PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART I : COST ACCOUNTING
QUESTIONS

1. (i) The standard and actual figures of a firm are as under:

Standard time for the job	1,000 hours
Standard rate per hour	Re. 0.50
Actual time taken	800 hours
Actual wages paid	Rs. 360

   Compute

   (i) Rate variance

   (ii) Efficiency variance

   (iii) Total labour cost variance

   (ii) Wage negotiations are going on with the recognized Labour Union and the Management wants you to formulate an incentive scheme with a view to increase productivity.

   The case of three typical workers Ram, Shyam and Mohan who produce respectively 180, 120 and 100 units of the company's product in a normal day of 8 hours is taken up for study.

   Assuming that day wages would be guaranteed at 75 paise per hour and the piece rate would be based on a standard hourly output of 10 units calculate the earnings of each of the three workers and the labour cost per 100 pieces under (a) Halsey, scheme and (b) The Rowan scheme.

Basic Concepts

2. (i) What are the practical difficulties is usually confronted while installing a costing system ?

   (ii) Discuss the essential of a good cost accounting system?

Material

3. (i) What are the considerations which governs the fixation of the maximum and minimum levels of inventory.

   (ii) Alians Ltd. distributes wide range of Water purifier systems. One of its best selling items is a standard water purifier. The management of Himalaya Ltd. uses the EOQ decision model to determine optimal number of standard water purifiers to order. Management now wants to determine how much safety stock to hold.

   Alians Ltd. estimates annual demand (360 working days) to be 18,000 standard water purifiers. Using the EOQ decision model, the company orders 3,600 standard

water purifiers at a time. The lead-time for an order is 12 days. The annual carrying cost of one standard purifier is Rs. 450. Management has also estimated the additional stock out costs would be Rs. 900 for shortage of each standard water purifier.

Alians Ltd. has analysed the demand during 200 past re-order periods. The records indicate the following patterns:

Demand during lead time	Number of times quantity was demanded
540	6
560	12
580	16
600	130
620	20
640	10
660	6
	200

(i) Determine the level of safety stock for standard water purifier that the Alians Ltd. should maintain in order to minimize expected stock out costs and carrying 'costs. Carrying costs should be computed on safety stock, which shall remain in hand at all times during the year. (Consider safety stock levels of 0, 20, 40 and 60 units).

(ii) What would be the Alians Ltd.'s new re-order point?

Labour

4. In Iyris Manufacturing Co., the basic wage rate is Rs. 10 per hour and overtime rates are as follows:

Before and after normal working hours	:	175% of basic wage rate
Sundays and holidays	:	225% of basic wage rate

During the previous year, the following hours were worked:

Normal time	:	1,00,000 hours
Overtime before and after working hours	:	20,000 hours
Overtime on Sundays and holidays	:	5,000 hours
Total	:	1,25,000 hours
The following hours have been worked on job 'Z'	:	

Normal	:	1000 hours
Overtime before and after working hrs.	:	100 hours
Sundays and holidays	:	25 hours
Total	:	1125 hours

You are required to calculate the labour cost chargeable to jobs 'Z' and overhead in each of the following instances:

(a) Where overtime is worked regularly throughout the year as a policy due to the labour shortage.

(b) Where overtime is worked irregularly to meet the requirements of production.

(c) Where overtime is worked at the request of the customer to expedite the job.

Overhead

5. Avon Ltd. has three production departments and two service departments. Following details relating to overheads analysed to production and service departments is made available to you.

		Rs
Production department	A	48,000
	B	42,000
	C	30,000
Service department	PQR	14,040
	STU	18,000

The expenses of service department are apportioned as follows:

	Production departments			Service departments	
	A	B	C	PQR	STU
Service department PQR	20%	40%	30%		10%
Service department STU	40%	20%	20%	20%	

You are required to allocate the service department costs over the production departments using the simultaneous equation method.

Non Integrated Accounts

6. (i) What are the reasons for disagreement of profits as per cost accounts and financial accounts? Discuss.

(ii) The financial books of Xerox Ltd. reveal the following data for the year ended 31st March, 2010:

Opening Stock:	Rs.
Finished goods 875 units	74,375
Work-in-process	32,000
1.4.09 to 31.3.10	
Raw materials consumed	7,80,000
Direct Labour	4,50,000

Factory overheads	3,00,000
Goodwill	1,00,000
Administration overheads	2,95,000
Dividend paid	85,000
Bad Debts	12,000
Selling and Distribution Overheads	61,000
Interest received	45,000
Rent received	18,000
Sales 14,500 units	20,80,000
Closing Stock: Finished goods 375 units	41,250
Work-in-process	38,667

The cost records provide as under:

➢ Factory overheads are absorbed at 60% of direct wages.

➢ Administration overheads are recovered at 20% of factory cost.

➢ Selling and distribution overheads are charged at Rs. 4 per unit sold.

➢ Opening Stock of finished goods is valued at Rs. 104 per unit.

➢ The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(a) Prepare statements for the year ended 31st March, 2010 show

➢ the profit as per financial records

➢ the profit as per costing records.

(b) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

Contract Costing

7. Ambuja construction company undertook a contract at an estimated price of Rs.125 lacs. The relevant data for the year ended 31.03.2010 are as under:

	(Rs. '000)
Materials issued to site	5,000
Direct wages paid	3,200
Plant hired	700
Site office costs	270
Materials returned from site	100
Direct expenses	1100
Work certified	10,000
Progress payment received	7,200

A special plant was purchased specifically for this contract at Rs. 8,00,000 and after use on this contract till the end of 31.02.2010, it was valued at Rs.5,00,000. This cost of materials at site at the end of the year was estimated at Rs. 18,00,000. Direct wages accrued as on 31.03.2010 was Rs. 1,10,000.

Required

Prepare the Contract Account for the year ended 31st March, 2010 and compute the profit to be taken to the Profit and Loss account.

Operating Costing

8. In order to develop tourism, Jet Airways has been given permit to operate three flights in a week between Malaysia and Singapore (both side). The airline operates a single aircraft of 160 seats capacity. The normal occupancy is estimated at 60% throughout the year of 52 weeks. The one-way fare is Rs. 7,200. The cost of operation of flights are:

Fuel cost (variable)	Rs. 96,000 per flight
Food served on board on non-chargeable basis	Rs. 125 per passenger
Commission	5% of fare applicable for all booking
Fixed cost:	
Aircraft lease	Rs. 3,50,000 per flight
Landing Charges	Rs. 72,000 per flight

Required:

(i) Calculate the net operating income per flight.

(ii) The airline expects that its occupancy will increase to 108 passengers per flight if the fare is reduced to Rs. 6,720. Advise whether this proposal should be implemented or not.

Process Costing

9. Aiasha Co Ltd. produces a component, which passes through two processes. During the month of January 2011, materials for 40,000 components were put into Process I of which 30,000 were completed and transferred to Process II. Those not transferred to Process II were 100% complete as to materials cost and 50% complete as to labour and overheads cost. The Process I costs incurred were as follows:

Direct Materials	Rs.15,000
Direct Wages	Rs.18,000
Factory Overheads	Rs.12,000

Of those transferred to Process II, 28,000 units were completed and transferred to finished goods stores. There was a normal loss with no salvage value of 200 units in Process II. There were 1,800 units, remained unfinished in the process with 100% complete as to materials and 25% complete as regard to wages and overheads.

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No further process material costs occur after introduction at the first process until the end of the second process, when protective packing is applied to the completed components. The process and packing costs incurred at the end of the Process II were:

Packing Materials	Rs.4,000
Direct Wages	Rs.3,500
Factory Overheads	Rs.4,500

Required:

(i)   Prepare Statement of Equivalent Production, Cost per unit and Process I A/c.

(ii) Prepare statement of Equivalent Production, Cost per unit and Process II A/c.

Standard Costing

10. M & S Ltd. produces an article by blending two basic raw materials. The following standards have been set up for raw materials :

Materials	Standards Mix	Standard Price per kg.
A	40%	Rs. 4.00
B	60%	Rs. 3.00

The standard loss in processing is 15%. During March, 2011 the company produced 1700 kg of finished output.

The position of stock and purchases for the month of March, 2011 is as under:

Material	Stock on 1-03-11	Stock on 31-03-11	Purchased during March, 2011	
	Kg	Kg	Kg.	Cost
A	35	5	800	3400
B	40	50	1200	3000

Calculate the following variances :

(a)   Materials price variance ; (b)   Materials usage variance;

(c)   Materials yield variance; (d)   Materials mix variance;

(e)   Total materials cost variance.

Assume first in first out method for issue of material. The opening stock is to be valued at standard price.

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Marginal Costing

11. The Dabour Co. Ltd. Is developing the annual profit plan. They have just reviewed the "first cut" at the annual income statement and are concerned with the Rs. 1,10,000 indicated profit on a sales volume of 20,000 units. The fixed cost structure of Rs. 9,90,000 appears to be high and they have some doubts about departing from the unit sales price of Rs. 100. There is a general agreement that the "profit target should be Rs. 2,20,000".

