Paper 8 – Cost Accounting & Financial Management

Section A – Cost Accounting – Prime Costs & Overheads
(Full Marks : 60)

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

1. Answer the following [6 x 2 =12]

(a) What are the items to be 'excluded' for the purpose of determining valuation of materials as per CAS -6?

Answer.

The following items are to be 'excluded' for the purpose of determining valuation of materials:

(i) Finance costs
(ii) Abnormal losses due to shrinkage or evaporation or gain due to elongation or absorption of moisture before receipt of material
(iii) Changes in foreign exchange rate from the rate on date of transaction till date of payment
(iv) Demurrage or detention charges or penalty levied by transport or other authorities
(v) Imputed costs
(vi) Cost of self-manufactured components and sub-assemblies shall not include share of other administrative overheads, finance cost and marketing overheads
(vii) Material cost of abnormal scrap/defectives not to be included

(b) Consider the following data pertaining to the production of a company for a particular month :

Opening stock of raw material	**₹ 11,570**
Closing stock of raw material	**₹ 10,380**
Purchase of raw material during the month	**₹ 1,28,450**
Total manufacturing cost charged to product	**₹ 3,39,165**

Factory overheads are applied at the rate of 45% of direct labour cost.
Calculate the amount of factory overheads applied to production.

Answer.

Raw material used = Op. Stock + Purchases – Cl. Stock
= ₹ 11,570 + ₹ 1,28,450 – ₹ 10,380 = ₹ 1,29,640

Manufacturing cost = Raw material used + Direct labour + Factory overhead
₹ 3,39,165 = ₹ 1,29,640 + Direct labour + 45% of Direct labour
1.45 Direct labour = ₹ 2,09,525
Direct labour = ₹ 1,44,500
The amount of factory overhead = 45% of ₹ 1,44,500 = ₹ 65,025.

(c) If the minimum stock level and average stock level of raw material "A" are 4,000 and 9,000 units respectively, find out its reorder quantity.

Answer.

Average stock level = Minimum stock level + ½ Reorder quantity
9,000 units = 4,000 units + ½ Reorder quantity
½ Reorder quantity = 9,000 units – 4,000 units
Reorder level = 5, 000 units / 0.5 = 10,000 units

(d) A company is currently operating at 80% capacity level. The production under normal capacity level is 1,50,000 units. The variable cost per unit is ₹14 and the total fixed costs are ₹ 8,00,000. If the company wants to earn a profit of ₹4,00,000, what should be the price of the product per unit ?

Answer.

Total fixed cost	-	₹ 8,00,000
Expected profit	-	₹ 4,00,000
Variable cost at 80% level (80% x 1,50,000 units x ₹ 14)	-	₹ 16,80,000
Total price	-	₹ 28,80,000

Per unit price at 80% level = (₹ 28,80,000 / 1,20,000 units) = ₹ 24.00.

(e) The annual demand for a product is 6,400 units. The unit cost is ₹6 and inventory carrying cost per unit per annum is 25% of the average inventory cost. If the cost of procurement is ₹75, what is the time between two consecutive orders ?

Answer.

$$EOQ = \sqrt{\frac{2 \times 6{,}400 \text{ units} \times ₹75}{₹6 \times 25/100}} = 800 \text{ units}$$

No. of orders p.a. = 6,400 units /800 units = 8 orders
Time taken between two orders = 12 months/ 8 orders = 1.5 months

(f) In Z Ltd. there were 680 employees on the rolls at the beginning of a year and 620 at the end. During the year 30 persons left service. The company has computed its labour turnover rates under flux method is 8%. The number of accessions during the period is :

Answer.

Average number of employees on the rolls = (680 + 620)/2 = 650

$$\text{Labour turnover rate (Flux Method)} = \frac{(\text{No. of separations} + \text{No. of accessions})}{\text{Average employees on the rolls}} \times 100$$

$$\frac{8}{100} = \frac{30 + x}{650}$$

3,000 + 100x = 8 x 650
100 x = 5,200 + 3,000
x = 2,200/100 = 22

∴ No. of accession during the year = 22

2. (a) A re-roller produced 400 metric tons of M.S. bars spending ₹ 36,00,000 towards materials and ₹ 6,20,000 towards rolling charges. Ten percent of the output was found to be defective, which had to be sold at 10% less than the price for good production. If the sales realization should give the firm an overall profit of 12.5% on cost, find the selling price per metric

ton of both the categories of bars. The scrap arising during the rolling process fetched a realization of ₹ 60,000. [4]

Answer.
Computation of Selling Price :

	₹	₹
Cost of Materials	36,00,000	
Less: Scrap	60,000	35,40,000
Rolling charges		6,20,000
Total cost		41,60,000
Add Profit (12.5% on cost)		5,20,000
Sales value		46,80,000

Output (effective) = 360 MT + $\frac{9}{10}$ × 40 MT = 396 MT

Selling price per MT of good output = ₹ 46,80,000/396
= ₹ 11,818.18

Selling price of defective per MT = 0.9× ₹ 11,818.18
= ₹ 10,636.36

(b) The cost structure of an article, the selling price of which is ₹ 45,000 is as follows :

Direct Materials	**50%**
Direct Labour	**20%**
Overheads	**30%**

An increase of 15% in the case of materials and of 25% in the cost of labour is anticipated. These increased costs in relation to the present selling price would cause a 25% decrease in the amount of profit per article.

