## PAPER – 3: COST ACCOUNTING AND FINANCIAL MANAGEMENT

## PART-I: COST ACCOUNTING

## QUESTIONS

### Material

1. Ananya Ltd. produces a product 'Exe' using a raw material Dee. To produce one unit of Exe, 2 kg of Dee is required. As per the sales forecast conducted by the company, it will able to sale 10,000 units of Exe in the coming year. The following is the information regarding the raw material Dee:

   (i) The Re-order quantity is 200 kg. less than the Economic Order Quantity (EOQ).

   (ii) Maximum consumption per day is 20 kg. more than the average consumption per day.

   (iii) There is an opening stock of 1,000 kg.

   (iv) Time required to get the raw materials from the suppliers is 4 to 8 days.

   (v) The purchase price is ₹125 per kg.

   There is an opening stock of 900 units of the finished product Exe.

   The rate of interest charged by bank on Cash Credit facility is 13.76%.

   To place an order company has to incur ₹ 720 on paper and documentation work.

   From the above information find out the followings in relation to raw material Dee:

   (a) Re-order Quantity

   (b) Maximum Stock level

   (c) Minimum Stock level

   (d) Calculate the impact on the profitability of the company by not ordering the EOQ.

   [Take 364 days for a year]

### Labour

2. A Company is undecided as to what kind of wage scheme should be introduced. The following particulars have been compiled in respect of three workers. Which are under consideration of the management.

| | I | II | III |
|---|---|---|---|
| Actual hours worked | 380 | 100 | 540 |
| Hourly rate of wages (in ₹) | 40 | 50 | 60 |
| Productions in units: | | | |
| - Product A | 210 | - | 600 |
| - Product B | 360 | - | 1350 |

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| | | | |
|---|---|---|---|
| - Product C | 460 | 250 | - |
| Standard time allowed per unit of each product is: | | | |
| | **A** | **B** | **C** |
| Minutes | 15 | 20 | 30 |

For the purpose of piece rate, each minute is valued at ₹ 1/-

You are required to calculate the wages of each worker under:

(i) Guaranteed hourly rate basis

(ii) Piece work earning basis, but guaranteed at 75% of basic pay (Guaranteed hourly rate if his earnings are less than 50% of basic pay.)

(iii) Premium bonus basis where the worker received bonus based on Rowan scheme.

**Overheads**

3. The Unibion Ltd. has the following account balances and distribution of direct charges on 31st March, 2019.

| | Total | Production Depts. | | Service Depts. | |
|---|---|---|---|---|---|
| | | Machine Shop | Packing | General Plant | Stores |
| Allocated Overheads: | (₹) | (₹) | (₹) | (₹) | (₹) |
| Indirect labour | 29,000 | 8,000 | 6,000 | 4,000 | 11,000 |
| Maintenance Material | 9,900 | 3,400 | 1,600 | 2,100 | 2,800 |
| Misc. supplies | 5,900 | 1,500 | 2,900 | 900 | 600 |
| Supervisor's salary | 16,000 | -- | -- | 16,000 | -- |
| Cost & payroll salary | 80,000 | -- | -- | 80,000 | -- |

| | |
|---|---|
| Overheads to be apportioned: | |
| Power | 78,000 |
| Rent | 72,000 |
| Fuel and Heat | 60,000 |
| Insurance | 12,000 |
| Taxes | 8,400 |
| Depreciation | 1,20,000 |

The following data were compiled by means of the factory survey made in the previous year:

| | Floor Space | Radiator Section | No. of employees | Investment | H.P. hours |
|---|---|---|---|---|---|
| Machine Shop | 2,000 Sq. ft. | 45 | 20 | 8,00,000 | 3,500 |

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| | | | | | |
|---|---|---|---|---|---|
| Packing | 800 Sq. ft. | 90 | 12 | 2,40,000 | 500 |
| General Plant | 400 Sq. ft. | 30 | 4 | 80,000 | - |
| Stores & maintenance | 1,600 Sq. ft. | 60 | 8 | 1,60,000 | 1,000 |

Expenses charged to the stores departments are to be distributed to the other departments by the following percentages:

Machine shop 50%; Packing 20%; General Plant 30%;

General Plant overheads is distributed on the basis of number of employees.

(a) Prepare an overhead distribution statement with supporting schedules to show computations and basis of distribution.

(b) Determine the service department distribution by simultaneous equation method.

**Non-integrated Accounting**

4. The following is the summarised Trading and Profit and Loss Account of XYZ Ltd. for the year ended 31st March 2019:

| Particulars | Amount (₹) | Particulars | | Amount (₹) |
|---|---|---|---|---|
| Direct Material | 14,16,000 | Sales (30,000 units) | | 30,00,000 |
| Direct wages | 7,42,000 | Finished stock (2,000 units) | | 1,67,500 |
| Works overheads | 4,26,000 | Work-in-progress: | | |
| Administration overheads | 1,50,000 | - Materials | 34,000 | |
| Selling and distribution overheads | 1,65,000 | - Wages | 16,000 | |
| Net profit for the year | 3,22,500 | - Works overhead | 4,000 | 54,000 |
| | 32,21,500 | | | 32,21,500 |

The company's cost records show that in course of manufacturing a standard unit (i) works overheads have been charged @ 20% on prime cost, (ii) administration overheads are related with production activities and are recovered at ₹5 per finished unit, and (iii) selling and distribution overheads are recovered at ₹6 per unit sold.

You are required to prepare:

(i) Costing Profit and Loss Account indicating the net profits,

(ii) A Statement showing reconciliation between profit as disclosed by the Cost Accounts and Financial Accounts.

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**Contract Costing**

5. Dream house (P) Ltd. is engaged in building two residential housing projects in the city. Particulars related to two housing projects are as below:

| | HP-1 (₹) | HP-2 (₹) |
|---|---|---|
| Work in Progress on 1st April 2018 | 7,80,000 | 2,80,000 |
| Materials Purchased | 6,20,000 | 8,10,000 |
| Land purchased near to the site to open an office | - | 12,00,000 |
| Brokerage and registration fee paid on the above purchase | - | 60,000 |
| Wages paid | 85,000 | 62,000 |
| Wages outstanding as on 31st March, 2019 | 12,000 | 8,400 |
| Donation paid to local clubs | 5,000 | 2,500 |
| Plant hire charges paid for three years effecting from 1st April 2018 | 72,000 | 57,000 |
| Value of materials at site as on 31st March, 2019 | 47,000 | 52,000 |
| Contract price of the projects | 48,00,000 | 36,00,000 |
| Value of work certified | 20,50,000 | 16,10,000 |
| Work not certified | 1,90,000 | 1,40,000 |

A concrete mixture machine was bought on 1st April 2018 for ₹8,20,000 and used for 180 days in HP-1 and for 100 days in HP-2. Depreciation is provided @ 15% p.a. (this machine can be used for any other projects)

As per the contract agreement contractee shall retain 20% of work certified as retention money.

Prepare contract account for the two housing projects showing the profit or loss on each project for the year ended 31st March, 2019.

**Operating Costing**

6. P Ltd. distributes its goods to dealers using a delivery van. The dealers' premises are 40 kilometre away from the company's office. The van has a capacity of 10 tonnes and makes the journey twice a day fully loaded on the outward journeys and empty on return journey. The following information is available for a four weekly period during the year 20X9:

| | |
|---|---|
| Diesel consumption | 10 kilometre per litre |
| Diesel cost | ₹48 per litre |
| Lubricant oil | ₹600 per week |
| Drivers salary | ₹12,000 per month |

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| | |
|---|---|
| Repairs & Maintenance | ₹1,800 per month |
| Garage rent | ₹4,800 per months |
| Cost of van (excluding tyres) | ₹16,00,000 |
| Life of van | 3,80,000 kilometres |
| Insurance | ₹5,400 per annum |
| Cost of tyres | ₹22,000 |
| Life of tyres | 80,000 kilometres |
| Estimated sale value of van at end of its life | ₹2,40,000 |
| Vehicle permit fee | ₹3,600 per annum |
| Other overhead cost | ₹66,000 per annum |

The van operates five-day a week.