You are required to compute.

(a) The budgeted break-even point in rupees and in units and the number of units required to be sold to earn the target profit;

(b) What will be the new Break-even-point in the following cases:

    (i) – If sales price is increased by 20%, and sales will be dropped by 15% then what would be the new break-even point in rupees and in units. What would be the new profit figures? How many units would have to be sold to earn the target profit?

    (ii) – A decrease in fixed costs of Rs. 55,000 and a decrease in variable costs of 6% are contemplated. What would be new B.E.P. in rupees? How many units must be sold to earn a target profit?

Budgetary Control

12. Little Angel School has a total of 150 students consisting of 5 sections with 30 students per section. The school plans for a picnic around the city during the week – end to places such as the zoo, the amusement park, the planetarium etc. A private transport operator has come forward to lease out the buses for taking the students. Each bus will have a maximum capacity of 50 (excluding 2 seats reserved for the teachers accompanying the students. The school will employ two teachers for each bus, paying them an allowance of Rs. 50 per teacher. It will also lease out the required number of buses. The following are the other cost estimates:

	Cost per student
Breakfast	Rs. 5
Lunch	10
Tea	3
Entrance fee at zoo	2

Rent Rs. 650 per bus.

Special permit fee Rs. 50 per bus

Block entrance fee at the planetarium Rs. 250.

Prizes to students for games Rs. 250.

No costs are incurred in respect of the accompanying teachers (except the allowance of Rs. 50 per teacher).

You are required to prepare:

(a) A flexible budget estimating the total cost for the levels of 30, 60, 90, 120 and 150 students. Each item of cost is to be indicated separately.

(b) Compare the average cost per student at these levels.

(c) What will be your conclusions regarding the break-been level of student if the school proposes to collect Rs. 45 per student?

13. (i) Discuss the process of estimating profit/loss on incomplete contracts

(ii) Discuss the treatment of by-product Cost in Cost Accounting.

(iii) Distinguish between Job Costing & Batch Costing?

SUGGESTED ANSWERS/HINTS

1. **(i)** Standard labour cost   *Rs.*

(1,000 hours × Re. 0.50)   500

Actual wages paid   360

Actual rate per hour: Rs. 360/800 hours = Re. 0.45

Calculation of Variances

(i) Rate variance   = Actual time (Standard rate – Actual rate)

= 800 hours (Re. 0.50 – Re. 0.45) = Rs. 40 (F)

(ii) Efficiency variance   = Standard rate per hour (Standard time – Actual time)

= Re. 0.50 (1,000 hrs. – 800 hrs.) = Rs. 100 (F)

(iii) Total labour cost variance = Standard labour cost – Actual labour cost

= (Standard rate × standard time) – (Actual rate × Actual time)

= (Re .50 × 1,000 hrs.) – (Re .45 × 800 hrs.)

= Rs. 500 – Rs. 360

= Rs. 140(F).

(ii) (a)   **Halsey Scheme**

Name of Workers	Actual output (units)	Std. Time for actual output Hrs.	Actual time for actual Output Hrs.	Time saved Hrs.	Bonus Hrs. (50% of time saved) Hrs.	Total Wages inclu- ding Bonus* Rs.	Labour cost per 100 pieces** Rs.
Ram	180	18	8	10	5	9.75	5.42
Shyam	120	12	8	4	2	7.50	6.25
Mohan	100	10	8	2	1	6.75	6.75
						24.00	

*Total wages = (Actual hours worked + Bonus hours) Rate per hour

Hence total wages of Ram are : (8 + 5) Rs. 0.75 = Rs. 9.75

Similarly, the total wages of Shyam and Mohan are Rs. 7.50 and Rs. 6.75 respectively.

** Labour cost per 100 pieces = $\dfrac{\text{Total Wages including wages}}{\text{Actual Output (units)}}$ x 100 pieces

Labour cost per 100 pieces for Ram : $\dfrac{9.75}{180}$ x 100 = Rs.5.42

Similarly, Labour cost per 100 pieces of Shyam and Mohan are Rs. 6.25 and Rs. 6.75 respectively.

(b) Rowan Scheme

Name of workers	Actual output (units)	Std. Time for actual output (hours)	Actual time taken in hours	Time saved (hours)	Bonus* hours	Wages for actual hrs. @ 0.75 P. per hour	Bonus @ 0.75 per Bonus hour	Total earning	Labour cost per 100 pieces**
						Rs.	Rs.	Rs.	Rs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	7+8=(9)	(10)
Ram	180	18	8	10	4.44	6.00	3.33	9.33	5.18
Shyam	120	12	8	4	2.67	6.00	2.00	8.00	6.67
Mohan	100	10	8	2	1.6	6.00	1.20	7.20	7.20
								24.53	

* Bonus hours = Time taken × $\dfrac{\text{Time saved}}{\text{Standard time}}$

$$\text{Bonus hours of Ram} = \frac{8\,\text{hours} \times 10\,\text{hours}}{18\,\text{hours}} = 4.44$$

Similarly, bonus hours of Shyam and Mohan are 2.67 hours and 1.6 hours respectively.

$$^{**}\text{ Labour cost per 100 pieces} = \frac{\text{Total wages including wages}}{\text{Actual Output (units)}} \times 100 \text{ pieces}$$

Labour cost per 100 pieces for Ram $\dfrac{9.33}{180} \times 100 = \text{Rs. } 5.18$

Similarly, Labour cost per 100 pieces of Shyam and Mohan are Rs. 6.67 and Rs. 7.20 respectively.

Basic Concepts

2. **(i)** The practical difficulties usually confronted while installing a costing system in a manufacturing company are as follows:

   (a) *Lack of top management support:* Installation of a costing system do not receive the support of top management. They consider it as an interference in their work. They believe that such a system will involve additional paperwork. They also have a misconcept in their minds that the system is meant for keeping a check on their activities.

   (b) *Resistance from cost accounting departmental staff:* The staff resists because of fear of loosing their jobs and importance after the implementation of the new system.

   (c) *Non cooperation from user departments:* The foremen, supervisor and other staff members may not cooperate in providing requisite data, as this would not only add to their responsibilities but will also increase paper work of the entire team as well.

   (d) *Shortage of trained staff:* Since cost accounting system's installation involves specialised work, there may be a shortage of trained staff.

   (ii) Essentials of a good cost accounting system:

   Various essentials of a good cost accounting system are as follows:

   ➢ It should be tailor-made, practical, simple and capable of meeting the requirements of a business concern.

   ➢ The data used by the system should be accurate, otherwise it may distort the output of system.

   ➢ Cost of installing & operating the system should justify the results.

   ➢ Cost accounting system should have the support of top management of the concern.

   ➢ The system should have the necessary support from all the user's departments.

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Material

3. **(i)** Considerations for the fixation of maximum level of inventory.

Maximum level of an inventory item is its maximum quantity held in stock at any time. The mathematical formula used for its determination is as follows:

Maximum level = Re-order level – (Minimum Consumption × Minimum Re-order period) + Re-order quantity.

The important considerations which should govern the fixation of maximum level for various inventory items are as follows:

(1) The fixation of maximum level of an inventory item requires information about re-order level. The re-order level itself depends upon its maximum rate of consumption and maximum delivery period. It in fact is the product of maximum consumption of inventory item and its maximum delivery period.

(2) Knowledge about minimum consumption and minimum delivery period for each inventory item should also be known.

(3) The determination of maximum level also requires the figure of economic order quantity. Economic order quantity means the quantity of inventory to be ordered so that total ordering and storage cost is minimum.

(4) Availability of funds, storage capacity, nature of items and their price also are important for the fixation of minimum level.

(5) In the case of important materials due to their irregular supply, the maximum level should be high.

Considerations for the fixation of minimum level of inventory

Minimum level indicates the lowest figures of inventory balance, which must be maintained in hand at all times, so that there is no stoppage of production due to non-availability of inventory. The formula used for its calculation is as follows:

Minimum level of inventory = Re-order level – (Average rate of consumption × Average time of inventory delivery).

The main considerations for the fixation of minimum level of inventory are as follows:

1. Information about maximum consumption and maximum delivery period in respect of each item to determine its re-order level.