Your are required

(i) To prepare a statement of profit per article at present, and

(ii) The revised selling price to produce the same percentage of profit to sales as before. [3+3=6]

Answer.
Working Notes :

1. Let 'x' be the total cost and 'y' be the profit for an article whose selling price is ₹ 45,000
   Hence x + y =₹ 45,000……..(A)

2. Statement Showing Present and anticipated cost per article :

Item	Present Cost	Increase		Anticipated cost
	₹	%	₹	₹
(1)	(2)	(3)	(4)	(5)=(2) + (4)

Direct Material Cost	0.5x	15	0.075x	0.575x
Direct Labour	0.2x	25	0.050x	0.250x
Overheads	0.3x	--	--	0.300x
	x		0.125x	1.125x

3. The increase in the cost of direct material and direct labour has reduced the profit by 25 per cent (as selling price remained unchanged). The increase in cost and reduction in profit can be represented by the following relation:

   1.125x + 0.75y = ₹ 45,000……..(B)

4. On solving relations (A) and (B) as obtained under working notes 1 and 3 above we get :

   x = ₹ 30,000

   y = ₹ 15,000

(i) Present Statement of Profit Per Article

	₹	₹
Direct Material Cost	0.5x	15,000
Direct Labour Cost	0.2x	6,000
Overheads	0.3x	9,000
Total Cost		30,000
Profit		15,000
Selling Price		45,000

Note: Profit as a percentage of Cost Price = (₹ 15,000/₹ 30,000) x 100

= 50%

Profit as a percentage of Selling Price = (₹ 15,000/₹ 45,000) x 100

= 33-1/3%

(ii) Statement of Revised Selling Price

	₹	₹
Direct Material Cost	0.575x	17,250
Direct Labour Cost	0.250x	7,500
Overheads	0.300x	9,000
Total Anticipated Cost		33,750
Profit (33-1/3% of selling price)		16,875
Selling Price (₹ 33,750 x 100)/66.66		50,625

(c) What do you understand by the term 'pre-determined rate of recovery of overheads'? How do over –absorption and under-absorption of overheads arise and how are they disposed off in Cost Accounts? [2+1+3=6]

Answer.

The term 'pre-determined' rate of recovery of overheads' refers to a rate of overhead absorption. It is calculated by dividing the budgeted overhead expenses for the accounting period by the budgeted base for the period. This rate of overhead absorption is determined prior to the start of the activity; that is why it is called a 'pre-determined rate'. The use of the pre-determined rate of recovery of overheads enables prompt preparation of cost estimates and quotations and fixation of sales prices. For prompt billing on a provisional basis before completion of work, as for example in the case of cost plus contracts, pre-determined overhead rates are particularly useful.

Reason for over/under absorption of overheads: Over-absorption of overheads arises due to one or more of the following reasons.

(i) Improper estimation of overhead.

(ii) Error in estimating the level of production.

(iii) Unanticipated changes in the methods or techniques of production.

(iv) Under-utilisation of the available capacity.

(v) Seasonal fluctuations in the overhead expenses from period to period.

Methods for absorbing under/over absorbed overheads: The over-absorption and under-absorption of overheads can be disposed off in cost accounting by using any one of the following methods:

(i) Use of supplementary rates

(ii) Writing off to costing profit & loss Account

(iii) Carrying over to the next year's account

(i) Use of supplementary rates: This method is used to adjust the difference between overheads absorbed and overhead actually incurred by computing supplementary overhead rates. Such rates may be either positive or negative. A positive rate is intended to add the unabsorbed overheads to the cost of production. The negative rate, however corrects the cost of production by deducting the amount of over-absorbed overheads. The effect of applying such a rate is to make the actual overhead get completely absorbed.

(ii) Writing off to costing profit & loss account: When over or under-absorbed amount is quite negligible and it is not felt worthwhile to absorb it by using supplementary rates, then the said amount is transferred to costing profit & loss Account. In case under-absorption of overheads arises due to factors like idle capacity, defective planning etc., it may also be transferred to costing profit & loss Account.

(iii) Carrying over the next year's account: Under this method the amount of over/under absorbed overhead is carried over to the next period. This method is not considered desirable as it allows costs of one period to affect costs of another period. Further, comparison between one period and another is rendered difficult. Therefore, this method is not proper and has only a limited application. However, this method may be used when the

normal business cycle extends over more than one year, or in the case of a new project, the output is low in the initial years.

3. (a) A company has the option to procure a particular material from two sources:
Source I assures that defectives 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. [4]

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×2%)	28 (1,000 units ×2.8%)
Additional price paid per lot (₹) (A)	100	–
Rectification cost of defect (₹) (B)	100 (20 units x ₹ 5)	140 (28 units × ₹ 5)
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.

(b) A skilled worker in XYZ Ltd. Is paid a guaranteed wage rate of ₹ 30 per hour. The standard time per unit for a particular product is 4 hours. P, a machine man, has been paid wages under the Rowan Incentive Plan and he had earned an effective hourly rate of ₹ 37.50 on the manufacture of that particular product.