Required:

(i) A statement to show the total monthly cost of operating the vehicle.

(ii) Calculate the operating cost per kilometre and per tonne kilometre

**Process Costing**

7. Following information is available regarding process A for the month of February, 20X9:

| | |
|---|---|
| Production Record: | |
| Units in process as on 01.02.20X9 | 4,000 |
| (All materials used, 25% complete for labour and overhead) | |
| New units introduced | 16,000 |
| Units completed | 14,000 |
| Units in process as on 28.02.20X9 | 6,000 |
| (All materials used, 33-1/3% complete for labour and overhead) | |
| Cost Records: | |
| Work-in-process as on 01.02.20X9 | (₹) |
| Materials | 6,00,000 |
| Labour | 1,00,000 |
| Overhead | 1,00,000 |
| | 8,00,000 |
| Cost during the month | |
| Materials | 25,60,000 |

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| | |
|---|---|
| Labour | 15,00,000 |
| Overhead | 15,00,000 |
| | 55,60,000 |

Presuming that average method of inventory is used, prepare:

(i) Statement of Equivalent Production.

(ii) Statement showing Cost for each element.

(iii) Statement of Apportionment of cost.

(iv) Process Cost Account for Process A.

**Joint Product and By Product**

8. A company processes a raw material in its Department 1 to produce three products, viz. A, B and X at the same split-off stage. During a period 1,80,000 kgs of raw materials were processed in Department 1 at a total cost of ₹ 12,88,000 and the resultant output of A, B and X were 18,000 kgs, 10,000 kgs and 54,000 kgs respectively. A and B were further processed in Department 2 at a cost of ₹1,80,000 and ₹1,50,000 respectively.

X was further processed in Department 3 at a cost of ₹1,08,000. There is no waste in further processing. The details of sales affected during the period were as under:

| | A | B | X |
|---|---|---|---|
| Quantity Sold (kgs.) | 17,000 | 5,000 | 44,000 |
| Sales Value (₹) | 12,24,000 | 2,50,000 | 7,92,000 |

There were no opening stocks. If these products were sold at split-off stage, the selling prices of A, B and X would have been ₹ 50, ₹ 40 and ₹ 10 per kg respectively.

Required:

(i) Prepare a statement showing the apportionment of joint costs to A, B and X.

(ii) Present a statement showing the cost per kg of each product indicating joint cost and further processing cost and total cost separately.

(iii) Prepare a statement showing the product wise and total profit for the period.

(iv) State with supporting calculations as to whether any or all the products should be further processed or not

**Standard Costing**

9. XYZ Ltd. produces a product X by using two raw materials A and B. The following standards have been set for the production:

| Material | Standard Mix | Standard Price (₹) |
|---|---|---|
| A | 40% | 40 per kg. |
| B | 60% | 30 per kg. |

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The standard loss in processing is 15%.

During July, 2018 the company produced 2,000 kg. of finished output.

The positions of stock and purchases for the month of July, 2018 are as under:

| Material | Stock on 1st July 2018 | Stock on 31st July 2018 | Purchases during July 2018 | |
|---|---|---|---|---|
| | | | Quantity | Amount (₹) |
| A | 40 kg. | 10 kg. | 900 kg. | 42.50 |
| B | 50 kg. | 60 kg. | 1,400 kg. | 25.00 |

Calculate the following variances:

(i) Material Price Variance; (ii) Material Usage Variance;

(iii) Material Mix Variance; (iv) Material Yield Variance;

(v) Total Material Cost Variance.

The company follows FIFO method of stock valuation.

**Marginal Costing**

10. MNP Ltd sold 2,75,000 units of its product at ₹ 375 per unit. Variable costs are ₹ 175 per unit (manufacturing costs of ₹140 and selling cost ₹ 35 per unit). Fixed costs are incurred uniformly throughout the year and amount to ₹ 3,50,00,000 (including depreciation of ₹ 1,50,00,000). there are no beginning or ending inventories.

Required:

(i) Compute breakeven sales level quantity and cash breakeven sales level quantity.

(ii) Compute the P/V ratio.

(iii) Compute the number of units that must be sold to earn an income (EBIT) of ₹ 25,00,000.

(iv) Compute the sales level achieve an after-tax income (PAT) of ₹ 25,00,000. Assume 40% corporate Income Tax rate.

**Budget and Budgetary Control**

11. Aditya Ltd. manufactures two products K and H. The sales director has anticipated to sale 8,000 units of Product K and 4,200 units of Product H. The Standard cost data for the products for next year are as follows:

| | Product- K Per unit | Product- H Per unit |
|---|---|---|
| Direct materials: | | |
| - Material X @ ₹ 15 per kg. | 12 kg. | 15 kg. |
| - Material Y@ ₹ 16 per kg. | 15 kg. | 6 kg. |

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| | | |
|---|---|---|
| - Material Z @ ₹ 5 per ltr. | 8 ltr. | 14 ltr. |
| Direct wages: | | |
| - Unskilled @ ₹ 40 per hour | 12 hour | 10 hour |
| - Skilled @ ₹ 75 per hour | 8 hour | 5 hour |

Budgeted stocks for next year are as follows:

| | | Product- K (Units) | Product- H (Units) |
|---|---|---|---|
| 1st April, 2018 | | 800 | 1,600 |
| 31st March, 2019 | | 1,000 | 2,100 |
| | **Material-X (kg)** | **Material-Y (kg)** | **Material-Z (ltr)** |
| 1st April, 2018 | 25,000 | 30,000 | 14,000 |
| 31st March, 2019 | 30,000 | 18,000 | 7,500 |

Prepare the following budgets for next year:

(a) Production budget, in units;

(b) Material purchase budget, in quantity and in value;

(c) Direct labour budget, in hours and in value.

**Miscellaneous**

12. (a) Distinguish between Cost Control and Cost Reduction.

(b) Discuss the accounting treatment of Idle time and overtime wages.

(c) Discuss cost classification based on variability and controllability.

## SUGGESTED HINTS/ANSWERS

**1. Working Notes:**

**(i) Computation of Annual consumption & Annual Demand for raw material 'Dee':**

| | |
|---|---|
| Sales forecast of the product 'Exe' | 10,000 units |
| Less: Opening stock of 'Exe' | 900 units |
| Fresh units of 'Exe' to be produced | 9,100 units |
| Raw material required to produce 9,100 units of 'Exe' (9,100 units × 2 kg.) | 18,200 kg. |
| Less: Opening Stock of 'Dee' | 1,000 kg. |
| Annual demand for raw material 'Dee' | 17,200 kg. |

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**(ii) Computation of Economic Order Quantity (EOQ):**

$$EOQ = \sqrt{\frac{2 \times \text{Annual demand of 'Dee'} \times \text{Ordering cost}}{\text{Carrying cost per unit per annum}}}$$

$$= \sqrt{\frac{2 \times 17,200\,\text{kg.} \times ₹720}{₹125 \times 13.76\%}} = \sqrt{\frac{2 \times 17,200\,\text{kg.} \times ₹720}{₹17.2}} = 1,200 \text{ kg.}$$

**(iii) Re- Order level:**

= (Maximum consumption per day × Maximum lead time)

$$= \left\{ \left( \frac{\text{Annual Consumption of 'Dee'}}{364\,\text{days}} + 20\,\text{kg.} \right) \times 8 \text{ days} \right\}$$

$$= \left\{ \left( \frac{18,200\,\text{kg.}}{364\,\text{days}} + 20\,\text{kg.} \right) \times 8 \text{ days} \right\} = 560 \text{ kg.}$$

**(iv) Minimum consumption per day of raw material 'Dee':**

Average Consumption per day = 50 Kg.