2. Average rate of consumption for each inventory item.

3. Average delivery period for each item. The period can be calculated by averaging the maximum and minimum period.

(ii) (i) Determination of the level of safety stock to minimize expected stock out costs and carrying costs

Average daily usage

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$$= \frac{\text{Annual demand}}{\text{No. of working days}}$$

$$= \frac{18,000 \text{ units}}{360 \text{ days}} = 50 \text{ units per day}$$

Re-order point = Average daily usage × Lead time

= 50 units per day × 12 days = 600 units

Possible safety stock level = Possible demand − Reorder point

Probability of demand during lead-time is

Demand during lead time	No. of time quantity was demanded	Probability
540	6	0.03
560	12	0.06
580	16	0.08
600	130	0.65
620	20	0.10
640	10	0.05
660	6	0.03
	200	1.00

Safety Stock level (units)	Demand realizations resulting in Stock-outs	Stock-out in units (3)=(2) − 600 − (1)	Prob. of stock-out	Relevant stock-out cost (5)=(3)× 900 (Rs.)	No. of orders per year	Expected stock-out (7)= (4)×(5) × (6) (Rs.)	Relevant carrying cost (8) = (1) × Rs.450 (Rs.)	Total Relevant costs (9)=(7)+(8) (Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(Rs.)	(Rs.)	(Rs.)
0	620	20	0.10	18,000	10	18,000		
	640	40	0.05	36,000	10	18,000		
	660	60	0.03	54,000	10	16,200		
	−	−	−	−	−	52,200	0	52,200
20	640	20	0.05	18,000	10	9,000		
	660	40	0.03	36,000	10	10,800		
						19,800	9,000	28,800
40	660	20	0.03	18,000	10	5,400	18,000	23,400
60	Nil	Nil	−	−	−	0	27,000	27,000

Decision:

Safety stock of 40 units would minimize Alians Ltd.'s total expected stock-out and carrying cost.

(ii) **New Re-order Point** = ROL + Safety Stock

= 600 units + 40 units

= 640 units

Labour

4. Workings

Computation of average inflated wage rate (including overtime premium) :

Basic wage rate	: Rs. 10 per hour	
Overtime wage rate before and after working hours	: Rs. 10 × 175%	= Rs. 17.50 per hour
Overtime wage rate for Sundays and holidays	: Rs. 10 × 225%	= Rs. 22.50 per hour
Annual wages for the previous year for normal time wages	: 1,00,000 hrs. × Rs. 10	= Rs. 10,00,000
For overtime before and after working hours	: 20,000 hrs. × Rs. 17.50	= Rs. 3,50,000
Wages for overtime on Sundays and holidays	: 5,000 hrs. × Rs. 22.50	= Rs. 1,12,500
Total wages for 1,25,000 hrs.		= Rs. 14,62,500
Average inflated wage rate	$\dfrac{\text{Rs.}14,62,500}{1,25,000 \text{ hours}}$	= Rs. 11.70 per hour

(a) *Where overtime is worked regularly as a policy due to labour shortage*, the overtime premium is treated as a part of labour cost and job is charged at an inflated wage rate.

Hence,

Labour cost chargeable to job XYZ = Total hours × Inflated wage rate

= 1,125 hrs. × Rs. 11.70 = Rs. 13,162.50

(b) *Where overtime is worked irregularly to meet the requirements of production*, basic wage rate is charged to the job and overtime premium is charged to factory overheads as under :

Labour cost chargeable to

Job XYZ : 1,125 hours @ Rs. 10 per hour	=	Rs. 11,250.00
Factory overhead : 100 hrs. × Rs. (17.50 – 10)	=	Rs. 750.00
25 hrs. × Rs. (22.50 – 10)	=	Rs. 312.50
Total factory overhead		Rs. 1,062.50

(c) ***Where overtime is worked at the request of the customer***, overtime premium is also charged to the job as under :

			Rs.
Job XYZ labour cost	1,125 hrs. @ Rs. 10	=	11,250.00
Overtime premium	100 hrs. @ Rs. (17.50 – 10)	=	750.00
	25 hrs. @ Rs. (22.50 – 10)	=	312.50
Total			12,312.50

Overhead

5. **Calculation of Total Overheads of Service Departments PQR and STU as per Simultaneous Equation Method:**

Let

X = total overhead of service department PQR

Y = total overhead of service department STU

The total overhead transferred into service departments 1 and 2 can be expressed as

X = 14,040 + 0.2 Y

Y = 18,000 + 0.1 X

Rearranging the above equations:

X – 0.2 Y = 14,040 ....(1)

- 0.1X + Y = 18,000 ....(2)

Multiplying equation (1) by 5 and equation (2) by 1, we get

5X – Y = 70,200

-0.1X + Y = 18,000

Adding the above equations together we have

4.9X = 88,200

or X = 18,000

and hence Y = 19,800

Apportionment of the values of X and Y to the production departments in the agreed percentages

	A	B	C	Total
Allocation as per overhead analysis	48,000	42,000	30,000	1,20,000
Allocation of service department PQR	3,600(20%)	7,200(40%)	5,400(30%)	16,200

Allocation of service department STU	7,920(40%)	3,960(20%)	3,960(20%)	15,840
	59,520	53,160	39,360	1,52,040

Non Integrated Accounts

6. **(i)** Reasons for disagreement of 'Profits as per Financial accounts and Cost accounts are as below. There are certain items which are included in Financial accounts but not in Cost Accounts. Likewise there are certain items which are in Cost Accounts but not in Financial accounts.

Examples of financial charges which appear only in financial books are:

a. Loss on the sale of fixed assets and investments.

b. Interest on bank loans, mortgage etc.

c. Expenses relating to the issue and transfer of shares and debentures like stamps duty expenses; discount on shares and debentures etc.

d. Penalties and fines.

Examples of incomes which are recorded in the financial books only are:

a. Profit on the sale of investments and fixed assets.

b. Interest received on investments and bank deposits.

c. Dividend received on investment in shares.

d. Fees received on issue and transfer of shares etc.

e. Rental income.

There are abnormal or special items of expenditure and income which are not included in the cost of production. Their inclusion in cost of production, would result into incorrect cost ascertainment. Different bases of charging depreciation also accounts for the disagreement of profits as per financial and cost accounts. Different methods of valuation of closing stock adopted in cost and financial accounts will also account for the difference in profits under financial and cost accounts.

(ii) **Statement of Profit as per financial records**

OR

Profit & Loss Account of the company

(for the year ended March 31, 2010)

	Rs.		Rs.
To Opening stock of Finished Goods	74,375	By Sales	20,80,000
To Work-in-process	32,000	By Closing stock of finished Goods	41250

To Raw materials consumed	7,80,000	By Work-in-Process	38,667
To Direct labour	4,50,000	By Rent received	18,000
To Factory overheads	3,00,000	By Interest received	45,000
To Goodwill	1,00,000		
To Administration overheads	2,95,000		
To Selling & distribution overheads	61,000		
To Dividend paid	85,000		
To Bad debts	12,000		
To Profit	33,542		
	22,22,917		22,22,917

Statement of Profit as per costing records
(for the year ended March 31,2010)

	Rs.
Sales revenue (A) *(14,500 units)*	20,80,000
Cost of sales:	
Opening stock *(875 units x Rs. 104)*	91,000
Add: Cost of production of 14,000 units *(Refer to working note 2)*	17,92,000
Less: Closing stock	48,000
$\left(\dfrac{Rs.17,92,000 \times 375\ units}{14,000\ units}\right)$	
Production cost of goods sold *(14,500 units)*	18,35,000
Selling & distribution overheads *(14,500 units x Rs. 4)*	58,000
Cost of sales: (B)	18,93,000
Profit: {(A) – (B)}	1,87,000

(ii)   **Statement of Reconciliation**

(Reconciling the profit as per costing records with the profit as per financial records)

	Rs.	Rs.
Profit as per Cost Accounts		1,87,000
Add: Administration overheads over absorbed	3,667	
(Rs. 2,98,667 – Rs. 2,95,000)		
Opening stock overvalued (Rs. 91,000 – Rs. 74,375)	16,625	
Interest received	45,000	
Rent received	18,000	83,292
		2,70,292

Less: Factory overheads under recovery (Rs. 3,00,000 – Rs. 2,70,000)	30,000	
Selling & distribution overheads under recovery (Rs. 61,000 – Rs. 58,000)	3,000	
Closing stock overvalued (Rs. 48,000 – Rs. 41,250)	6,750	
Goodwill	1,00,000	
Dividend	85,000	
Bad debts	12,000	2,36,750
Profit as per financial accounts		33,542

Working notes:

1. **Number of units produced**

	Units
Sales	14,500
Add: Closing stock	375
Total	14,875
Less: Opening stock	875
Number of units produced	14,000

2. **Cost Sheet**

	Rs.
Raw materials consumed	7,80,000
Direct labour	4,50,000
Prime cost	12,30,000
Factory overheads *(60% of direct wages)*	2,70,000
Factory cost	15,00,000
Add: Opening work-in-process	32,000
Less: Closing work-in-process	38,667
Factory cost of goods produced	14,93,333
Administration overheads *(20% of factory cost)*	2,98,667
Cost of production of 14,000 units *(Refer to working note 1)*	17,92,000

Cost of production per unit:

$$= \frac{\text{Total Cost of Production}}{\text{No. of units produced}} = \frac{\text{Rs. }17,92,000}{14,000 \text{ units}} = \text{Rs. }128$$

Contract Costing

7. **Contract Account for the year ended 31st March, 2010**

Dr.   *Cr.*

	Rs. '000		Rs. '000
To Materials issued to site	5,000	By Materials at site	1,800
To Direct wages	3,200	By Materials returned	100
To Wages accrued	110		8,780
To Plant hired	700	By Cost of contract	
To Site Office Costs	270		
To Direct expenses	1100		
To Depreciation of special plant	300		
	10,680		10,680
To Cost of contract	8,780	By Work certified	10,000
To Notional Profit	1,220		
	10,000		10,000
		By Notional profit	1220
To Profit & Loss A/c	585.60		
To Profit & Loss Reserve A/c	634.40		
	1220		1220

Working notes

1. **Percentage of contract completion**

$$= \frac{\text{Cost of work certified}}{\text{Value of the contract}} \times 100$$

$$= \frac{100 \text{ lacs}}{125 \text{ lacs}} \times 100 = 80\%$$

2. **Since the percentage of Contract completion is *more than 50 % but less than 90%* therefore the profit to be taken to Profit and Loss Account can be computed by using the following formula.**

Profit to be taken to P & L A/c $= \frac{2}{3} \times$ Notional Profit $\times \frac{\text{Cash received}}{\text{Work certified}}$

$$= \frac{2}{3} \times 1220 \times \frac{7,200}{10,000} = \text{Rs. } 585.60$$

Operating Costing

8.