What could have been his total earnings and effective hourly rate, had he been put on Halsey Incentive Scheme (50%)? [4]

Answer.
Working note:
Let T hours be the total time worked in hours by the skilled worker (machine man P); ₹ 30/- is the rate per hour; standard time is 4 hours per unit and effective hourly earning rate is ₹ 37.50 then

$$\text{Earning} = \text{Hours worked} \times \text{Rate per hour} + \frac{\text{Time saved}}{\text{Time allowed}} \times \text{Time taken} \times \text{Rate per hour}$$

(Under Rowan incentive plan)

$$₹\ 37.5\ T = T \times ₹\ 30 + \frac{(4 - T)}{4} \times T \times Rs.30$$

$$₹\ 37.5 = ₹\ 30 + (4 - T) \times ₹\ 7.5$$

$$\text{Or } ₹\ 7.5\ T = ₹\ 22.5$$

Or T = 3 hours

Total earnings and effective hourly rate of skilled worker (machine man P) under Halsey Incentive Scheme (50%)

Total earnings = Hours worked × Rate per hour + ½ Time saved × Rate per hour (under 50% Halsey Incentive Scheme)

= 3 hours × ₹ 30 + ½ × 1 hour × ₹ 30= ₹105

Effective hourly rate = $\frac{\text{Total earnings}}{\text{Hours taken}} = \frac{\text{Rs. 105}}{\text{3 hours}} = \text{Rs.35/–}$

(c) Purchase of Materials ₹5,00,000 (inclusive of Trade Discount ₹8,000); Import Duty paid ₹45,000; Freight inward ₹62,000 ; Insurance paid for import by air ₹ 28,000; Rebates allowed ₹10,000; Cash discount ₹3,000; CENVAT Credit refundable ₹7,000; Abnormal Loss of Materials ₹14,000; Price variation due to computation of cost under standard rates ₹1,500. Compute the landed cost of material. [4]

Answer.

Computation of Landed Cost of Material

	Particulars	**Amount (₹)**
	Purchase price of Material	5,00,000
Add	Import Duties of purchasing the material	45,000
Add	Freight Inward during the procurement of material	62,000
Add	Price Variation due to computation of cost under standard rates	1,500
	Total	**6,08,500**
Less	Trade Discount	8,000
Less	Abnormal Loss of materials	14,000
Less	Rebates	10,000
	Value of Receipt of Material	**5,76,500**

Note:

(i) Normal loss is not deducted

(ii) Price variation is allowable inclusion as the cost was maintained on standard cost.

(d) What are the methods of measuring labour turnover? [4]

Answer.

It is essential for any organisation to measure the Labour Turnover. This is necessary for having an idea about the turnover in the organisation and also to compare the Labour Turnover of the previous period with the current one. The following methods are available for measurement of the Labour Turnover:-

(a) Additions Method: Under this method, number of employees added during a particular period is taken into consideration for computing the Labour Turnover. The method of computing is as follows.

Labour Turnover = (Number of additions/Average number of workers during the period) ×100

(b) Separation Method: In this method, instead of taking the number of employees added, number of employees left during the period is taken into consideration. The method of computation is as follows.

Labour Turnover = Number of separations/Average number of workers during the period)×100

(c) Replacement Method: In this method neither the additions nor the separations are taken into consideration. The number of employees replaced is taken into consideration for computing the Labour turnover.

Labour Turnover = (Number of replacements/Average number of workers during the period)×100

(d) Flux Method: Under this method Labour Turnover is computed by taking into consideration the additions as well as separations. The turnover can also be computed by taking replacements and separations also. Computation is done as per the following methods.

Labour Turnover = ½ [Number of additions + Number of separations] /Average number of workers during the period X100

Labour Turnover = ½ [Number of replacements + Number of separations] /Average number of workers during the period X 100

4. (a) PQR Ltd has its own power plant, which has two users, Cutting Department and Welding Department. When the plans were prepared for the power plant, top management decided that its practical capacity should be 1,50.000 machine hours. Annual budgeted practical capacity fixed costs are ₹9,00,000 and budgeted variable costs are ₹4 per machine-hour. The following data are available:

	Cutting Department	Welding Department	Total
Actual Usage in 2011-12	**60,000**	**40,000**	**1,00,000**
Machine hours)			
Practical capacity for each department (machine hours)	**90,000**	**60,000**	**1,50,000**

Required

(i) Allocate the power plant's cost to the cutting and the welding department using a single rate method in which the budgeted rate is calculated using practical capacity and costs are allocated based on actual usage.

(ii) Allocate the power plant's cost to the cutting and welding departments, using the dual - rate method in which fixed costs are allocated based on practical capacity and variable costs are allocated based on actual usage,

(iii) Allocate the power plant's cost to the cutting and welding departments using the dual-rate method in which the fixed-cost rate is calculated using practical capacity, but fixed costs are allocated to the cutting and welding department based on actual usage. Variable costs are allocated based on actual usage.

(iv) Comment on your results in requirements (i), (ii) and (iii). [3+3+3+2=11]

Answer.

Working notes:

1. Fixed practical capacity cost per machine hour:

Practical capacity (machine hours)	1,50,000
Practical capacity fixed costs (₹)	9,00,000
Fixed practical capacity cost per machine hour (₹ 9,00,000 / 1,50,000 hours)	₹ 6

2. Budgeted rate per machine hour (using practical capacity):
   = Fixed practical capacity cost per machine hour + Budgeted variable cost per machine hour
   = ₹ 6 + ₹ 4 = ₹ 10

(i) Statement showing Power Plant's cost allocation to the Cutting & Welding departments by using single rate method on actual usage of machine hours.