Hence, Maximum Consumption per day = 50 kg. + 20 kg. = 70 kg.

So Minimum consumption per day will be

$$\text{Average Consumption} = \frac{\text{Min. consumption} + \text{Max. consumption}}{2}$$

$$\text{Or, } 50 \text{ kg.} = \frac{\text{Min. consumption} + 70\,\text{kg.}}{2}$$

Or, Min. consumption = 100 kg – 70 kg. = 30 kg.

**(a) Re-order Quantity :**

EOQ – 200 kg. = 1,200 kg. – 200 kg. = 1,000 kg.

**(b) Maximum Stock level:**

= Re-order level + Re-order Quantity – (Min. consumption per day × Min. lead time)

= 560 kg. + 1,000 kg. – (30 kg. × 4 days)

= 1,560 kg. – 120 kg. = 1,440 kg.

**(c) Minimum Stock level:**

= Re-order level – (Average consumption per day × Average lead time)

= 560 kg. – (50 kg. × 6 days) = 260 kg.

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**(d) Impact on the profitability of the company by not ordering the EOQ.**

| | | When purchasing the ROQ | When purchasing the EOQ |
|---|---|---|---|
| I | Order quantity | 1,000 kg. | 1,200 kg. |
| II | No. of orders a year | $\frac{17,200\text{kg.}}{1,000\text{kg.}} = 17.2 \text{ or } 18 \text{ orders}$ | $\frac{17,200\text{kg.}}{1,200\text{kg.}} = 14.33 \text{ or } 15 \text{ orders}$ |
| III | Ordering Cost | 18 orders × ₹ 720 = ₹12,960 | 15 orders × ₹ 720 = ₹10,800 |
| IV | Average Inventory | $\frac{1,000\text{kg.}}{2} = 500\text{kg.}$ | $\frac{1,200\text{kg.}}{2} = 600\text{kg.}$ |
| V | Carrying Cost | 500 kg. × ₹ 17.2 = ₹ 8,600 | 600 kg. × ₹ 17.2 = ₹ 10,320 |
| VI | Total Cost | ₹ 21,560 | ₹ 21,120 |

Extra Cost incurred due to not ordering EOQ = ₹ 21,560 - ₹ 21,120 = ₹440

**2. (i)** Computation of wages of each worker under guaranteed hourly rate basis

| Worker | Actual hours worked (Hours) | Hourly wage rate (₹) | Wages (₹) |
|---|---|---|---|
| I | 380 | 40 | 15,200 |
| II | 100 | 50 | 5,000 |
| III | 540 | 60 | 32,400 |

**(ii)** Computation of Wages of each worker under piece work earning basis

| Product | Piece rate per unit (₹) | Worker-I | | Worker-II | | Worker-III | |
|---|---|---|---|---|---|---|---|
| | | Units | Wages (₹) | Units | Wages (₹) | Units | Wages (₹) |
| A | 15 | 210 | 3,150 | - | - | 600 | 9,000 |
| B | 20 | 360 | 7,200 | - | - | 1,350 | 27,000 |
| C | 30 | 460 | 13,800 | 250 | 7,500 | - | - |
| Total | | | 24,150 | | 7,500 | | 36,000 |

Since each worker's earnings are more than 50% of basic pay. Therefore, worker-I, II and III will be paid the wages as computed i.e. ₹ 24,150, ₹ 7,500 and ₹ 36,000 respectively.

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**Working Notes:**

**1. Piece rate per unit**

| Product | Standard time per unit in minute | Piece rate each minute (₹) | Piece rate per unit (₹) |
|---|---|---|---|
| A | 15 | 1 | 15 |
| B | 20 | 1 | 20 |
| C | 30 | 1 | 30 |

**2. Time allowed to each worker**

| Worker | Product-A | Product-B | Product-C | Total Time (H ours) |
|---|---|---|---|---|
| I | 210 units × 15 = 3,150 | 360 units × 20 = 7,200 | 460 units × 30 = 13,800 | 24,150/60 = 402.50 |
| II | - | - | 250 units × 30 = 7,500 | 7,500/60 = 125 |
| III | 600 units × 15 = 9,000 | 1, 350 units × 20 = 27,000 | - | 36,000/60 = 600 |

**(iii)** Computation of wages of each worker under Premium bonus basis (where each worker receives bonus based on Rowan Scheme)

| Worker | Time Allowed (Hr.) | Time Taken (Hr.) | Time saved (Hr.) | Wage Rate per hour (₹) | Earnings (₹) | Bonus (₹)* | Total Earning (₹) |
|---|---|---|---|---|---|---|---|
| I | 402.5 | 380 | 22.5 | 40 | 15,200 | 850 | 16,050 |
| II | 125 | 100 | 25 | 50 | 5,000 | 1,000 | 6,000 |
| III | 600 | 540 | 60 | 60 | 32,400 | 3,240 | 35,640 |

* $\frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Wage Rate}$

Worker-I = $\frac{380}{402.5} \times 22.5 \times 40 = 850$

Worker-II = $\frac{100}{125} \times 25 \times 50 = 1,000$

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Worker-III = $\frac{540}{600} \times 60 \times 60 = 3,240$

**3. (a) Overhead Distribution Statement**

| | Production Departments | | Service Departments | |
|---|---|---|---|---|
| | Machine Shops | Packing | General Plant | Stores |
| Allocated Overheads: | (₹) | (₹) | (₹) | (₹) |
| Indirect labour | 8,000 | 6,000 | 4,000 | 11,000 |
| Maintenance Material | 3,400 | 1,600 | 2,100 | 2,800 |
| Misc. supplies | 1,500 | 2,900 | 900 | 600 |
| Supervisor's salary | -- | -- | 16,000 | -- |
| Cost & payroll salary | -- | -- | 80,000 | -- |
| Total allocated overheads | 12,900 | 10,500 | 1,03,000 | 14,400 |
| *Add:* Apportioned Overheads (As per Schedule below) | 1,84,350 | 70,125 | 22,775 | 73,150 |
| | 1,97,250 | 80,625 | 1,25,775 | 87,550 |

**Schedule of Apportionment of Overheads**

| Item of Cost | Basis | Production Departments | | Service Departments | |
|---|---|---|---|---|---|
| | | Machine Shops (₹) | Packing (₹) | General Plant (₹) | Stores (₹) |
| Power | HP hours (7 : 1 : - : 2) | 54,600 | 7,800 | -- | 15,600 |
| Rent | Floor space (5 : 2 : 1 : 4) | 30,000 | 12,000 | 6,000 | 24,000 |
| Fuel & Heat | Radiator sec. (3 : 6 : 2 : 4) | 12,000 | 24,000 | 8,000 | 16,000 |
| Insurance | Investment (10 : 3 : 1 : 2) | 7,500 | 2,250 | 750 | 1,500 |
| Taxes | Investment (10 : 3 : 1 : 2) | 5,250 | 1,575 | 525 | 1,050 |
| Depreciation | Investment (10 : 3 : 1 : 2) | 75,000 | 22,500 | 7,500 | 15,000 |
| | | 1,84,350 | 70,125 | 22,775 | 73,150 |

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**(b) Re-distribution of Overheads of Service Departments to Production Departments:**

Let, the total overheads of General Plant = 'a' and the total overheads of Stores = 'b'

a = 1,25,775 + 0.3b .....(i)

b = 87,550 + 0.2a .....(ii)

Putting the value of 'b' in equation no. (i)

a = 1,25,775 + 0.3 (87,550 + 0.2a)

Or a = 1,25,775 + 26,265 + 0.06a

Or 0.94a = 1,52,040 Or a = 1,61,745 (appx.)