No. of passengers 160×60/100 = 96	*Rs*	*Rs.*
(i) Fare collection 96×7,200		6,91,200
Variable costs:		
Fuel		96,000
Food 96×125		12,000
Commission 5%		34,560
Total variable Costs		1,42,560
Contribution per flight		5,48,640
Fixed costs: Lease	3,50,000	
Crew	72,000	4,22,000
Net income per flight		1,26,640
(ii) Fare collection 108×6,720		7,25,760
Variable costs:		
Fuel		96,000
Food 108×125		13,500
Commission @ 5%		36,288
Total Variable Cost		1,45,788
Contribution		5,79,972

There is an increase in contribution by Rs. 31,332. Hence the proposal is acceptable

Process Costing

9.   **Process I**

Statement of Equivalent Production and Cost

	Material	**Labour and Overheads**	**Total**
Units completed	30,000	30,000	
Closing Inventory	10,000	5,000	
Equivalent Production	40,000	35,000	
	Rs.	*Rs.*	*Rs.*
Current Process cost	15,000	30,000	45,000
Cost/unit	0.375	0.8571	

95

Closing inventory cost			3,750	4,286	8,036
Material transferred to Process II					36,964

Process I Account

	Units	Rs.		Units	Rs.
Direct material	40,000	15,000	Process II A/c	30,000	36,964
Direct wages		18,000	Work-in-progress inventory	10,000	8,036
Factory overheads		12,000			
	40,000	45,000		40,000	45,000

Process II

Statement of Equivalent Production and Cost

	Material	Labour and Overheads	Total
Units completed	28,000	28,000	
Closing Inventory	1,800	450	
Equivalent Production	29,800	28,450	
Process cost	36,964	8,000	44,964
Cost/unit	1.24	0.2812	
Closing inventory	2,232	127	2,359
			42,605
Packing material cost			4,000
			Rs. 46,605

Process II Account

		Units	Rs.				Units	Rs.
To	Material transferred from Process I	30,000	36,964	By	Finished goods stores A/c		28,000	46,605
To	Packing Material		4,000	By	WIP stock		1,800	2,359
To	Direct wages		3,500	By	Normal loss		200	–
To	Factory overheads		4,500					
		30,000	48,964				30,000	48,964

Standard Costing

10. Material used :

A-35 kg + 800 kg – 5 kg.	=	830 kg.
B-40 kg + 1200 kg – 50 kg.	=	1190 kg.

Actual cost of materials used :

A – 35 kg. x Rs. 4 per Kg		=	Rs. 140.00
795 kg. x (3,400/800)		=	3,378.75
B - 40 kg. x Rs. 3 per Kg			120.00
1,150 kg. x (3,000/1,200)		=	2,875.00
			6,513.75

Standard cost of materials used :

A – 830 kg. x Rs. 4 per Kg		=	3,320.00
B – 1,190 kg x 3 per Kg		=	3,570.00
			6,890.00

Standard cost of material, in standard proportion.

A - (40/100) x 2,020 x Rs. 4 per Kg		=	3,232
B – (60/100) x 2,020 x Rs. 3 per Kg		=	3,636
			6,868.00

Standard material cost of output

Suppose total weight of mix (input)		=	100 kg.
Therefore,	A – 40 kg. x Rs. 4 per Kg	=	160
	B – 60 kg × Rs. 3 per kg	=	180
	100 kg		340
Less loss 15%	15		
	85 kg.		

For out put 85 kg. the cost (standard)		=	Rs. 340
For output 1,700 kg. the cost = (340/85) x 1,700		=	Rs.6,800

Materials Price Variance   = Actual cost of materials used – Standard cost of materials used

= 6,513.75 – 6,890.00

= Rs. 376.25 (F)

Materials Mix Variance   = Standard cost of materials used – Standard cost of material in standard proportion

= 6890.00 – 6868.00 = 22.00 (A)

Materials Yield Variance   = Standard cost of material in standard proportion – Standard material cost of output

= 6868.00 – 6800 = 68 (A)

Materials Usage Variance   = Standard cost of materials used – Standard material cost of output

= 6890.00 – 6800.00 = 90 (A)

Total Materials Cost Variance = Actual cost of materials used – Standard material cost of output

= 6513.75 – 6800.00 = 286.25 (F)

Note: Material Price Variance has been calculated on the basis of material used.

Marginal Costing

11. **(a)** Sales volume (units)   20,000

	Total	Per unit
Sales	Rs. 20,00,000	Rs. 100.00
Fixed Cost	9,90,000	49.50
Profit	1,10,000	5.50
Contribution	11,00,000	55.00
Variable Cost	9,00,000	45.00

P/V Ratio = Contribution/Sales $\times$ 100 = $\dfrac{55}{100} \times 100$ = 55%

Break Even Sales in units   = Fixed cost $\div$ Contribution per unit

= Rs. 9,90,000 /55 = 18,000 units

Break Even Sales in Rupees   = 18,000 units $\times$ Rs. 100   Rs. 18,00,000

Target Profit	Rs. 2,20,000
Fixed cost	9,90,000
Target contribution (Profit + Fixed Cost)	12,10,000 …(i)

Number of units to be sold = Target contribution $\div$ Contribution per unit

= Rs. 12,10,000 $\div$ Rs. 55 = 22,000 units

(b) **(i)** 20% increase in price = Rs. 100 + 20   Rs. 120

Less: Variable cost per unit   45

Contribution per unit   75

Break Even Point = Rs. 9,90,000 $\div$ Rs. 75 = 13,200 units

Break Even Sales = 13,200 X Rs. 120 = Rs. 15,84,000

Net Profit figure with 15% reduction in sales is 17,000 units (20000 – 15% of 20000)

Contribution (17,000 X Rs. 75)   Rs. 12,75,000

Less: Fixed cost	9,90,000
Net Profit	2,85,000

No. of units to be sold to earn target contribution of Rs. 12,10,000 as at (i) above

= Target contribution ÷ Contribution per unit

= Rs. 12,10,000 ÷ 75 = Rs. 16,133

(ii) In this condition:

Revised Fixed Cost	Rs. 9,35,000
Revised variable cost per unit Rs. 45 less 6%	42.30
Revised contribution per unit = Rs. 100 – Rs. 42.30	57.70

Break Even Sales=Revised Fixed Cost ÷ Revised Contribution Ratio

=Rs.9,35,000 ÷ 0.5770=Rs.16,20,451

Target Profit	Rs. 2,20,000
Revised Fixed Cost	9,35,000
Revised Contribution	11,55,000

No. of units to be sold = Rs. 11,55,000 ÷ Rs. 57.70 = 20,017 units.

Budgetary Control

12. (a) Flexible Budget for different levels

No. of Students	30	60	90	120	150
Variable Costs	Rs.	Rs.	Rs.	Rs.	Rs.
Breakfast	150	300	450	600	750
Lunch	300	600	900	1,200	1,500
Tea	90	180	270	360	450
Entrance fee	60	120	180	240	300
Total (A)	600	1,200	1,800	2,400	3,000
Variable cost/unit	20	20	20	20	20
Semi-variable costs					
Bus rent	650	1,300	1,300	1,950	1,950
Special permit fee	50	100	100	150	150
Allowance for teachers	100	200	200	300	300
Total (B)	800	1,600	1,600	2,400	2,400
Fixed Cost					

Block entrance fee	250	250	250	250	250
Prize to students	250	250	250	250	250
Total (C)	500	500	500	500	500
Total cost (A+B+C)	1,900	3,300	3,900	5,300	5,900
(b) Cost per student	63.33	55.00	43.33	44.17	39.33

(C) Break-even level

Collection per student	= Rs. 45
Less Variable Cost	20
Contribution	25

Since semi-fixed costs relate to a block of 50 students, the fixed and semi-variable cost for three levels will be:

Number of student	Up to 50	51-100	101-150
Fixed Cost + Semi-variable cost	Rs. 1,300	2,100	2,900
Contribution per unit	25	25	25
Break Even level of students	52	84	116

13. (i) Process of estimating profit / loss on incomplete contracts

a. If completion of contract is less than 25% no profit should be taken to profit and loss account.

b. If completion of contract is upto 25% or more but less than 50% then

1. $1/3 \times \text{Notional Profit} \times \dfrac{\text{Cash received}}{\text{Work certified}}$

2. may be taken to profit and loss account.

c. If completion of contract is 50% or more but less than 90% then

1. $2/3 \times \text{Notional Profit} \times \dfrac{\text{Cash received}}{\text{Work certified}}$

2. may be taken to profit and loss account

d. If completion of contract is greater than or equal to 90% then one of the following formulas may be used for taking the profit to profit and loss account.