	Cutting Department ₹	Welding Department ₹	Total ₹
Power plants cost allocation by using actual usage (machine hours) (Refer to working note 2)	6,00,000 (60,000 hours × ₹ 10)	4,00,000 (40,000 hours × ₹ 10)	10,00,000

(ii) Statement showing Power Plant's cost allocation to the Cutting & Welding departments by using dual rate method.

	Cutting Department ₹	Welding Department ₹	Total ₹
Fixed Cost (Allocated on practical capacity for each department i.e.): (90,000 hours : 60,000 hours)	5,40,000 $\left(\frac{Rs.9,00,000\times 3}{5}\right)$	3,60,000 $\left(\frac{Rs.9,00,000\times 2}{5}\right)$	9,00,000
Variable cost (Based on actual usage of machine hours)	2,40,000 (60,000 hours × ₹ 4)	1,60,000 (40,000 hours × ₹4)	4,00,000
Total cost	7,80,000	5,20,000	13,00,000

(iii) Statement showing Power Plant's cost allocation to the Cutting & Welding Departments using dual rate method

	Cutting Department ₹	Welding Department ₹	Total ₹
Fixed Cost	3,60,000	2,40,000	6,00,000
Allocation of fixed cost on actual usage basis (Refer to working note 1)	(60,000 hours × ₹ 6)	(40,000 hours × ₹ 6)	
Variable cost (Based on actual usage)	2,40,000 (60,000 hours × ₹ 4)	1,60,000 (40,000 hours × ₹ 4)	4,00,000
Total cost	6,00,000	4,00,000	10,00,000

(iv) Comments:

Under dual rate method, under (iii) and single rate method under (i), the allocation of fixed cost of practical capacity of plant over each department are based on single rate. The major advantage of this approach is that the user departments are allocated fixed capacity costs only for the capacity used. The unused capacity cost ₹ 3,00,00 (₹ 9,00,000 – ₹ 6,00,000) will not be allocated to the user departments. This highlights the cost of unused capacity.

Under (ii) fixed cost of capacity are allocated to operating departments on the basis of practical capacity, so all fixed costs are allocated and there is no unused capacity identified with the power plant.

(b) Explain the advantages that would accrue in using the LIFO method of pricing for the valuation of raw material stock. [4]

Answer.

LIFO- Last-in-first-out: A method of pricing for the valuation of raw material stock. It is based on the assumption that the items of the last batch (lot) purchased are the first to be issued. Therefore, under this method, the price of the last batch (lot) of raw material is used for pricing raw material issues until it is exhausted. If, however, the quantity of raw material issued is more than the quantity of the latest lot, the price of the last but one lot and so on will be taken for pricing the raw material issues.

The advantages that would accrue from the use of LIFO method of pricing the valuation of raw materials, are as follows:-

(i) The cost of materials used is nearer to the current market price. Thus the cost of goods produced depends upon the trend of the market price of materials. This enables the matching of cost of production with current sales revenues.

(ii) Use of LIFO during the period of rising prices does not depict unnecessarily high profit in the income statement; compared to the first-in-first-out or average methods. The profit shown by the use of LIFO is relatively lower, because the cost of production takes into account the rising trend of material prices.

(iii) When price of materials fall, the use of LIFO method accounts for raising the profits due to lower material cost. In spite of this finished product appears to be more competitive and at market prices.

(iv) Over a period, the use of LIFO will iron out the fluctuations in profit.

(v) During inflationary period, the use of LIFO will show the correct profit and thus avoid paying unduly high taxes to some extent.

5. (a) The finishing shop of a company employs 60 direct workers. Each worker is paid ₹ 400 as wages per week of 40 hours. When necessary, overtime is worked upto a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The workers will, if necessary, continue to work Overtime upto the specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of Wage Incentive system. The budgeted weekly output is 19,200 units. The selling price is ₹ 11 per unit and the direct Material Cost is ₹ 8 per unit. The variable overheads amount to ₹ 0.50 per direct labour hour and the fixed overhead is Rs, 9,000 per week.

Prepare a Statement to show the effect on the Company's weekly Profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme. [8]

Answer.

Working notes:

1.	Total available hours per week (60 workers × 40 hours)	2,400	
2.	Total standard hours required to produce 19,200 units (19,200 units/6 units per hour)	3,200	
3.	Total labour hours required after the introduction of bonus scheme to produce 19,200 units (19,200 units / 8 units per man hour)	2,400	
4.	Time saved in hours (3,200 hours – 2,400 hours)		800
5.	Wage rate per hour (₹) (₹ 400/40 hours)	10	

6. Bonus:

(a) Halsey Scheme = $\frac{1}{2}$ × Time saved × Wage rate per hour

= $\frac{1}{2}$ x 800 hours x ₹ 10 = ₹ 4,000

(b) Rowan Scheme = $\frac{\text{Time saved}}{\text{Time allowed}}$ × Time taken × Wage rate per hour

= $\frac{800 \text{ hours}}{3{,}200 \text{ hours}}$ × 2,400 hours × ₹ 10

= ₹ 6,000

Statement showing the effect on the Company's Weekly present profit by the introduction of Halsey & Rowan schemes