Putting the value of a = 1,61,745 in equation no. (ii) to get the value of 'b'

b = 87,550 + 0.2 × 1,61,745 = 1,19,899

**Secondary Distribution Summary**

| Particulars | Total (₹) | Machine Shops (₹) | Packing (₹) |
|---|---|---|---|
| Allocated and Apportioned overheads as per Primary distribution | 2,77,875 | 1,97,250.00 | 80,625.00 |
| -General Plant | 1,61,745 | 80,872.50 $(1,61,745 \times \frac{5}{10})$ | 48,523.50 $(1,61,745 \times \frac{3}{10})$ |
| -Stores | 1,19,899 | 59,949.50 (1,19,899 × 50%) | 23,979.80 (1,19,899 × 20%) |
| | | 3,38,072.00 | 1,53,128.30 |

**4. (i)** Costing Profit and Loss Account for the year ended 31st March 2019**:**

| Particulars | Amount (₹) | Particulars | Amount (₹) |
|---|---|---|---|
| Material consumed | 14,16,000 | Sales (30,000 units) | 30,00,000 |
| Direct wages | 7,42,000 | | |
| Prime Cost | 21,58,000 | | |
| Works overheads (20% of Prime cost) | 4,31,600 | | |
| | 25,89,600 | | |
| *Less:* Work in progress | (54,000) | | |
| Factory cost | 25,35,600 | | |

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| | | | |
|---|---|---|---|
| Administration overheads (₹5 × 32,000 units) | 1,60,000 | | |
| Cost of production | 26,95,600 | | |
| *Less:* Finished stock | (1,68,475) | | |
| Cost of goods sold | 25,27,125 | | |
| Selling and distribution overheads (₹6 × 30,000 unit) | 1,80,000 | | |
| Cost of sales | 27,07,125 | | |
| Profit (balancing figure) | 2,92,875 | | |
| | 30,00,000 | | 30,00,000 |

**(ii)** Statement reconciling the profit as per costing profit and loss account with the profit as per financial accounts

| Particulars | Amount (₹) | Amount (₹) |
|---|---|---|
| Profit as per cost records | | 2,92,875 |
| *Add:* Overheads over-absorbed: | | |
| - Works overheads (₹ 4,31,600 – ₹ 4,26,000) | 5,600 | |
| - Administration OH (₹ 1,60,000 – ₹ 1,50,000) | 10,000 | |
| - Selling and Distribution (₹ 1,80,000 – ₹ 1,65,000) | 15,000 | 30,600 |
| *Less:* Closing stock overvalued (₹ 1,68,475 – ₹ 1,67,500) | | (975) |
| Profit as per financial accounts | | 3,22,500 |

*It is assumed that the number of units Produced

= Number of units sold + Finished stock = 30,000 + 2,000 = 32,000 units.

**5.** Dr. **Contract Account for the year ended 31st March, 2019** Cr.

| Particulars | HP-1 (₹) | HP-2 (₹) | Particulars | HP-1 (₹) | HP-2 (₹) |
|---|---|---|---|---|---|
| To Balance b/d: W-I-P | 7,80,000 | 2,80,000 | By Closing material at site | 47,000 | 52,000 |
| To Material purchased | 6,20,000 | 8,10,000 | By W-I-P: | | |
| To Wages: (₹85,000+₹12,000) | 97,000 | | Value of work certified | 20,50,000 | 16,10,000 |
| (₹62,000+₹8,400) | | 70,400 | Cost of work not certified | 1,90,000 | 1,40,000 |
| To Donation to local club* | 5,000 | 2,500 | | | |

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| | | | | | |
|---|---|---|---|---|---|
| To Plant hire charges: (₹72,000x1/3) (₹57,000x1/3) | 24,000 | 19,000 | | | |
| To Depreciation on concrete mixture**: (₹8,20,000x15%x180/365) (₹8,20,000x15%x100/365) | 60,658 | 33,699 | | | |
| To Notional profit (balance c/d) | 7,00,342 | 5,86,401 | | | |
| | 22,87,000 | 18,02,000 | | 22,87,000 | 18,02,000 |
| To Costing P & L A/c (WN-2) | 1,86,758 | 1,56,374 | By Notional profit (balance b/d) | 7,00,342 | 5,86,401 |
| To Costing P& L Reserve A/c. | 5,13,584 | 4,30,027 | | | |
| | 7,00,342 | 5,86,401 | | 7,00,342 | 5,86,401 |

* Assuming donation paid to local club was exclusively for the above projects, hence included in the contract account.

** Depreciation on concrete mixture machine is charged on the basis of number of days used for the projects, as it is clearly mentioned in the question that this machine can be used for other projects also.

**Working Notes:**

1 Computation of Stage of completion of the projects:

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

$$HP-1 = \frac{₹\ 20,50,000}{₹\ 48,00,000} \times 100 = 42.71\%$$

$$HP-2 = \frac{₹\ 16,10,000}{₹\ 36,00,000} \times 100 = 44.72\%$$

2 Computation of profit to be recognized in the Costing profit & loss A/c.

$$\frac{1}{3} \times \text{ Notional profit } \times \frac{\text{Cash Received}}{\text{Value of work certified}}$$

$$HP-1 \quad = \frac{1}{3} \times ₹\ 7,00,342 \times 80\% = ₹1,86,758$$

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$$HP-2 \quad = \frac{1}{3} \times ₹\ 5,86,401 \times 80\% = ₹1,56,374$$

(Land purchased and brokerage and registration fee paid for this purpose cannot be charged to contract account, hence not included in the contract account)

**6. (i) Workings:**

(a) Distance travelled in a month = 40 k.m. × 2 × 2 trips × 5 days × 4 weeks
= 3,200 k.m.

(b) Total Tonne-km. = 10 tonnes × 40 k.m. × 2 trips × 5 days × 4 weeks
= 16,000 tonne-k.m.

(c) Consumption of diesel = 3,200 k.m. ÷ 10 k.m = 320 litre.

(d) Tyre cost = ₹22,000 ÷ 80,000 k.m. × 3,200 k.m = ₹880

(e) Depreciation of van = $\frac{₹16,00,000 - ₹2,40,000}{3,80,000 \text{k.m.}} \times 3,200 \text{k.m.}$ = ₹11,453

**Monthly Operating Cost Statement**

| Particulars | Amount (₹) |
|---|---|
| Running costs: | |
| - Cost of diesel (320 ltr × ₹48) | 15,360 |
| - Lubricant oil (₹600 × 4 weeks) | 2,400 |
| - Repairs & Maintenance | 1,800 |
| - Cost of tyres | 880 |
| - Depreciation | 11,453 |
| Total Running cost (A) | 31,893 |
| Fixed Costs: | |
| - Driver's salary | 12,000 |
| - Garage rent | 4,800 |
| - Insurance (₹5,400 ÷ 12) | 450 |
| - Permit fee (₹3,600 ÷ 12) | 300 |
| - Other overheads (₹66,000 ÷ 12) | 5,500 |
| Total fixed cost (B) | 23,050 |
| Total cost {(A) + (B)} | 54,943 |

**(ii)** Operating Cost per kilometre = $\frac{₹54,943}{3,200 \text{km.}}$ = ₹17.17

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$$\text{Cost per tonne-km} = \frac{₹54,943}{16,000\,\text{tonne}-\text{km.}} = ₹3.43$$