1. $\text{Estimated Profit} \times \dfrac{\text{Work certified}}{\text{Contract price}}$

2. $\text{Estimated Profit} \times \dfrac{\text{Work certified}}{\text{Contract price}} \times \dfrac{\text{Cash received}}{\text{Work certified}}$

3.   Estimated Profit $\times \dfrac{\text{Cost of the work to date}}{\text{Estimated total cost}}$

4.   Estimated Profit $\times \dfrac{\text{Cost of the work to date}}{\text{Estimated total cost}} \times \dfrac{\text{Cash received}}{\text{Work certified}}$

5.   Notional Profit $\times \dfrac{\text{Work certified}}{\text{Contract price}}$

(ii)   Treatment of by-product cost in Cost Accounting:

(a)   When they are of small total value, the amount realized from their sale may be dealt as follows:

 ➢   Sales value of the by-product may be credited to Profit and Loss Account and no credit be given in Cost Accounting. The credit to Profit and Loss Account here is treated either as a miscellaneous income or as additional sales revenue.

 ➢   The sale proceeds of the by product may be treated as deduction from the total costs. The sales proceeds should be deducted either from production cost or cost of sales.

(b)   When they require further processing:

In this case, the net realizable value of the by product at the split-off point may be arrived at by subtracting the further processing cost from realizable value of by products. If the value is small, it may be treated as discussed in (a) above.

(iii) Job Costing and Batch Costing

Accounting to job costing, costs are collected and accumulated according to job. Each job or unit of production is treated as a separate entity for the purpose of costing. Job costing may be employed when jobs are executed for different customers according to their specification.

Batch costing is a form of job costing, a lot of similar units which comprises the batch may be used as a cost unit for ascertaining cost. Such a method of costing is used in case of pharmaceutical industry, readymade garments, industries manufacturing parts of TV, radio sets etc.

PART II : FINANCIAL MANAGEMENT

QUESTIONS

1. Answer the following, supporting the same with reasoning/working notes:

   (a) Company Zeta has credit sales of ₹ 4,00,00,000 and average receivables balance of ₹ 30,00,000; you are required to compute the receivable collection period.

   (b) Discuss briefly the concept of seed capital assistance.

   (c) Explain briefly 'Modified Internal Rate of Return (MIRR)' method for evaluating capital investment proposals.

   (d) You are required to calculate the total current assets of Ananya Limited from the given information:

Stock turnover	=	5 times
Sales (All credit)	=	₹ 7,20,000
Gross Profit Ratio	=	25%
Current Liabilities	=	₹ 2,40,000
Liquid Ratio	=	1.25

   Stock at the end is ₹ 30,000 more than stock in the beginning.

   (e) Discuss the factors to be considered by a venture capitalist before financing any risky project.

Working Capital Management

2. Electropipes Limited manufactures products used in the steel industry. The following information regarding the company is given for your consideration:

   (i) Expected level of production 6000 units.

   (ii) Raw materials are expected to remain in stores for an average of two months before issue to production.

   (iii) Work-in-progress (50 percent complete as to conversion cost) will approximate to $\frac{1}{2}$ month's production.

   (iv) Finished goods remain in warehouse on an average for one month.

   (v) Credit allowed by suppliers is one month.

   (vi) Two month's credit is normally allowed to debtors.

   (vii) A minimum cash balance of ₹ 45,000 is expected to be maintained.

   (viii) Cash sales are 75 percent less than the credit sales.

   (ix) Safety margin of 20 percent to cover unforeseen contingencies.

(x) The production pattern is assumed to be even during the year.

(xi) The cost structure for Electropipes Limited's product is as follows:

	₹
Raw Materials	80 per unit
Direct Labour	20 per unit
Overheads (including depreciation ₹ 20)	80 per unit
Total Cost	180 per unit
Profit	20 per unit
Selling Price	200 per unit

You are required to estimate the working capital requirement of Electropipes Limited.

Investment Decisions

3. Shahji Limited is considering two mutually exclusive machines – Machine 'A' and Machine 'B'. Details of these machines are as follows:

Initial Outlay	-	Machine A: ₹ 16,00,000
		Machine B: ₹ 24,00,000
Estimated Life	-	Machine A: 5 years
		Machine B: 6 years
Required rate of return	-	10 percent

Profit after tax and depreciation

Years	1	2	3	4	5	6
Machine A (₹)	5,00,000	4,00,000	3,50,000	3,00,000	1,50,000	-
Machine B (₹)	8,00,000	5,60,000	4,50,000	3,00,000	2,90,000	2,00,000

Both the machines will be depreciated on straight-line method.

You are required to rank the machines according to:

(i) Pay-back period method;

(ii) Accounting rate of return on initial investment; and

(iii) Net present value method.

Financing Decisions

4. You are required to compute the weighted average cost of capital (WACC) of Ganpati Limited considering the given data by using:

(a) Book value weights and

(b) Market value weights.

The capital structure of Ganpati Limited is as under:

	₹
Debentures (₹100 per debenture)	5,00,000
Preference shares (₹100 per share)	5,00,000
Equity shares (₹10 per share)	10,00,000
	20,00,000

The market prices of these securities are:

Debentures	:	₹ 105 per debenture
Preference Shares	:	₹ 110 per preference share
Equity Shares	:	₹ 24 each.

Additional information:

(i)   ₹ 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs, 10 year maturity.

(ii) ₹ 100 per preference share redeemable at par, 5% coupon rate, 2% floatation cost and 10 year maturity.

(iii) Equity shares has ₹ 4 floatation cost and market price ₹ 24 per share.

The next year expected dividend is ₹ 1 with annual growth of 5 percent. The firm has practice of paying all earnings in the form of dividend. The corporate tax rate is 50 percent.

Financial Analysis and Planning

5.   Megatech Limited is a manufacturer of products for the construction industry and its accounts are given for your consideration. You are required to calculate the liquidity and working capital ratios from the accounts and comment on the ratios.

	2010 ₹ (in lakhs)	2009 ₹ (in lakhs)
Turnover	2,065.0	1,788.7
Cost of Sales	1,478.6	1,304.0
Gross Profit	586.4	484.7

	2010 ₹ (in lakhs)	2009 ₹ (in lakhs)
Current Assets		
Stocks	119.0	109.0
Debtors (Refer to Note A)	400.9	347.4
Short-term Investments	4.2	18.8
Cash at bank and in hand	48.2	48.0
	572.3	523.2

Current Liabilities		
Loans and Overdrafts	49.1	35.3
Taxes	62.0	46.7
Dividend	19.2	14.3
Creditors (Refer to Note B)	370.7	324.0
	501.0	420.3
Net Working Capital	71.3	102.9

Notes:

		2010	*2009*
		₹	₹
A	Trade Debtors	329.8	285.4
B	Trade Creditors	236.2	210.8

Financial Analysis and Planning

6. The management of Fibroplast Limited is trying to establish a current assets policy. Fixed assets are ₹ 6,00,000, and the company plans to maintain a 50 percent debt-to-assets ratio. It has no operating current liabilities. The interest rate is 10 percent on all debts. They are considering three alternative current asset policies - 40, 50 and 60 per cent of projected sales. The company expects to earn 15 percent before interest and taxes on sales of ₹ 30,00,000. The effective tax rate is 40 percent. You are required to calculate the expected return on equity under each alternative?

Financing Decisions

7. Mahalaxmi Limited is setting up a project with a capital outlay of ₹ 60,00,000. It has two alternatives in financing the project cost.

Alternative (A):   100% equity finance

Alternative (B):   Debt-equity ratio 2:1

The rate of interest payable on the debt is 18 percent per annum. The effective tax rate is 40 percent. Calculate the indifference point between the two alternative methods of financing.

Working Capital Management

8. Shortblast Limited currently has sales of ₹ 30 lakhs, with an average collection period of two months and no discounts are given. The management of the company is undecided as to whether to allow a discount on sales of 2 percent to settle within one month. The company assumes that all customers would take advantage of the discount. The company can obtain a return of 30 percent on its investments. Advise the management of Shortblast Limited regarding the change in policy.

