹
To, 4% Mortgage debenture holders	13,500	By bal b/d	82,000
To, Bal c/d	68,500		
	82,000		82,000

4% Mortgage Debenture holders' A/c.

Dr. Cr.

Particulars	₹	Particulars	₹
To, Bank A/c.	13,755	By, 4% Mortgage debenture a/c.	13,500
		By, P & L A/c.	255
	13,755		13,755

Accumulated Depreciation A/c.

Dr. Cr.

Particulars	₹	Particulars	₹
To, Building, machinery etc.	29,105	By, Bal b/d	96,618
To, Bal c/d	81,633	By, P & L A/c.	14,120
	1,10,738		1,10,738

Allowance for Inventory Loss A/c.

Dr. Cr.

Particulars	₹	Particulars	₹
To, Bal c/d	8,500	By, Bal b/d	2,000
		By, P & L A/c. (bal. fig.)	6,500
	8,500		8,500

Reserve for Contingencies A/c.

Dr.			Cr.
Particulars	₹	Particulars	₹
To, Tax liability (paid)	11,400	By, Bal b/d	1,06,731
To, Bal c/d	1,34,178	By, P & L A/c. (bal. fig.)	38,847
	1,45,578		1,45,578

Life Insurance Policy A/c.

Dr.			Cr.
Particulars	₹	Particulars	₹
To, Bal b/d	4,607	By, P & L A/c. (excess over surrender value)	400
To, Bank (premium)	1,146	By, Balance c/d	5,353
	5,753		5,753

Building and Machinery A/c.

Dr.			Cr.
Particulars	₹	Particulars	₹
To, Balance b/d	1,47,778	By, Accumulated Dep.	29,105
To, Bank a/c (Purchase)	31,365	By, Bank a/c. (sales)	1,500
To, Bank a/c. (bal. fig.) (Construction cost of building)	36,264	By, P & L a/c. (loss on sale)	2,020
		By, Balance c/d	1,82,782
	2,15,407		2,15,407

Debenture Discount A/c.

Dr.			Cr.
Particulars	₹	Particulars	₹
To, Balance b/d	4,305	By, P & L a/c. (bal. fig.)	1,438
		By, Balance c/d	2,867
	4,305		4,305

Profit and Loss A/c.

Dr.			Cr.
Particulars	₹	Particulars	₹
To, Dividend	10,000	By, Balance b/d	10,000
To, Life insurance policy	400	By, Trading profit (adjusted bal. fig.)	75,457
To, Debenture discount	1,438		
To, Reserve for contingencies	38,847		
To, Allow. For inventory loss	6,500		
To, 4% Mort. Debentureholders	255		
To, Accumulated depreciation	14,120		
To, Building and Mach. (loss)	2,020		
To, Bank (life insurance premium)	1,627		
To, Balance c/d	10,250		
	85,457		85,457

8. (a) From the following information, ascertain whether the firm is following an optimal dividend policy as per Walter's model :

Total earnings	**₹ 6,00,000**
No. of equity shares of ₹ 100 each	**40,000**
Dividend paid	**₹ 1,60,000**
Price-earnings (P/E) Ratio	**10**

The firm is expected to maintain its rate of return of fresh investment. What should be the P/E ratio at which dividend policy will have no effect on the value of the share ? Will your decision change if the P/E ratio is 5 instead of 10 ? (7)

Answer.

Calculation of market price of share under Walter's model :

$$P = \frac{D + R_a / R_c (E - D)}{R_c}$$

Where P = Market price per share
E = Earnings per share
D = Dividend per share
R_a = Internal rate of return on investment
R_C = Cost of capital

Dividend per share (D) = ₹ 1,60,000 / 40,000 shares = ₹ 4
Earnings per share (E) = ₹ 6,00,000 / 40,000 shares = ₹ 15

Rate of return on firms investment (R_a)

$$= \frac{₹\ 6,00,000}{₹\ 40,00,000} \times 100 = 15\% \text{ of } 0.15$$

R_C = Cost of capital (inverse of P/E ratio i.e. 1/10) = 0.10

$$P = \frac{4 + (0.15/0.10)\ (15 - 4)}{0.10} = \frac{20.50}{0.10} = ₹\ 205$$

Calculation of P/E ratio at which dividend policy will have no effect on the value of the share

Firm's dividend payout ratio = ₹ 1,60,000/ ₹ 6,00,000 =0.2667 or 26.67%

Rate of return of the firm (R_a) is 15%, which is more than its cost of capital (R_c) is 10%. Therefore, by distributing 16.67% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such case, the market value of share under Walter's model would be as follows :

$$P = \frac{4 + (0.15/0.10)\ (15 - 0)}{0.10} = \frac{22.50}{0.10} = ₹\ 225$$

The market value of the share would increase by not paying dividend and by retaining all the earnings of the company.