**7. (i) Statement of Equivalent Production (Average cost method)**

| Input (Units) | Particulars | Output Units | Equivalent Production | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Materials | | Labour | | Overheads | |
| | | | (%*) | Units** | (%)* | Units** | (%)* | Units** |
| 20,000 | Completed | 14,000 | 100 | 14,000 | 100 | 14,000 | 100 | 14,000 |
| | WIP | 6,000 | 100 | 6,000 | 33-1/3 | 2,000 | 33-1/3 | 2,000 |
| 20,000 | | 20,000 | | 20,000 | | 16,000 | | 16,000 |

*Percentage of completion ** Equivalent units

**(ii) Statement showing Cost for each element**

| Particulars | Materials | Labour | Overhead | Total |
|---|---|---|---|---|
| Cost of opening work-in-progress (₹) | 6,00,000 | 1,00,000 | 1,00,000 | 8,00,000 |
| Cost incurred during the month (₹) | 25,60,000 | 15,00,000 | 15,00,000 | 55,60,000 |
| Total cost (₹) : (A) | 31,60,000 | 16,00,000 | 16,00,000 | 63,60,000 |
| Equivalent units : (B) | 20,000 | 16,000 | 16,000 | |
| Cost per equivalent unit (₹) : C = (A ÷ B) | 158 | 100 | 100 | 358 |

**(iii) Statement of Apportionment of cost**

| | (₹) | (₹) |
|---|---|---|
| Value of output transferred: (A) (14,000 units × ₹ 358) | | 50,12,000 |
| Value of closing work-in-progress: (B) | | |
| Material (6,000 units × ₹158) | 9,48,000 | |
| Labour (2,000 units × ₹ 100) | 2,00,000 | |
| Overhead (2,000 units × ₹ 100) | 2,00,000 | 13,48,000 |
| Total cost : (A + B) | | 63,60,000 |

**(iv) Process- A Account**

| Particulars | Units | (₹) | Particulars | Units | (₹) |
|---|---|---|---|---|---|
| To Opening WIP | 4,000 | 8,00,000 | By Completed units | 14,000 | 50,12,000 |

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| | | | | | |
|---|---|---|---|---|---|
| To Materials | 16,000 | 25,60,000 | By Closing WIP | 6,000 | 13,48,000 |
| To Labour | | 15,00,000 | | | |
| To Overhead | | 15,00,000 | | | |
| | 20,000 | 63,60,000 | | 20,000 | 63,60,000 |

**8. (i) Statement showing the apportionment of joint costs to A, B and X**

| Products | A | B | X | Total |
|---|---|---|---|---|
| Output (kg) | 18,000 | 10,000 | 54,000 | |
| Sales value at the point of split off (₹) | 9,00,000 (₹ 50 x 18,000) | 4,00,000 (₹ 40 x 10,000) | 5,40,000 (₹ 10 x 54,000) | 18,40,000 |
| Joint cost apportionment on the basis of sales value at the point of split off (₹) | 6,30,000 $\left(\frac{₹12,88,000}{₹18,40,000} \times ₹9,00,000\right)$ | 2,80,000 $\left(\frac{₹12,88,000}{₹18,40,000} \times ₹4,00,000\right)$ | 3,78,000 $\left(\frac{₹12,88,000}{₹18,40,000} \times ₹5,40,000\right)$ | 12,88,000 |

**(ii) Statement showing the cost per kg. of each product (indicating joint cost; further processing cost and total cost separately)**

| Products | A | B | X |
|---|---|---|---|
| Joint costs apportioned (₹) : (I) | 6,30,000 | 2,80,000 | 3,78,000 |
| Production (kg) : (II) | 18,000 | 10,000 | 54,000 |
| Joint cost per kg (₹): (I ÷ II) | 35 | 28 | 7 |
| Further processing Cost per kg. (₹) | 10 $\left(\frac{₹1,80,000}{18,000\,kg}\right)$ | 15 $\left(\frac{₹1,50,000}{10,000\,kg}\right)$ | 2 $\left(\frac{₹1,08,000}{54,000\,kg}\right)$ |
| Total cost per kg (₹) | 45 | 43 | 9 |

**(iii) Statement showing the product wise and total profit for the period**

| Products | A | B | X | Total |
|---|---|---|---|---|
| Sales value (₹) | 12,24,000 | 2,50,000 | 7,92,000 | |
| *Add:* Closing stock value (₹) (Refer to Working note 2) | 45,000 | 2,15,000 | 90,000 | |
| Value of production (₹) | 12,69,000 | 4,65,000 | 8,82,000 | 26,16,000 |
| Apportionment of joint cost (₹) | 6,30,000 | 2,80,000 | 3,78,000 | |

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| | | | | |
|---|---|---|---|---|
| *Add:* Further processing cost (₹) | 1,80,000 | 1,50,000 | 1,08,000 | |
| Total cost (₹) | 8,10,000 | 4,30,000 | 4,86,000 | 17,26,000 |
| Profit (₹) | 4,59,000 | 35,000 | 3,96,000 | 8,90,000 |

**Working Notes**

**1.**

| Products | A | B | X |
|---|---|---|---|
| Sales value (₹) | 12,24,000 | 2,50,000 | 7,92,000 |
| Quantity sold (Kgs.) | 17,000 | 5,000 | 44,000 |
| Selling price ₹/kg | 72 $\left(\frac{₹\,12,24,000}{17,000\,kg}\right)$ | 50 $\left(\frac{₹\,2,50,000}{5,000\,kg}\right)$ | 18 $\left(\frac{₹\,7,92,000}{44,000\,kg}\right)$ |

**2. Valuation of closing stock:**

Since the selling price per kg of products A, B and X is more than their total costs, therefore closing stock will be valued at cost.

| Products | A | B | X | Total |
|---|---|---|---|---|
| Closing stock (kgs.) | 1,000 | 5,000 | 10,000 | |
| Cost per kg (₹) | 45 | 43 | 9 | |
| Closing stock value (₹) | 45,000 (₹ 45 x 1,000 kg) | 2,15,000 (₹ 43 x 5,000 kg) | 90,000 (₹9x10,000 kg) | 3,50,000 |

**(iv) Calculations for processing decision**

| Products | A | B | X |
|---|---|---|---|
| Selling price per kg at the point of split off (₹) | 50 | 40 | 10 |
| Selling price per kg after further processing (₹) (Refer to working Note 1) | 72 | 50 | 18 |
| Incremental selling price per kg (₹) | 22 | 10 | 8 |
| *Less:* Further processing cost per kg (₹) | (10) | (15) | (2) |
| Incremental profit (loss) per kg (₹) | 12 | (5) | 6 |

Product A and X has an incremental profit per unit after further processing, hence, these two products may be further processed. However, further processing of product B is not profitable hence, product B shall be sold at split off point.