Financial Analysis and Planning

9. Seal Limited's balance sheets as on 31st March, 2009 and 2010 are given below:

Liabilities	31.3.09 ₹	31.3.10 ₹	Assets	31.3.09 ₹	31.3.10 ₹
Equity Capital	15,00,000	17,00,000	Fixed Assets	15,30,000	20,60,000
General Reserve	1,80,000	2,10,000	9% Investments		
Profit & Loss A/c	1,50,000	6,00,000	(Long term)	90,000	2,40,000
12% debentures	3,00,000	4,50,000	Debtors	1,20,000	2,25,000
Creditors	60,000	2,25,000	Stock	5,70,000	5,55,000
Bills payables	60,000	50,000	Cash-in-hand	1,80,000	5,40,000
Bank overdraft	30,000	25,000	Underwriting		
Proposed dividend	1,80,000	2,25,000	commission	7,500	9,000
Provision for tax	30,000	60,000	Discount on issue		
Provision for			of debentures	22,500	6,000
Doubtful debts	30,000	45,000			
Unpaid interest					
on debentures	-	35,000			
Unpaid dividend	-	10,000			
Total	25,20,000	36,35,000	Total	25,20,000	36,35,000

Additional information:

During the year ended 31st March, 2010 :

(i) A machine costing ₹ 2,10,000 (depreciation provided thereon ₹ 90,000) was sold for ₹ 75,000. Depreciation charged during the year was ₹ 2,10,000.

(ii) New shares and debentures were issued on 31st March, 2010.

(iii) Tax paid during the year was ₹ 15,000.

(iv) An interim dividend @ 15 percent was paid on equity shares.

(v) On 31st March, 2010, some investments were purchased for ₹ 2,70,000 and some investments were sold at a profit of 20 percent on sale.

You are required to prepare the statement showing funds from operation.

Time Value of Money

10. Mr. Shanker, an executive in an MNC, is thirty-five years old. He has decided it is time to plan seriously for his retirement. At the end of each per year until he is sixty-five, he will save ₹ 10,000 in a retirement account. If the account earns 10 percent per year, how much will Mr. Shanker have saved at the age of sixty-five?

PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

Working Capital Management

11. Nine-o-Nine Limited is into retail business. The following information is given for your consideration:

(i) Purchases are 75 percent of sales or Purchases are sold at cost plus 33 ⅓ percent.

(ii)

	Budgeted Sales	Labour Cost	Expenses Incurred
	₹	₹	₹
January	40,000	3,000	4,000
February	60,000	3,000	6,000
March	160,000	5,000	7,000
April	120,000	4,000	7,000

(iii) The policy of the management is to have sufficient stock in hand at the end of each month to meet sales demand in the next half month.

(iv) Creditors for materials and expenses are paid in the month after the purchases are made or the expenses incurred. Labour is paid in full by the end of each month.

(v) Expenses include a monthly depreciation charge of ₹ 2,000

(vi) (a) 75 percent sales are for cash.

    (b) 25 percent of sales are on one month's interest-free credit.

(vii) The company will buy equipment costing ₹18,000 on cash in February and will pay a dividend of ₹20,000 in the month of March. The opening cash balance on 1st February is ₹1,000.

You are required to prepare:

(a) A profit and loss account for the months of February and March; and

(b) A cash budget for the months of February and March.

12. Differentiate between the following:

(a) Euro Bonds and Foreign Bonds

(b) Inflation Bonds and Floating Rate Bonds

(c) Investment Decision and Financing Decision.

13. Write short notes on the following:

(a) Trade Credit

(b) Pre-Shipment Finance

(c) Traditional View of Capital Structure.

SUGGESTED ANSWERS/HINTS

1. (a) **Computation of Receivables Collection Period**

$$\text{Receivables collection period} = \frac{\text{Average receivables}}{\text{Credit sales per day}}$$

$$\text{Receivables collection period} = \frac{\text{Rs. } 30,00,000}{\text{Rs. } 4,00,00,000 \,/\, 365 \text{ days}}$$

$$= 27 \text{ days}$$

(b) **Concept of Seed Capital Assistance**

This scheme is designed by IDBI for professionally or technically qualified entrepreneurs and/or persons possessing relevant experience, skills and entrepreneurial traits. All the projects eligible for financial assistance from IDBI, directly or indirectly, through refinance are eligible under this scheme. The project cost should not exceed ₹ 2 crores and the maximum assistance under the project will be restricted to 50 percent of the required promoter's contribution or ₹ 15 lacs, whichever is lower.

The seed capital assistance is interest-free but carries a service charge of 1 percent per annum for the first five years and at increasing rate thereafter. However, IDBI will have the option to charge interest at such rate as may be determined by IDBI on the loan if the financial position and the profitability of the company so permits during the duration of the loan.

(c) **Modified Internal Rate of Return (MIRR) as a Method for Evaluating Capital Investment Proposals**

There are several limitations attached with the concept of the conventional internal rate of return. The MIRR addresses some of these deficiencies, for example, it eliminates multiple IRR rates; it addresses the reinvestment rate issue and produces results which are consistent with the net present value (NPV) method.

To calculate MIRR, all cash flows, apart from the initial investment, are brought to the terminal value using an appropriate discount rate (usually the cost of capital). This results in a single stream of cash inflows in the terminal year. The MIRR is obtained by assuming a single outflow in the zeroth year and the terminal cash inflow as mentioned above. The discount rate which equates the present value of the terminal cash inflow to the zeroth year outflow is called the MIRR.

(d) **Computation of Total Current Assets of Ananya Limited**

Cost of Goods Sold = Sales – Gross Profit

= 7,20,000 – 1,80,000 (25% of 7,20,000)

= ₹ 5,40,000

$$\text{Stock Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Stock}}$$

$$5 = \frac{5,40,000}{\text{Average Stock}}$$

$$\text{Average Stock} = \frac{5,40,000}{5} = ₹ \ 1,08,000$$

Closing Stock is ₹ 30,000 more than Opening Stock

Let Opening Stock = x

Closing stock will be (x + 30,000)

$$\frac{x + x + 30,000}{2} = 1,08,000$$

$$2x = 2,16,000 - 30,000$$

$$x = \frac{1,86,000}{2} = 93,000$$

Closing Stock will be (93,000 + 30,000) = ₹ 1,23,000

$$\text{Liquid Ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

$$1.25 = \frac{\text{Liquid Assets}}{2,40,000}$$

Liquid Assets = 3,00,000

Current Assets = Liquid Assets + Closing Stock

= 3,00,000 + 1,23,000

Current Assets = ₹ 4,23,000

(e) **Factors to be considered by a Venture Capitalist before Financing Any Risky Project**

The factors that a venture capitalist should consider before financing any risky project are as follows:

(i) **Level of Expertise of Company's Management:** Most of the venture capitalists believe that the success of a new project is highly dependent on the quality of its management team. They expect that the entrepreneur should have a skilled team of managers. Management is also required to show a high level of commitment to the project.

(ii) **Level of Expertise in Production:** Venture capital should ensure that entrepreneur and his team should have necessary technical ability to be able to develop and produce new product / service.

(iii) **Nature of New Product / Service:** The venture capitalist should consider whether the development and production of new product / service is technically feasible. They should employ experts in their respective fields to examine the idea proposed by the entrepreneur.

(iv) **Future Prospects:** Since the degree of risk involved in investing in the company is quite high, venture capitalists should seek to ensure that the prospects for future profits compensate for the risk. Therefore, they should see a detailed business plan setting out the future business strategy.

(v) **Competition:** The venture capitalists should seek assurance that there is actually a market for a new product. Further, they should see the research carried on by the entrepreneur.

(vi) **Risk borne by Entrepreneur:** The venture capitalist is expected to see that the entrepreneur bears a high degree of risk. This will assure them that the entrepreneur has the sufficient level of commitment to the project as he will incur a lot of loss, should the project fail.

(vii) **Exit Route:** The venture capitalist should try to establish a number of exist routes. These may include a sale of shares to the public, sale of shares to another business, or sale of shares to original owners.

(viii) **Board Membership:** In case of companies, to ensure proper protection of their investment, venture s should seek a place on the Board of Directors. This will enable them to have their say on all significant matters affecting the business.