Calculation of market value of share when P/E ratio is 5 instead of 10.

The R_c of the firm is the inverse of P/E ratio i.e. 1/5 = 0.20. In such case $R_c > R_a$

$$P = \frac{4 + (0.15/0.20)(15 - 4)}{0.20} = \frac{12.25}{0.20} = ₹ 61.25$$

The P/E ratio at which the dividend policy will have no effect on the value of the firm when R_c is equal to the rate of return of the firm R_a. Under the situation, P/E ratio is 5, the optimum dividend policy for the company would be 100% dividend payout at which the value of the firm would be maximum.

b) M Ltd. has a capital of ₹ 10,00,000 in equity shares of ₹ 100 each. The shares are currently quoted at par. The company proposes declaration of a dividend of ₹ 10 per share. The capitalization rate for the risk class to which the company belongs is 12%.
What will be the market price of the share at the end of the year, if – (i) no dividend is declared; and (ii) 10% dividend is declared ?
Assuming that the company pays the dividend and has net profits of ₹ 5,00,000 and makes new investments of ₹ 10,00,000 during the period, how many new shares must be issued ? Use the M. M. Model. (6)

Answer.
(i) Calculation of share price under MM – Dividend Irrelevancy Model

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

(a) When dividend is not declared

$$100 = \frac{P_1 + 0}{1 + 0.12} \qquad P_1 = 100 \times 1.12 = ₹ 112$$

(b) When dividend is declared

$$100 = \frac{P_1 + 10}{1 + 0.12} \qquad P_1 + 10 = 100 \times 1.12 = ₹ 102$$

(ii) Calculation of No. of shares to be issued (₹)

Particulars		If no dividend declared	If dividend declared
Net income		5,00,000	5,00,000
Less : Dividend paid		-	1,00,000
Retained earnings		5,00,000	4,00,000
New investments		10,00,000	10,00,000
Amount to be raised by issue of new shares	(i)	5,00,000	6,00,000
Market price per share	(ii)	112	102
No. of new shares to be issued	(i)/(ii)	4,464	5,882

Verification of M. M. Dividend Irrelevancy Theory

Particulars	If no dividend declared	If dividend declared
Existing shares	10,000	10,000
New shares	4,464	5,882

Total no. of shares at the year end	(i)	14,464	15,882
Market price per share	(ii)	₹ 112	₹ 102
Total market value of shares at the end of year (i)x(ii)		₹ 16,20,000	₹ 16,20,000

Analysis – The market value of shares at the end of year will remain the same whether dividends are distributed or not declared.

(c) Write short note o forfeiting (3)

Answer.

Forfaiting is a mechanism of financing exports,
- By discounting export receivables.
- Evidence by bills of exchange or promissory notes.
- Without recourse to the seller
- Carrying medium to long maturities.
- On a fixed rate basis(discount)
- Upto 100% of the contract value.

Simply put, Forfaiting is the non-recourse discounting of export receivables. In a forfaiting transaction, the exporters surrenders without recourse to him, his rights to claim for payment on goods delivered to an importer in return for immediate cash payment from a forfeiter. As a result, an exporter in India can convert a credit sale into a cash sale with no recourse to the exporter or his banker.

9. (a) A company is faced with the problem of choosing between two mutually exclusive projects.

Project A requires a cash outlay of ₹ 1,00,000 and cash running expenses of ₹ 35,000 per year. On the, other hand, Project B will cost ₹ 1,50,000 and require cash running expenses of ₹ 20,000 per year. Both the machines have a eight-year life. Project A has a salvage value of ₹ 4,000 and Project B has a salvage value of ₹ 14,000. The company's tax rate is 30% and it has a 10% required rate of return.

Assuming depreciation on straight line basis, ascertain which project should be accepted. Present value of an annuity of ₹ 1 for 8 years = 5.335 and present value of ₹ 1 at the end of 8 years = 0.467, both at the discount rate of 10%. (7)

Answer.