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**9. Workings:**

1. Calculation of Actual Materials Consumed:

| Particulars | Material A (kg.) | Material B (kg.) |
|---|---|---|
| Opening stock | 40 | 50 |
| Add: Purchases | 900 | 1,400 |
| Less: Closing Stock | (10) | (60) |
| Material Consumed | 930 | 1,390 |

(i) Material Price Variance:

Actual Quantity (Std. Price – Actual Price) = AQ × SP – AQ × AP

Material A= (930 kg × ₹40) - {(40 kg × ₹40) + (890 kg × ₹42.50)}

= ₹37,200 – (₹1,600 + ₹37,825) = ₹2,225 (A)

Material B = (1,390 kg × ₹30) - {(50 kg × ₹30) + (1,340 kg × ₹25)}

= ₹41,700 – (₹1,500 + ₹33,500) = ₹6,700 (F)

(ii) Material Usage Variance = Std. Price (Std. Quantity - Actual Quantity)

Material A = ₹40 $\{(\frac{40\% \text{ of } 2,000}{0.85}) - 930 \text{ kg}\}$

= ₹40 (941.18 kg. – 930 kg) = ₹447 (F)

Material B = ₹30 $\{(\frac{60\% \text{ of } 2,000}{0.85}) - 1,390 \text{ kg}\}$

= ₹30 (1,411.76 kg. – 1,390 kg) = ₹653 (F)

(iii) Material Mix Variance = Std. Price (Revised Std. Quantity – Actual Quantity)

Material A = ₹40 {(40% of 2,320) - 930 kg} = ₹80 (A)

Material B = ₹30 { (60% of 2,320) - 1,390 kg} = ₹60 (F)

(iv) Material Yield Variance = Std. Price (Std. Quantity – Revised Std. Quantity)

Material A = ₹40 $\{(\frac{40\% \text{ of } 2,000}{0.85}) - (40\% \text{ of } 2,320)\}$

= ₹40 { 941.18 kg. – 928 kg.} = 527 (F)

Material B = ₹30 $\{(\frac{60\% \text{ of } 2,000}{0.85}) - (60\% \text{ of } 2,320)\}$

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= ₹30 {1,411.76 kg. – 1,392 kg.} = 593 (F)

(v) Total Material Cost Variance = Std. Price × Std Qty. – Actual Price × Actual Qty.

Material A = $[\{₹40 \times (\frac{40\% \text{ of } 2,000}{0.85})\} - \{(40 \text{ kg} \times ₹40) + (890 \text{ kg} \times ₹42.50)\}]$

= {₹40 × 941.18 kg.} – {₹1,600 + ₹37,825}

= ₹37,647 – ₹39,425 = ₹1,778 (A)

Material B = $[\{₹30 \times (\frac{60\% \text{ of } 2,000}{0.85})\} - \{(50 \text{ kg} \times ₹30) + (1,340 \text{ kg} \times ₹25)\}]$

= {₹30 × 1,411.76 kg.} – {₹1,500 + ₹33,500}

= ₹42,353 – ₹35,000 = ₹7,353 (F)

**10. (i)** Contribution = ₹375 - ₹175 = ₹200 per unit.

Break even Sales Quantity = $\frac{\text{Fixed cost}}{\text{Contribution margin per unit}} = \frac{₹\ 3,50,00,000}{₹\ 200}$ = 1,75,000 units

Cash Break even Sales Qty= $\frac{\text{Cash Fixed Cost}}{\text{Contribution margin per unit}} = \frac{₹2,00,00,000}{₹200}$ = 1,00,000 units.

**(ii)** P/V ratio = $\frac{\text{Contribution/unit}}{\text{Selling Price/unit}} \times 100 = \frac{₹200}{₹375} \times 100$ = 53.33%

**(iii)** No. of units that must be sold to earn an Income (EBIT) of ₹ 25,00,000

$\frac{\text{Fixed cost + Desired EBIT level}}{\text{Contribution margin per unit}} = \frac{3,50,00,000 + 25,00,000}{200}$ = 1,87,500 units

**(iv)** After Tax Income (PAT) = ₹25,00,000

Tax rate = 40%

Desired level of Profit before tax = $\frac{₹25,00,000}{60} \times 100$ = ₹41,66,667

Estimate Sales Level = $\frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V ratio}}$

Or, $\left(\frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}} \times \text{Selling Price per unit}\right)$

= $\frac{₹3,50,00,000 + ₹\ 41,66,667}{53.33\%}$ = ₹7,34,42,091

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**11. (a) Production Budget (in units)**

| | Product- K (units) | Product- H (units) |
|---|---|---|
| Expected sales | 8,000 | 4,200 |
| *Add:* Closing stock | 1,000 | 2,100 |
| *Less:* Opening stock | (800) | (1,600) |
| Units to be produced | 8,200 | 4,700 |

**(b) Material Purchase Budget**

| | Material-X (kg.) | Material-Y (kg.) | Material-Z (ltr.) |
|---|---|---|---|
| Materials required: | | | |
| - Product-K | 98,400 (8,200 units ×12 kg.) | 1,23,000 (8,200 units×15 kg.) | 65,600 (8,200 units× 8 ltr.) |
| - Product- H | 70,500 (4,700 units ×15 kg.) | 28,200 (4,700 units × 6 kg.) | 65,800 (4,700 units×14ltr.) |
| Total | 1,68,900 | 1,51,200 | 1,31,400 |
| *Add:* Closing stock | 30,000 | 18,000 | 7,500 |
| *Less:* Opening stock | (25,000) | (30,000) | (14,000) |
| Quantity to be purchased | 1,73,900 | 1,39,200 | 1,24,900 |
| Rate | ₹15 per kg. | ₹16 per kg. | ₹5 per ltr. |
| Purchase cost | ₹ 26,08,500 | ₹ 22,27,200 | ₹ 6,24,500 |

**(c) Direct Labour Budget**

| | Unskilled (hours) | Skilled (hours) |
|---|---|---|
| For Product K | 98,400 (8,200 units × 12 hours) | 65,600 (8,200 units × 8 hours) |
| For Product H | 47,000 (4,700 units × 10 hours) | 23,500 (4,700 units × 5 hours) |
| Labour hours required | 1,45,400 | 89,100 |
| Rate | ₹ 40 per hour | ₹ 75 per hour |
| Wages to be paid | ₹ 58,16,000 | ₹ 66,82,500 |

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**12. (a) Difference between Cost Control and Cost Reduction**

| Cost Control | Cost Reduction |
|---|---|
| 1. Cost control aims at maintaining the costs in accordance with the established standards. | 1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously |
| 2. Cost control seeks to attain lowest possible cost under existing conditions. | 2. Cost reduction recognises no condition as permanent, since a change will result in lower cost. |
| 3. In case of cost control, emphasis is on past and present | 3. In case of cost reduction, it is on present and future. |
| 4. Cost control is a preventive function | 4. Cost reduction is a corrective function. It operates even when an efficient cost control system exists. |
| 5. Cost control ends when targets are achieved. | 5. Cost reduction has no visible end. |

**(b) Accounting treatment of idle time wages & overtime wages in cost accounts:** Normal idle time is treated as a part of the cost of production. Thus, in the case of direct workers, an allowance for normal idle time is built into the labour cost rates. In the case of indirect workers, normal idle time is spread over all the products or jobs through the process of absorption of factory overheads.

**Under Cost Accounting, the overtime premium is treated as follows:**

- If overtime is resorted to at the desire of the customer, then the overtime premium may be charged to the job directly.
- If overtime is required to cope with general production program or for meeting urgent orders, the overtime premium should be treated as overhead cost of particular department or cost center which works overtime.
- Overtime worked on account of abnormal conditions should be charged to costing Profit & Loss Account.
- If overtime is worked in a department due to the fault of another department the overtime premium should be charged to the latter department.

**(c) Cost classification based on variability**

(a) **Fixed Costs** – These are the costs which are incurred for a period, and which, within certain output and turnover limits, tend to be unaffected by fluctuations in the levels of activity (output or turnover). They do not tend to increase or decrease with the changes in output. For example, rent, insurance of factory building etc., remain the same for different levels of production.

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(b) **Variable Costs** – These costs tend to vary with the volume of activity. Any increase in the activity results in an increase in the variable cost and vice-versa. For example, cost of direct labour, etc.

(c) **Semi-variable Costs** – These costs contain both fixed and variable components and are thus partly affected by fluctuations in the level of activity. Examples of semi variable costs are telephone bills, gas and electricity etc.

**Cost classification based on controllability**

(a) **Controllable Costs** - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For example, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management.

(b) **Uncontrollable Costs** - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For example, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman.