	Present	Halsey	Rowan
	₹	₹	₹
Sales revenue: (A) (19,200 units × ₹ 11)	2,11,200	2,11,200	2,11,200
Direct material cost (19,200 units × ₹ 8)	1,53,600	1,53,600	1,53,600
Direct wages (Refer to working notes 2 & 3)	32,000 (3,200 hrs × ₹ 10)	24,000 2,400 hrs × ₹ 10)	24,000 (2,400 hrs. ×₹ 10)
Overtime premium	4,000 (800 hrs. × ₹ 5)	-	-
Bonus (Refer to working notes 6 (i) & (ii))	-	4,000	6,000
Variable overheads	1,600 (3,200 hrs. × 0.50 P)	1,200 (2,400 hrs. × 0.50 P)	1,200 (2,400 hrs. × 0.50 P)
Fixed overheads	9,000	9,000	9,000
Total cost : (B)	2,00,200	1,91,800	1,93,800
Profit: {(A)- (B)}	11,000	19,400	17,400

(b) A Ltd. Co. has capacity to produce 1,00,000 units of a product every month. Its works cost at varying levels of production is as under:

Level	Works cost per unit ₹
10%	**400**
20%	**390**
30%	**380**
40%	**370**
50%	**360**
60%	**350**
70%	**340**
80%	**330**
90%	**320**
100%	**310**

Its fixed administration expenses amount to ₹ 1,50,000 and fixed marketing expenses amount to ₹ 2,50,000 per month respectively. The variable distribution cost amounts to ₹ 30 per unit.

It can market 100% of its output at ₹ 500 per unit provided it incurs the following further expenditure:

a. **It gives gift items costing, ₹ 30 per unit of sale;**
b. **It has lucky draws every month giving the 1st prize of ₹ 50,000; 2nd prize of ₹ 25,000, 3rd prize of ₹ 10,000 and three consolation prizes of Rs, 5,000 each to customers buying the product.**

c. It spends ₹ 1,00,000 on refreshments served every month to its customers;

d. It sponsors a television programme every week at a cost of ₹ 20,00,000 per month.

It can market 30% of its output at ₹ 550 per unit without incurring any of the expenses referred to in (a) to (d) above.

Advise the company on its course of action. Show the supporting cost sheets. [8]

Answer.

Cost Sheet (for the month)

Level of capacity	30%		100%	
Level of output Produce (Units)	30,000		1,00,000	
	Per Unit (₹)	Total (₹)	Per Unit (₹)	Total (₹)
Works cost	380.00	1,14,00,000	310,00	3,10,00,000
Add: Fixed administration expenses	5.00	1,50,000	1.50	1,50,000
Cost of production	385.00	1,15,50,000	311,50	3,11,50,000
Add: Fixed marketing expenses	8.33	2,50,000	2.50	2,50,000
Add: Variable distribution cost	30.00	9,00,000	30.00	30,00,000
Add: Special cost				
Gift items cost	–	–	30.00	30,00,000
Customer's prizes	–	–	1.00	1,00,000
Refreshments	–	–	1.00	1,00,000
Television programme sponsorship cost	–	–	20.00	20,00,000
Cost of sales	423.33	1,27,00,000	396.00	3,96,00,000
Profit	126.67	38,00,000	104.00	1,04,00,000
Sale revenue	550.00	1,65,00,000	500.00	5,00,00,000

Advise to the company about the course of action to be taken.

The profit of A Ltd. Co. is more by ₹ 66 lacs (₹ 104 lacs – ₹ 38 lacs), if uses its capacity to produce 1,00,000 units of a product per month. Hence, it is advisable to the Company to produce 1,00,000 units and incur the special costs for the marketing of its 100% output.

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) M/s. Sagar Electrical Appliances furnish the following information –
Calculate net cash flow from financing activities :

Particulars	31.12.2011	31.12.2012
Equity share capital	**2,00,000**	**4,50,000**
10% debentures	**1,00,000**	**-**

6% preference shares	**-**	**3,00,000**

Additional information :

(i) Interest paid on debentures ₹ 5,000/-

(ii) Dividend paid on equity shares ₹ 40,000/-

(iii) Bonus shares were issued to existing shareholders in the ratio of 4:1 during the year.[2]

Answer.

(a) Calculation of Net Cash Flow from Financing Activities

Particulars	₹
Cash proceeds from issues of preference shares	3,00,000
Cash proceeds from issues of equity shares	2,50,000
Redemption of 10% debentures	(1,00,000)
Interest paid	(5,000)
Dividend paid on equity shares	(40,000)
Net cash flow from financing activity	4,05,000

(b) A firm has sales of ₹ 40 lakhs; variable cost of ₹ 25 lakhs; fixed cost of ₹ 6 lakhs; 10% debt of ₹ 30 lakhs; and equity capital of ₹ 45 lakhs. Calculate operating and financial leverage.[2]

Answer.

	₹
Sales	40,00,000
Less : Variable cost	25,00,000
Contribution	15,00,000
Less : Fixed Cost	6,00,000
EBIT	9,00,000
Less : Interest	3,00,000
EBT	6,00,000

Operating leverage = Contribution/EBIT = 15,00,000/9,00,000 = 1.67

Financial leverage = EBIT/EBT = 9,00,000/6,00,000 = 1.50

(c) Explain the role of 'Operational Efficiency' in the determination of working capital requirement. [2]

Answer.