Financial Evaluation of Project A & Project B

	Project A ₹	**Project B** ₹	**Incremental cash flows** ₹
Cash outflows	1,00,000	1,50,000	(50,000)
Cash running expenses (for 8 years)	35,000	20,000	15,000
Depreciation (for 8 years)	12,000	17,000	(5,000)
Total Saving			10,000
Less : Tax @ 30%			(3,000)
Saving after tax			7,000
Add : Depreciation (not being cash outflow)			5,000
Net Saving (P.A.)			2,000
Salvage value at the end of 8th year	4,000	14,000	10,000
Present value of annual saving for 8 years			64,020

[P. V. of annuity for 8 years = 12,000×5.335]			
Present value of incremental salvage value at the end of 8th year (0.467×10000)			4,670
Total			68,690
Less : Cash outflow (incremental)			(50,000)
Net present value (incremental)			18,690

Recommendation :
Since incremental NPV is positive, it is recommended to accept Project B.
Note :
Annual depreciation of project A = (1,00,000 – 4,000) ÷ 8 = 12,000
Annual depreciation of project B = (1,50,000 – 14,000) ÷ 8 = 17,000

(b) A newly formed company has applied for a short-term loan to a commercial bank for financing its working capital requirement.
As a Cost Accountant, you are asked by the bank to prepare an estimate of the requirement of the working capital for that company. Add 10% to your estimated figure to cover unforeseen contingencies.
The information about the projected Profit and Loss Account of the company is as under :

		₹
Sales		**21,00,000**
Cost of goods sold		**15,30,000***
Gross profit		**5,70,000**
Administrative expenses	**1,40,000**	
Selling expenses	**1,30,000**	**2,70,000**
Profit before tax		**3,00,000**
Provision for tax		**1,00,000**

***Cost of goods sold has been derived as :**

Materials used	**8,40,000**	
Wages and manufacturing expenses	**6,25,000**	
Depreciation	**2,35,000**	**17,00,000**
Less : Stock of finished goods (10 % produced, not yet sold)		**1,70,000**
		15,30,000

The figures given above relate only to the goods that have been finished and not to work-in-progress; goods equal to 15% of the year's production (in terms of physical units) are in progress on an average, requiring full materials but only 40% of the other expenses. The company believes in keeping two months' consumption of material in stock.
All expenses are paid one month in arrears' suppliers of material extend 1 ½ months' credit; sales are 20% cash; rest are at two months' credit, 70% of the income-tax has to be paid in advance in quarterly installments.
You can make such other assumptions as you deem necessary for estimating working capital requirement. (9)

Answer.
Statement showing the Net Working Capital Estimate of a Company :

Current Assets :

	₹	₹	₹
Stock of raw material (2 months) :			

(₹ 8,40,000 x 2/12)			1,40,000
Work-in-progress :			
Raw materials (₹ 8,40,000 x 15/100)		1,26,000	
Other expenses :			
Wages and manufacturing exp.	6,25,000		
Administrative expenses	1,40,000		
	(7,65,000 x 40%)	3,06,000	4,32,000
Stock of finished goods :			
Stock		1,70,000	
Less : Depreciation 10%			
(i.e. 2,35,000 x 10%)		23,500	1,46,500
Debtors (2 months) :			
Cost of goods sold – Dep. (15,30,000 – 2,11,500)		13,18,500	
[Dep. (2,35,000 – 23,500)]			
Administrative expenses		1,40,000	
Selling expenses		1,30,000	
Total		15,88,500	
Less : Cash sales @ 20%		3,17,700	
		(12,70,800 x 2/12)	2,11,800
Cash (say)			50,700
Total investment in current assets			9,81,000
Less : Current liabilities :			
Creditors (1 ½ months) (₹ 8,40,000 / 12 x 1 ½)		1,05,000	
Lag in payment of expenses (1month) :			
Wages and manufacturing expenses			
(₹ 6,25,000 x 1/12)	=52,083		
Administrative expenses			
(₹ 1,40,000 x 1/12)	= 11,667		
Selling expenses			
(₹ 1,30,000 x 1/12)	= 10,833	74,583	1,79,583
Net working capital			8,01,417
Add : 10% for contingencies			80,142
Estimated working capital requirement			8,81,559

Notes :
1. Depreciation is excluded from the computation of cost of goods sold as it is a non-cash item.
2. Element of profit is excluded here.
3. Assume that cash is required for ₹ 50,700 in order to meet the day-to-day expenses.