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## PART-II: FINANCIAL MANAGEMENT

## QUESTIONS

### Time Value of Money

1. Calculate if ₹10,00,000 is invested at interest rate of 12% per annum, what is the amount after 3 years if the compounding of interest is done?

   (i) Annually

   (ii) Semi-annually

   (iii) Quarterly

### Ratio Analysis

2. From the following table of financial ratios of R. Textiles Limited, comment on various ratios given at the end:

| Ratios | 2017 | 2018 | Average of Textile Industry |
|---|---|---|---|
| **Liquidity Ratios** | | | |
| Current ratio | 2.2 | 2.5 | 2.5 |
| Quick ratio | 1.5 | 2 | 1.5 |
| Receivable turnover ratio | 6 | 6 | 6 |
| Inventory turnover | 9 | 10 | 6 |
| Receivables collection period | 87 days | 86 days | 85 days |
| **Operating profitability** | | | |
| Operating income –ROI | 25% | 22% | 15% |
| Operating profit margin | 19% | 19% | 10% |
| **Financing decisions** | | | |
| Debt ratio | 49.00% | 48.00% | 57% |
| **Return** | | | |
| Return on equity | 24% | 25% | 15% |

Comment on the following aspect of R. Textiles Limited

(i) Liquidity

(ii) Operating profits

(iii) Financing

(iv) Return to the shareholders

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**Fund Flow Analysis**

3. The following are the Balance Sheets of Gama Limited for the year ending March 31, 20X8 and March 31, 20X9:

**Balance Sheet as at March, 31**

| | 20X9 (₹) | 20X8 (₹) |
|---|---|---|
| **Capital and Liabilities** | | |
| Share Capital | 7,87,500 | 6,75,000 |
| General Reserves | 2,81,250 | 2,25,000 |
| Capital Reserve (Profit on Sale of investment) | 11,250 | - |
| Profit & Loss Account | 2,25,000 | 1,12,500 |
| 15% Debentures | 2,25,000 | 3,37,500 |
| Accrued Expenses | 13,500 | 11,250 |
| Creditors | 2,81,250 | 1,80,000 |
| Provision for Dividends | 38,250 | 33,750 |
| Provision for Taxation | 85,500 | 78,750 |
| Total | 19,48,500 | 16,53,750 |
| **Assets** | | |
| Fixed Assets | 13,50,000 | 11,25,000 |
| Less: Accumulated depreciation | 2,81,250 | 2,25,000 |
| Net Fixed Assets | 10,68,750 | 9,00,000 |
| Long-term Investments (at cost) | 2,02,500 | 2,02,500 |
| Stock (at cost) | 3,03,750 | 2,25,000 |
| Debtors (net of provision for doubtful debts of ₹ 45,000 and ₹ 56,250 respectively for 20X8 and 20X9 respectively) | 2,75,625 | 2,53,125 |
| Bills receivables | 73,125 | 45,000 |
| Prepaid Expenses | 13,500 | 11,250 |
| Miscellaneous Expenditure | 11,250 | 16,875 |
| | 19,48,500 | 16,53,750 |

**Additional Information:**

(i) During the year 20X8-X9, fixed assets with a net book value of ₹ 11,250 (accumulated depreciation, ₹ 33,750) was sold for ₹ 9,000.

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(ii) During the year 20X8-X9, Investments costing ₹ 90,000 were sold, and also Investments costing ₹ 90,000 were purchased.

(iii) Debentures were retired at a Premium of 10%.

(iv) Tax of ₹ 61,875 was paid for 20X7-X8.

(v) During the year 20X8-X9, bad debts of ₹ 15,750 were written off against the provision for Doubtful Debt account.

(vi) The proposed dividend for 20X7-X8 was paid in 20X8-X9.

**Required:**

Prepare a Funds Flow Statement (Statement of changes in Financial Position on working capital basis) for the year ended March 31, 20X9.

**Cost of Capital**

4. As a financial analyst of a large electronics company, you are required to determine the weighted average cost of capital of the company using (a) book value weights and (b) market value weights. The following information is available for your perusal.

The Company's present book value capital structure is:

| | (₹) |
|---|---|
| Debentures (₹100 per debenture) | 8,00,000 |
| Preference shares (₹100 per share) | 2,00,000 |
| Equity shares (₹10 per share) | 10,00,000 |
| | 20,00,000 |

All these securities are traded in the capital markets. Recent prices are:

Debentures, ₹110 per debenture, Preference shares, ₹120 per share, and Equity shares, ₹ 22 per share

Anticipated external financing opportunities are:

(i) ₹ 100 per debenture redeemable at par; 10 year maturity, 11 per cent coupon rate, 4 per cent flotation costs, sale price, ₹ 100

(ii) ₹ 100 preference share redeemable at par; 10 year maturity, 12 per cent dividend rate, 5 per cent flotation costs, sale price, ₹100.

(iii) Equity shares: ₹ 2 per share flotation costs, sale price = ₹ 22.

In addition, the dividend expected on the equity share at the end of the year is ₹ 2 per share, the anticipated growth rate in dividends is 7 per cent and the firm has the practice of paying all its earnings in the form of dividends. The corporate tax rate is 35 per cent.

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**Capital Structure**

5. Akash Limited provides you the following information:

| | (₹) |
|---|---|
| Profit (EBIT) | 2,80,000 |
| *Less:* Interest on Debenture @ 10% | (40,000) |
| EBT | 2,40,000 |
| *Less* Income Tax @ 50% | (1,20,000) |
| | 1,20,000 |
| No. of Equity Shares (₹ 10 each) | 30,000 |
| Earnings per share (EPS) | 4 |
| Price /EPS (PE) Ratio | 10 |

The company has reserves and surplus of ₹ 7,00,000 and required ₹ 4,00,000 further for modernisation. Return on Capital Employed (ROCE) is constant. Debt (Debt/ Debt + Equity) Ratio higher than 40% will bring the P/E Ratio down to 8 and increase the interest rate on additional debts to 12%. You are required to ascertain the probable price of the share.

(i) If the additional capital are raised as debt; and

(ii) If the amount is raised by issuing equity shares at ruling market price.

**Leverage**

6. A Company had the following Balance Sheet as on March 31, 2019:

| Equity and Liabilities | (₹ in crore) | Assets | (₹ in crore) |
|---|---|---|---|
| Equity Share Capital (10 crore shares of ₹ 10 each) | 100 | Fixed Assets (Net) | 250 |
| Reserves and Surplus | 20 | Current Assets | 150 |
| 15% Debentures | 200 | | |
| Current Liabilities | 80 | | |
| | 400 | | 400 |

The additional information given is as under:

| | |
|---|---|
| Fixed Costs per annum (excluding interest) | ₹ 80 crores |
| Variable operating costs ratio | 65% |
| Total Assets turnover ratio | 2.5 |
| Income-tax rate | 40% |

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Required:

Calculate the following and comment:

(i) Earnings per share

(ii) Operating Leverage

(iii) Financial Leverage

(iv) Combined Leverage.

**Capital Budgeting**

7. BT Pathology Lab Ltd. is using an X-ray machines which reached at the end of their useful lives. Following new X-ray machines are of two different brands with same features are available for the purchase.

| Brand | Cost of Machine | Life of Machine | Maintenance Cost | | | Rate of Depreciation |
|---|---|---|---|---|---|---|
| | | | Year 1-5 | Year 6-10 | Year 11-15 | |
| XYZ | ₹6,00,000 | 15 years | ₹ 20,000 | ₹ 28,000 | ₹ 39,000 | 4% |
| ABC | ₹4,50,000 | 10 years | ₹ 31,000 | ₹ 53,000 | -- | 6% |

Residual Value of both of above machines shall be dropped by 1/3 of Purchase price in the first year and thereafter shall be depreciated at the rate mentioned above.