The firm with a better operational efficiency has to invest less in working capital because :

(i) They convert raw materials quickly into finished goods, and sell them at their earliest, i.e., converts stock into sales quickly.

(ii) Promptly collects debts from debtors and bills receivable.

(d) What is Financial Risk ? How does it arise ? [2]

Answer.

It refers to the risk of the company not being able to cover its fixed financial cost. Fixed financial cost includes payment of interest that is to be paid irrespective of profit.

The higher level of risk are attached to higher degrees of financial leverage. If EBIT (earnings before interest and tax) decreases, financial risk increases as the firm is not in a position to pay its interest obligations. Thus the risk of default is called Financial Risk. The firm should overcome the situation accordingly or will be forced towards liquidation.

7. (a) The following is the capital structure of Simons Company Ltd. as on 31.12.2012:

	₹
Equity shares: 10,000 shares (of ₹ 100 each)	**10,00,000**
10% Preference Shares (of ₹ 100 each)	**4,00,000**
12% Debentures	**6,00,000**
	20,00,000

The market price of the company's share is ₹ 110 and it is expected that a dividend of ₹ 10 per share would be declared for the year 2012. The dividend growth rate is 6%:

(i) If the company is in the 40% tax bracket, compute the weighted average cost of capital.

(ii) Assuming that in order to finance an expansion plan, the company intends to borrow a fund of ₹ 10 lakh bearing 14% rate of interest, what will be the company's revised weighted average cost of capital? This financing decision is expected to increase dividend from ₹ 10 to ₹ 12 per share. However, the market price of equity share is expected to decline from ₹ 110 to ₹ 105 per share. [2+4=6]

Answer

(i) Computation of the weighted average cost of capital

Source of finance	**Proportion**	**After tax cost (%) (1- tax rate i.e. 40%)**	**Weighted average cost of capital (%)**
(a)	**(b)**	**(c)**	**(d)= (b) × (c)**
Equity share	0.5	15.09 (Refer to working note 1)	7.54
10% Preference share	0.2	10.00	2.00
12% Debentures	0.3	7.20	2.16
Weighted average cost of capital			11.70

(ii) Computation of Revised weighted average cost of capital

Source of finance	**Proportion**	**After tax cost (%) (1- tax rate i.e. 40%)**	**Weighted average cost of capital (%)**
(a)	**(b)**	**(c)**	**(d)= (b) × (c)**
Equity share	0.333	17.42 (Refer to working note 2)	5.80
10% Preference share	0.133	10.00	1.33
12% Debentures	0.200	7.20	1.44
14% Loan	0.333	8.40	2.80
Revised weighted average cost of capital			11.37

Working Notes:

(1) Cost of equity shares (K_e)

$$K_e = \frac{\text{Dividend per share}}{\text{Market price per share}} + \text{Growth rate}$$

$$= \frac{10}{110} + 0.06$$

= 0.1509 or 15.09%

(2) Revised cost of equity shares (Ke)

$$\text{Revised } K_e = \frac{12}{105} + 0.06$$

= 0.1742 or 17.42%

(b) Following are the data on a capital project being evaluated by the management of X Ltd.

	Project M ₹
Annual cost saving	**4,00,000**
Useful life	**4 years**
I.R.R.	**15%**
Profitability Index (PI)	**1.064**
NPV	**?**
Cost of capital	**?**
Cost of project	**?**
Payback	**?**
Salvage value	**0**

Find the missing values considering the following table of discount factor only:

Discount factor	**15%**	**14%**	**13%**	**12%**
1 year	**0.869**	**0.877**	**0.885**	**0.893**
2 years	**0.756**	**0.769**	**0.783**	**0.797**
3 years	**0.658**	**0.675**	**0.693**	**0.712**
4 years	**0.572**	**0.592**	**0.613**	**0.636**
	2.855	**2.913**	**2.974**	**3.038**

[6]

Answer

Cost of Project M

At 15% I.R.R., the sum total of cash inflows = Cost of the project i.e. Initial cash outlay

Given:

Annual cost saving	₹ 4,00,000
Useful life	4 years
I.R.R.	15%

Now, considering the discount factor table @ 15% cumulative present value of cash inflows for 4 years is 2.855. Therefore, Total of cash inflows for 4 years for Project M is (₹ 4,00,000 × 2.855) = ₹ 11,42,000

Hence cost of project is = ₹ 11,42,000

Payback period of the Project M

$$\text{Pay back period} = \frac{\text{Cost of the project}}{\text{Annual cost saving}} = \frac{\text{Rs. } 11,42,000}{4,00,000}$$

= 2.855 or 2 years 11 months approximately

Cost of Capital

If the profitability index (PI) is 1, cash inflows and outflows would be equal. In this case, (PI) is

1.064. Therefore, cash inflows would be more by 0.64 than outflow.

$$\text{Profitability index (PI)} = \frac{\text{Discounted cash inflows}}{\text{Cost of the project}}$$

$$\text{Or } 1.064 = \frac{\text{Discounted cash inflows}}{\text{Rs. } 11,42,000}$$

or 1.064 × ₹ 11,42,000 = ₹ 12,15,088. Hence, Discounted cash inflows = ₹ 12,15,088

Since, Annual cost saving is ₹ 4,00,000. Hence, cumulative discount factor for 4 years

$$= \text{Rs.} \frac{12,15,088}{4,00,000}$$

= 3.037725 or 3.038

Considering the discount factor table at discount rate of 12%, the cumulative discount factor for 4 years is 3.038. Hence, the cost of capital is 12%.