2.   **Estimation of Working Capital Requirement**

Statement Showing the Requirement of Working Capital

₹

A.   **Current Assets**

Stock Raw Material $\left(4,80,000\times\dfrac{2}{12}\right)$	80,000
Stock of Work-in-Progress	30,000
Stock of Finished Goods $\left(9,60,000\times\dfrac{1}{12}\right)$	80,000
Debtors $\left(7,68,000\times\dfrac{2}{12}\right)$	1,28,000
Cash in hand	45,000
Total Current Assets	3,63,000

B. Current Liabilities

Creditors for Raw Material $\left(4,80,000\times\dfrac{1}{12}\right)$	40,000
Total Current Liabilities	40,000
Net Working Capital (A – B)	**3,23,000**
Add: Safety Margin of 20 percent	64,600
Net Working Capital after adding Safety Margin	**3,87,600**

Working Notes:

(i) **Calculation of Credit Sales**

Let credit sales be x

Cash Sales = $x – 3/4x$

Total Sales = $x + (x – 0.75x)$ = ₹ 12,00,000

$2x – 0.75x = 12,00,000$

$X = \dfrac{12,00,000}{5}\times4$ = ₹ 9,60,000

(ii) **Calculation of Stock of Finished Goods and Cost of Sales**

Direct Material	(6000 units x 80) =	4,80,000
Direct Labour	(6000 units x 20) =	1,20,000
Overhead (excluding dep.)	(6000 units x 60) =	3,60,000
Total Cash Cost		9,60,000
Add: Opening Stock of Finished Goods		80,000
Total Cost of Goods Available		10,40,000
Less: Closing Stock of Finished Goods (9,60,000÷12)		80,000
Total Cash Cost of Goods Sold		9,60,000

Cash Cost of Credit Sales

$9,60,000\times\dfrac{4}{5}$ = ₹ 7,68,000

(iii) Calculation of Stock of Work-in-Progress

Raw material $\left(\dfrac{4,80,000}{12} \times 0.5\right)$ = ₹ 20,000

Wages $(1,20,000/12 \times 0.5 \times 50\%)$ = 2,500

Overheads $(3,60,000/12 \times 0.5 \times 50\%)$ 7,500

₹ 30,000

3. Ranking of Two Machines according to Payback Period Method, Accounting Rate of Return (ARR) Method and Net Present Value (NPV) Method

Calculation of Cash inflows and Present Value

Years	P.V. factor @10%	Machine A				Machine B			
		Profit after Tax & Dep.	Dep.	Cash Inflows	Present Value	Profit after Tax & Dep.	Dep.	Cash Inflows	Present Value
	₹	₹	₹	₹	₹	₹	₹	₹	₹
1	0.909	5,00,000	3,20,000	8,20,000	7,45,380	8,00,000	4,00,000	12,00,000	10,90,800
2	0.826	4,00,000	3,20,000	7,20,000	5,94,720	5,60,000	4,00,000	9,60,000	7,92,960
3	0.751	3,50,000	3,20,000	6,70,000	5,03,170	4,50,000	4,00,000	8,50,000	6,38,350
4	0.683	3,00,000	3,20,000	6,20,000	4,23,460	3,00,000	4,00,000	7,00,000	4,78,100
5	0.621	1,50,000	3,20,000	4,70,000	2,91,870	2,90,000	4,00,000	6,90,000	4,28,490
6	0.564					2,00,000	4,00,000	6,00,000	3,38,400
Total		**17,00,000**		**33,00,000**	**25,58,600**	**26,00,000**		**50,00,000**	**37,67,100**

Depreciation = $\dfrac{\text{Initial Outlay}}{\text{Estimated Life}}$

Depreciation of Machine A = ₹ 16,00,000/5 = ₹ 3,20,000 per annum

Depreciation of Machine B = ₹ 24,00,000/6 = ₹ 4,00,000 per annum

(i) Calculation of Payback Period

Years	1	2	3	4	5	6
Cum. Cash Inflows of Machine "A" (₹)	8,20,000	15,40,000	22,10,000	28,30,000	33,00,000	-
Cum. Cash Inflows of Machine "B" (₹)	12,00,000	21,60,000	30,10,000	37,10,000	44,00,000	50,00,000

Pay back Period for A = $2 + \dfrac{60,000}{6,70,000}$ = 2.09 years

Pay back period for B = $2 + \dfrac{2,40,000}{8,50,000}$ = 2.28 years

(ii) Calculation of Accounting Rate of Return (ARR) on Initial Investment

ARR = $\dfrac{\text{Average Annual Income}}{\text{Initial Investment}} \times 100$

Average Annual Income for A = $\dfrac{17,00,000}{5}$ = ₹ 3,40,000

Average Annual Income for B = $\dfrac{26,00,000}{6}$ = ₹ 4,33,333

ARR for A = $\dfrac{\text{Rs. } 3,40,000}{\text{Rs. } 16,00,000} \times 100$ = 21.25%

ARR for B = $\dfrac{\text{Rs. } 4,33,333}{\text{Rs. } 24,00,000} \times 100$ = 18.06%

(iii) Calculation of Net Present Value (NPV)

NPV of A   = ₹ 25,58,600 – ₹ 16,00,000 = ₹ 9,58,600

NPV of B   = ₹ 37,67,100 – ₹ 24,00,000 = ₹ 13,67,100

(iv) Ranking According to the Three Methods

Basis of Rank	Machine A	Machine B
Payback Period	I	II
ARR	I	II
NPV	II	I

4. Computation of Weighted Average Cost of Capital (WACC)

Cost of Equity $= K_e = \dfrac{1}{20} + 0.05$

$ = 0.05 + 0.05$

$ = 0.10$

Cost of Debt $= K_d = \dfrac{10(1-0.5) + \dfrac{(100-96)}{10}}{\dfrac{(100+96)}{2}}$

$ = \left(\dfrac{5 + 0.4}{196}\right) \times 2 = 0.055$ (approx.)

$$\text{Cost of Preference Shares} = K_p = \left(\frac{5 + \dfrac{2}{10}}{\dfrac{198}{2}} \right)$$

$$= \left(\frac{5.2}{99} \right) = 0.053 \text{ (approx.)}$$

Calculation of WACC (K_0) using Book Value Weights

Source of Capital	Book Value	Specific Cost (K%)	Total Cost
10% Debentures	5,00,000	0.055	27,500
5% Preference Shares	5,00,000	0.053	26,500
Equity Shares	10,00,000	0.10	1,00,000
	20,00,000		1,54,000

$$K_0 = \frac{\text{Rs. } 1,54,000}{\text{Rs. } 20,00,000} = 0.077 \text{ (approx.)}$$

Calculation of WACC using Market Value Weights

Source of Capital	Market Value	Specific Cost (K%)	Total Cost
10% Debentures	5,25,000	0.055	28,875
5% Preference Shares	5,50,000	0.053	29,150
Equity Shares	24,00,000	0.10	2,40,000
	34,75,000		2,98,025

$$K_0 = \frac{\text{Rs. } 2,98,025}{\text{Rs. } 34,75,000} = 0.086 \text{ (approx.)}$$

5. **Computation of Liquidity and Working Capital Ratios for Megatech Limited**

	2010	2009
Current Ratio	$\dfrac{572.3}{501.0} = 1.14$	$\dfrac{523.2}{420.3} = 1.24$
Quick Ratio	$\dfrac{453.3}{501.0} = 0.90$	$\dfrac{414.2}{420.3} = 0.99$
Debtors' Payment Period	$\dfrac{329.8}{2,065.0} \times 365 = 58 \text{ days}$	$\dfrac{285.4}{1,788.7} \times 365 = 58 \text{ days}$
Stock Turnover Period	$\dfrac{119.0}{1,478.6} \times 365 = 29 \text{ days}$	$\dfrac{109.0}{1,304.0} \times 365 = 31 \text{ days}$
Creditors' Turnover Period	$\dfrac{236.2}{1,478.6} \times 365 = 58 \text{ days}$	$\dfrac{210.8}{1,304.0} \times 365 = 59 \text{ days}$

Analysis: Megatech Limited is a manufacturing group serving the construction industry, and so would be expected to have comparatively lengthy debtors' turnover period, because of the relatively poor cash flow in the construction industry. It is clear that the company compensates for this by ensuring that they do not pay for raw materials and other costs before they have sold their stocks of finished goods (hence the similarity of debtors' and creditors' turnover periods.)

Megatech Limited's current ratio is a little lower than average but its quick ratio is better than average and very little less than the current ratio. This suggests that the stock levels are strictly controlled, which is reinforced by the low stock turnover period. It would seem that working capital is tightly managed, to avoid the poor liquidity which could be caused by a high debtors' turnover period and comparatively high creditors.

6. **Alternative Balance Sheets of Fibroplast Limited**

	Restricted (40%)	*Moderate (50%)*	*Relaxed (60%)*
	₹	₹	₹
Current Assets (% of sales)	12,00,000	15,00,000	18,00,000
Fixed Assets	6,00,000	6,00,000	6,00,000
Total Assets	18,00,000	21,00,000	24,00,000
Debt	9,00,000	10,50,000	12,00,000
Equity	9,00,000	10,50,000	12,00,000
Total Liabilities and Equity	18,00,000	21,00,000	24,00,000

Alternative Income Statements of Fibroplast Limited

	Restricted	*Moderate*	*Relaxed*
	₹	₹	₹
Sales	30,00,000	30,00,000	30,00,000
EBIT	4,50,000	4,50,000	4,50,000
Interest (10%)	90,000	1,05,000	1,20,000
Earnings before Taxes	3,60,000	3,45,000	3,30,000
Taxes (40%)	1,44,000	1,38,000	1,32,000
Net Income	2,16,000	2,07,000	1,98,000
Return on Equity (ROE)	24.0%	19.7%	16.5%

7. **Alternatives in Financing and its Financial Charges**

(A) By issue of 6,00,000 equity shares of ₹ 10 each amounting to ₹ 60 lakhs. No financial charges are involved.