Net present value of the project.

N.P.V. = Total present value of cash inflows – Cost of the project

= ₹ 12,15,088 – ₹ 11,42,000

= ₹ 73,088.

(c) S Ltd. has ₹ 10,00,000 allocated for capital budgeting purposes. The following proposals and associated profitability indexes have been determined:

Project	Amount	Profitability Index
	₹	
1	**3,00,000**	**1.22**
2	**1,50,000**	**0.95**
3	**3,50,000**	**1.20**
4	**4,50,000**	**1.18**
5	**2,00,000**	**1.20**
6	**4,00,000**	**1.05**

Which of the above investments should be undertaken? Assume that projects are indivisible and there is no alternative use of the money allocated for capital budgeting. [4]

Answer.

Statement showing ranking of projects on the basis of Profitability Index

Project	Amount	P.I.	Rank
1	3,00,000	1.22	1
2	1,50,000	0.95	5
3	3,50,000	1.20	2
4	4,50,000	1.18	3
5	2,00,000	1.20	2
6	4,00,000	1.05	4

Assuming that projects are indivisible and there is no alternative use of the money allocated for capital budgeting on the basis of P.I., the S Ltd., is advised to undertake investment in projects 1.3, and 5. However, among the alternative projects the allocation should be made to the projects which adds the most to the shareholders wealth. The NPV method, by its definition, will

always select such projects.

Statement showing NPV of the projects

Project	Amount (₹)	P.I.	Cash inflows of project (₹)	N.P.V. of Project (₹)
(i)	(ii)	(iii)	(iv) = [(ii) × (iii)]	(v) = [(iv) – (ii)]
1	3,00,000	1.22	3,66,000	66,000
2	1,50,000	0.95	1,42,500	(–)7,500
3	3,50,000	1.20	4,20,000	70,000
4	4,50,000	1.18	5,31,000	81,000
5	2,00,000	1.20	2,40,000	40,000
6	4,00,000	1.05	4,20,000	20,000

The allocation of funds to the projects 1, 3 and 5 (as selected above on the basis of P.I.) will give N.P.V. of ₹ 1,76,000 and ₹ 1,50,000 will remain unspent.

However, the N.P.V. of the projects 3, 4 and 5 is ₹ 1,91,000 which is more than the N.P.V. of projects 1, 3 and 5. Further, by undertaking projects 3, 4 and 5 no money will remain unspent. Therefore, S Ltd. is advised to undertake investments in projects 3, 4 and 5.

8. (a) A newly formed company has applied to the commercial bank for the first time for financing its working capital requirements. The following information is available about the projections for the current year:

Estimated level of activity: 1,04,000 completed units of production plus 4,000 units of work-in-progress. Based on the above activity, estimated cost per unit is:

Raw material	**₹ 80 per unit**
Direct wages	**₹ 30 per unit**
Overheads (exclusive of depreciation)	**₹ 60 per unit**
Total cost	**₹ 170 per unit**
Selling price	**₹ 200 per unit**

Raw materials in stock: Average 4 weeks consumption, work-in-progress (assume 50% completion stage in respect of conversion cost) (materials issued at the start of the processing).

Finished goods in stock	**8,000 units**
Credit allowed by suppliers	**Average 4 weeks**
Credit allowed to debtors/receivables	**Average 8 weeks**
Lag in payment of wages	**Average 1 ½ weeks**
Cash at banks (for smooth operation) is expected to be	**₹ 25,000**

Assume that production is carried on evenly throughout the year (52 weeks) and wages and overheads accrue similarly. All sales are on credit basis only.

Find out the net working capital required. **[10]**

Answer.

Estimate of the Requirement of Working Capital

	₹	₹
A. Current Assets:		
Raw material stock (Refer to Working note 3)	6,64,615	
Work in progress stock (Refer to Working note 2)	5,00,000	
Finished goods stock (Refer to Working note 4)	13,60,000	
Debtors (Refer to Working note 5)	29,53,846	
Cash and Bank balance	25,000	55,03,461
B. Current Liabilities:		
Creditors for raw materials (Refer to Working note 6)	7,15,740	
Creditors for wages (Refer to Working note 7)	91,731	8,07,471
Net Working Capital (A-B)		46,95,990

Working Notes:

1. Annual cost of production

	₹
Raw material requirements (1,04,000 units × ₹ 80)	83,20,000
Direct wages (1,04,000 units × ₹ 30)	31,20,000
Overheads (exclusive of depreciation)(1,04,000 × ₹ 60)	62,40,000
	1,76,80,000

2. Work in progress stock

	₹
Raw material requirements (4,000 units × ₹ 80)	3,20,000
Direct wages (50% × 4,000 units × ₹ 30)	60,000
Overheads (50% × 4,000 units × ₹ 60)	1,20,000
	5,00,000

3. Raw material stock

It is given that raw material in stock is average 4 weeks consumption. Since, the company is newly formed, the raw material requirement for production and work in progress will be issued and consumed during the year.

Hence, the raw material consumption for the year (52 weeks) is as follows:

	₹
For Finished goods	83,20,000
For Work in progress	3,20,000
	86,40,000

Raw material stock $= \frac{\text{Rs.}86,40,000}{52\text{ weeks}} \times 4\text{ weeks}$

i.e. ₹ 6,64,615

4. Finished goods stock

8,000 units @ ₹ 170 per unit = ₹ 13,60,000

5. Debtors for sale

Credit allowed to debtors	Average 8 weeks
Credit sales for year (52 weeks) i.e. (1,04,000 units-	96,000 units

8,000 units)
Selling price per unit ₹ 200
Credit sales for the year (96,000 units × ₹ 200) ₹ 1,92,00,000
Debtors $\frac{Rs.1,92,00,000}{52\ weeks} \times 8\ weeks$
i.e ₹ 29,53,846

6. Creditors for raw material:
Credit allowed by suppliers Average 4 weeks
Purchases during the year (52 weeks) i.e. (₹ 83,20,000 + ₹ 3,20,000 + ₹ 6,64,615) ₹ 93,04,615
(Refer to Working notes 1,2 and 3 above)
Creditors $\frac{Rs.93.04.615}{52\ weeks} \times 4\ weeks$
i.e ₹ 7,15,740

7. Creditors for wages
Lag in payment of wages Average $1\frac{1}{2}$ weeks
Direct wages for the year (52 weeks) i.e. (₹ 31,20,000 + ₹ 60,000) ₹ 31,80,000
(Refer to Working notes 1 and 2 above)
Creditors $\frac{Rs.31,80,000}{52\ weeks} \times 1\frac{1}{2}\ weeks$
i.e. ₹ 91,731

(b) Explore the interrelationship between Investment, Finance and Dividend Decisions. [6]

Answer.

The finance functions are divided into three major decisions, viz., investment, financing and dividend decisions. It is correct to say that these decisions are inter-related because the underlying objective of these three decisions is the same, i.e. maximisation of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one has to consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

The above three decisions are briefly examined below in the light of their inter-relationship and to see how they can help in maximising the shareholders' wealth i.e. market price of the company's shares.

Investment decision: The investment of long term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This have an influence on the profitability of the company and ultimately on its wealth.

Financing decision: Funds can be raised from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan

funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximise their wealth.

Dividend decision: The finance manager is also concerned with the decision to pay or declare dividend. He assists the top management in deciding as to what portion of the profit should be paid to the shareholders by way of dividends and what portion should be retained in the business. An optimal dividend pay-out ratio maximises shareholders' wealth.

We can infer from the above discussion that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

9. 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 2012 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. [12]

Answer.

Earning profit is not sufficient, a business should earn sufficient profit to cover its cost of capital and surplus to grow. Any surplus generated from operating activities over and above the cost of capital is termed as Economic Value Added (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 the weighted average cost of equity and debt.
Accounting profit on the other hand ignores cost of equity and thus overstates profit or under states loss.

EVA = NOPAT – K x WACC

Where,

NOPAT = Net operating profit after tax = EBIT (1 – t)

K = Capital employed (Equity + Debt)

WACC = Weighted average cost of equity and debt.

The estimates are fine-tuned through several adjustments. For instance, NOPAT is estimated excluding non-recurring income or expenditure. PAT is shown in the profit and loss account to include profit available to the shareholders, both preference and equity. Ability to maintain dividend is not a test of profit adequacy.
EVA is the right measures for goal setting and business planning, performance evaluation, bonus determination, capital budgeting and evaluation.
Simply stated Accounting Profit equals Sales Revenue minus all costs except the cost of equity capital, while Economic Profit is Sales Revenue minus all costs including the opportunity cost of equity capital. Thus economic profit may be lower than the accounting profit. If accounting profit equals the opportunity cost of equity capital, economic profit is zero. Only when accounting profit is greater than the opportunity cost of equity capital, economic profit is positive. Under perfect competition, all firms in the long run earns zero economic profit.

a) Statement of Sources and Applications of Funds
For the year ended 31st December 2010

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

(b) When a lease can be considered as a Financial Lease ? [4]

Answer.

A lease is considered as a Financial lease if the lessor intends to recover his capital outlay plus the required rate of return on funds during the period of lease. It is a form of financing the assets under the cover of lease transaction. A financial lease is a noncancellable contractual commitment on the part of the lessee (the user) to make a series of payments to the lessor for

the use of an asset. In this type of leases, lessee will use and have control over the asset without holding ownership of the asset. The lessee is expected to pay for upkeep and maintenance of the asset. This is also known by the name 'capital lease'. The essential point of this type of lease agreement is that it contains a condition whereby the lessor agrees to transfer the title for the asset at the end of the lease period at a nominal cost. At the end of lease it must give an option to the lessee to purchase the asset he has used. Under this lease usually 90% of the fair value of the asset is recovered by the lessor as lease rentals and the lease period is 75% of the economic life of the asset. The lease agreement is irrevocable. Practically all the risks incidental to the asset ownership and all the benefits arising therefrom is transferred to the lessee who bears the cost of maintenance, insurance and repairs. Only the title deeds remain with the lessor.