(B) By raising the funds in the following way:

Debt   =   ₹ 40 lakhs

Equity =   ₹ 20 lakhs (2,00,000 equity shares of ₹ 10 each)

Interest payable on debt $= 40,00,000 \times \dfrac{18}{100}$

$$= ₹\ 7,20,000$$

The indifference point between the two alternatives is calculated by:

$$\frac{(EBIT - I_1)\ (1-T)}{E_1} = \frac{(EBIT - I_2)\ (1-T)}{E_2}$$

Where,   EBIT   = Earnings before interest and taxes

I_1 = Interest charges in Alternative (A)

I_2 = Interest charges in Alternative (B)

T   = Tax rate

E_1 = Equity shares in Alternative (A)

E_2 = Equity shares in Alternative (B)

Putting the values, the break-even point would be as follows:

$$\frac{(EBIT - 0)\ (1 - 0.40)}{6,00,000} = \frac{(EBIT - 7,20,000)\ (1 - 0.40)}{2,00,000}$$

$$\frac{(EBIT)\ (0.60)}{6,00,000} = \frac{(EBIT - 7,20,000)\ (0.60)}{2,00,000}$$

$$\frac{EBIT(0.60)}{3} = \frac{0.60(EBIT - 7,20,000)}{1}$$

$$EBIT = 3EBIT - 21,60,000$$

$$-2\ EBIT = -21,60,000$$

$$EBIT = \frac{21,60,000}{2}$$

$$EBIT = 10,80,000$$

Therefore, it can be seen that the EBIT at indifference point explains that the earnings per share for the two alternatives is equal.

8. **Advise to Management regarding Change in Discount Policy**

Here the change in policy i.e. the offer of a discount, is not expected to increase sales demand but to reduce the collection period, which would result in saving in the working capital investment required.

(a) Change in Debtors

	₹
Current Value of Debtors (2/12×₹ 30,00,000)	5,00,000
New Value of Debtors (1/12×₹ 30,00,000)	2,50,000
Reduction in Investment in Debtors	2,50,000

(b) Cost of Reduction in Debtors

The cost of reducing debtors is the cost of the discounts, i.e. 2%×₹ 30,00,000 = ₹ 60,000

(c) The reduction in debtors of ₹ 2,50,000 would cost the company ₹ 60,000 per annum. If the company can earn 30 percent on its investments, the benefit is:

The discount policy would be worthwhile, since the benefit of ₹ 75,000 exceeds the cost of ₹ 60,000.
Note: The above solution values debtors at sales value.

9. Statement Showing Funds from Operation

		₹
Closing Balance as per Profit and Loss A/c		6,00,000
Less: Opening Balance as per Profit & Loss A/c		1,50,000
		4,50,000
Add : Proposed Dividend during the year	2,25,000	
Interim Dividend paid during the year	2,25,000	
Transfer to General Reserve	30,000	
Provision for Tax	45,000	
Depreciation	2,10,000	
Interest on Debentures	36,000	
Discount on Issue of Debentures	16,500	
Loss on Sale of Machine	45,000	8,32,500
		12,82,500
Less : Income on Investment	8,100	
Profit on Sale of Investment	30,000	38,100
Funds from Operation		**12,44,400**

10. Computation of Savings of Mr. Shanker

Mr. Shanker's savings plan looks like an annuity of ₹ 10,000 per year for 30 years. It is easy to become confused when you just look at age, rather than at both dates and age. A common error is to think there are only 65 – 36 = 29 payments. Now to determine the

amount Mr. Shanker will have at the age of sixty-five, we need to compute the future value of this annuity:

$$FV = ₹\,10,000 \times \frac{1}{0.10} \times \left(1.10^{30} - 1\right)$$

$$= ₹\,10,000 \times 164.49$$

$$= ₹\,16,44,900 \text{ or, } 16,45,000$$

11. (a) Profit and Loss Account for Nine-o-Nine Limited

	February		March		Total	
	₹	₹	₹	₹	₹	₹
Sales		60,000		1,60,000		2,20,000
Cost of Purchases (75 percent)		45,000		1,20,000		1,65,000
Gross Profit		15,000		40,000		55,000
Less: Labour	3,000		5,000		8,000	
Expenses	6,000	9,000	7,000	12,000	13,000	21,000
		6,000		28,000		34,000

Working Notes:

(i) Receipts

		₹
February	75% of February Sales (75% × ₹ 60,000)	45,000
	+ 25% of January Sales (25% × ₹ 40,000)	10,000
		55,000
March	75% of March Sales (75% × ₹ 1,60,000)	1,20,000
	+ 25% of February Sales (25% × ₹ 60,000)	15,000
		1,35,000

(ii) Purchases

	January		*February*
	₹		₹
For January Sales (50% of ₹ 30,000)	15,000		
For February Sales (50% of ₹ 45,000)	22,500	(50% of ₹ 45,000)	22,500
For March Sales	-	(50% of ₹ 1,20,000)	60,000
	37,500		82,500

These purchases are paid for in February and March.

(iii) Expenses

Cash expenses in January (₹ 4,000 – ₹ 2,000) and February (₹ 6,000 – ₹ 2,000) are paid for in February and March respectively. Depreciation is not a cash item.

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(b)   **Nine – o - Nine Limited's Cash Budget for**

the Months of February and March

	February	March	Total
	₹	₹	₹
Receipts from Sales	55,000	1,35,000	1,90,000
Payments			
Trade Creditors	37,500	82,500	1,20,000
Expenses Creditors	2,000	4,000	6,000
Labour	3,000	5,000	8,000
Equipment Purchase	18,000	-	18,000
Dividend	-	20,000	20,000
Total Payments	60,500	1,11,500	1,72,000
Receipts less Payments	(5,500)	23,500	18,000
Opening Cash balance b/f	1,000	(4,500)	1,000
Closing Cash balance c/f	(4,500)	19,000	19,000

12 (a) Euro Bonds and Foreign Bonds

Euro bonds are debt instruments which are not denominated in the currency of the country in which they are issued. E.g. a Yen note floated in Germany. Such bonds are generally issued in a bearer form rather than as registered bonds and in such cases they do not contain the investor's names or the country of their origin. These bonds are an attractive proposition to investors seeking privacy.

Whereas, on the other hand, Foreign bonds are debt instruments issued by foreign corporations or foreign governments. Such bonds are exposed to default risk, especially the corporate bonds. These bonds are denominated in the currency of the country where they are issued, however, in case these bonds are issued in a currency other than the investors home currency, they are exposed to exchange rate risks. An example of a foreign bond is 'A British firm placing dollar denominated bonds in USA'.

(b) Inflation Bonds and Floating Rate Bonds

Inflation Bonds are the bonds in which interest rate is adjusted for inflation. Thus, the investor gets interest which is free from the effects of inflation. For example, if the interest rate is 11 per cent and the inflation is 5 per cent, the investor will earn 16 per cent meaning thereby that the investor is protected against inflation.

On the other hand, Floating Rate Bonds, as the name suggests, are the bonds where the interest rate is not fixed and is allowed to float depending upon the market conditions. This is an ideal instrument which can be resorted to by the issuers to hedge themselves against the volatility in the interest rates. This has become more popular as a money market instrument and has been successfully issued by financial institutions like IDBI, ICICI etc.

(c) Investment Decision and Financing 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. Such types of decisions are known as investment decisions.

On the other hand, Financing Decisions relate to raising of funds 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.

13. (a) Trade Credit

It represents credit granted by suppliers of goods, etc., as an incident of sale. The usual duration of such credit is 15 to 90 days. It generates automatically in the course of business and is common to almost all business operations. It can be in the form of an 'open account' or 'bills payable'.

Trade credit is preferred as a source of finance because it is without any explicit cost and till a business is a going concern it keeps on rotating. Another very important characteristic of trade credit is that it enhances automatically with the increase in the volume of business.

(b) Pre-Shipment Finance

This generally takes the form of packing credit facility; packing credit is an advance extended by banks to an exporter for the purpose of buying, manufacturing, processing, packing, shipping goods to overseas buyers. Any exporter, having at hand a firm export order placed with him by his foreign buyer or an irrevocable letter of credit opened in his favour, can approach a bank for availing of packing credit. An advance so taken by an exporter is required to be liquidated within 180 days from the date of its commencement by negotiation of export bills or receipt of export proceeds in an approved manner. Thus packing credit is essentially a short term advance.

(c) Traditional View of Capital Structure

The traditional theory of capital structure proposes that an optimal capital exists, and so under this theory a company can increase its total value by the sensible use of gearing. The traditional theory argues that:

- K_e rises with increased gearing due to the increasing financial and bankruptcy risk;

- K_d rises only at high gearing levels when bankruptcy risk increases;

- Replacing more expensive equity finance with less expensive debt finance decreases the company's WACC, up to a joint; and

- Once an optimum level of gearing is reached, Ke increases by a rate which more than offsets the effect of using cheaper debt, and so the WACC increases.