Alternatively, the machine of Brand ABC can also be taken on rent to be returned back to the owner after use on the following terms and conditions:

- Annual Rent shall be paid in the beginning of each year and for first year it shall be ₹ 1,02,000.
- Annual Rent for the subsequent 4 years shall be ₹ 1,02,500.
- Annual Rent for the final 5 years shall be ₹ 1,09,950.
- The Rent Agreement can be terminated by BT Labs by making a payment of ₹ 1,00,000 as penalty. This penalty would be reduced by ₹ 10,000 each year of the period of rental agreement.

You are required to:

(a) Advise which brand of X-ray machine should be acquired assuming that the use of machine shall be continued for a period of 20 years.

(b) State which of the option is most economical if machine is likely to be used for a period of 5 years?

The cost of capital of BT Labs is 12%.

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**Working Capital Management**

8. A company is considering its working capital investment and financial policies for the next year. Estimated fixed assets and current liabilities for the next year are ₹ 2.60 crores and ₹ 2.34 crores respectively. Estimated Sales and EBIT depend on current assets investment, particularly inventories and book-debts. The Financial Controller of the company is examining the following alternative Working Capital Policies:

**(₹ in crore)**

| Working Capital Policy | Investment in Current Assets | Estimated Sales | EBIT |
|---|---|---|---|
| Conservative | 4.50 | 12.30 | 1.23 |
| Moderate | 3.90 | 11.50 | 1.15 |
| Aggressive | 2.60 | 10.00 | 1.00 |

After evaluating the working capital policy, the Financial Controller has advised the adoption of the moderate working capital policy. The company is now examining the use of long-term and short-term borrowings for financing its assets. The company will use ₹ 2.50 crores of the equity funds. The corporate tax rate is 35%. The company is considering the following debt alternatives.

**(₹ in crore)**

| Financing Policy | Short-term Debt | Long-term Debt |
|---|---|---|
| Conservative | 0.54 | 1.12 |
| Moderate | 1.00 | 0.66 |
| Aggressive | 1.50 | 0.16 |
| Interest rate-Average | 12% | 16% |

You are required to calculate the following:

(i) Working Capital Investment for each policy:

  (a) Net Working Capital position

  (b) Rate of Return

  (c) Current ratio

(ii) Financing for each policy:

  (a) Net Working Capital position.

  (b) Rate of Return on Shareholders' equity.

  (c) Current ratio.

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**Management of Working Capital**

9. A proforma cost sheet of a company provides the following particulars:

| | Amount per unit (₹) |
|---|---|
| Raw materials cost | 100.00 |
| Direct labour cost | 37.50 |
| Overheads cost | 75.00 |
| Total cost | 212.50 |
| Profit | 37.50 |
| Selling Price | 250.00 |

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at ₹37,500.

Required:

Prepare a statement showing estimate of Working Capital needed to finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects.

**Miscellaneous**

10. Write short notes on the following:
    (a) Functions of Finance Manager.
    (b) Inter relationship between investment, financing and dividend decisions.
    (c) Debt securitisation

## SUGGESTED HINTS/ANSWERS

**1.** Computation of future value

Principal ($P_0$) = ₹ 10,00,000

Rate of interest (i) = 12% p.a.

Time period (n) = 3 years

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Amount if compounding is done:

**(i) Annually**

Future Value = $P(1+i)^n$

= ₹10,00,000 $(1 + 0.12)^3$

= ₹10,00,000 × 1.404928

= ₹ 14,04,928

**(ii) Semi Annually**

Future Value = $₹10,00,000 \left(1+\frac{12}{100\times 2}\right)^{3\times 2}$

= ₹10,00,000 $(1 + 0.06)^6$

= ₹10,00,000 × 1.418519

= ₹ 14,18,519

**(iii) Quarterly**

Future Value = $₹10,00,000 \left(1+\frac{12}{100\times 2}\right)^{3\times 4}$

= ₹10,00,000 $(1 + 0.03)^{12}$

= ₹10,00,000 × 1.425761

= ₹14,25,761

**2.**

| Ratios | Comment |
|---|---|
| Liquidity | Current ratio has improved from last year and matching the industry average.<br>Quick ratio also improved than last year and above the industry average. This may happen due to reduction in receivable collection period and quick inventory turnover. However, this also indicates idleness of funds.<br>Overall it is reasonably good. All the liquidity ratios are either better or same in both the year compare to the Industry Average. |
| Operating Profits | Operating Income-ROI reduced from last year but Operating Profit Margin has been maintained. This may happen due to variability of cost on turnover. However, both the ratio are still higher than the industry average. |

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| | |
|---|---|
| Financing | The company has reduced its debt capital by 1% and saved operating profit for equity shareholders. It also signifies that dependency on debt compared to other industry players (57%) is low. |
| Return to the shareholders | R's ROE is 24 per cent in 2017 and 25 per cent in 2018 compared to an industry average of 15 per cent. The ROE is stable and improved over the last year. |

**3. Fund Flow Statement as at 31st March 20X9**

| | | (₹) |
|---|---|---|
| **A.** | **Sources of Funds:** | |
| | (i) Fund from Business Operations (W.N. 1) | 3,16,125 |
| | (ii) Sale of Fixed Assets | 9,000 |
| | (iii) Sale of Investments (₹ 90,000 + ₹ 11,250) | 1,01,250 |
| | (iv) Issue of Shares (₹ 7,87,500 - ₹ 6,75,000) | 1,12,500 |
| | Total sources | 5,38,875 |
| **B.** | **Application of Funds:** | |
| | (i) Purchase of Fixed Assets | 2,70,000 |
| | (ii) Purchase of Investments | 90,000 |
| | (iii) Payment to Debenture holders {(₹ 3,37,500 – ₹ 2,25,000) × 110%} | 1,23,750 |
| | (iv) Payment of Dividends | 33,750 |
| | Total uses | 5,17,500 |
| | Increase in Working Capital (A - B) | 21,375 |

**Working Notes (W.N.):**

**1. Computation of Funds from Business Operation**

| | | (₹) |
|---|---|---|
| | Profit and loss as on March 31, 20X9 | 2,25,000 |
| *Add:* | Depreciation | 90,000 |
| | Loss on Sale of Asset | 2,250 |
| | Misc. Expenditure written off | 5,625 |
| | Transfer to Reserves | 56,250 |
| | Premium on Redemption of debentures | 11,250 |
| | Provision for Dividend | 38,250 |

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| | | |
|---|---|---|
| | | 4,28,625 |
| *Less:* | Profit and loss as on March 31, 20X7 | 1,12,500 |
| | Fund from Operations | 3,16,125 |

**2. Accumulated Depreciation A/c**

| | | | |
|---|---|---|---|
| To Fixed Asset A/c | 33,750 | By Balance b/d | 2,25,000 |
| To Balance c/d | 2,81,250 | By P/L A/c (Prov. for depreciation) (Bal. Fig.) | 90,000 |
| | 3,15,000 | | 3,15,000 |

**3. Fixed Assets A/c**

| | | | |
|---|---|---|---|
| To Balance b/d | 11,25,000 | By Acc. Depreciation A/c | 33,750 |
| To Bank (Purchase of Fixed Asset) (Bal. fig.) | 2,70,000 | By Cash | 9,000 |
| | | By P/L (Loss on sale) | 2,250 |
| | | By Balance c/d | 13,50,000 |
| | 13,95,000 | | 13,95,000 |

**4. Statement of Changes in Working Capital**

| | March 31, 20X8 | March 31, 20X9 | Change in Working Capital | |
|---|---|---|---|---|
| | | | Increase | Decrease |
| **Current Assets** | | | | |
| Stock | 2,25,000 | 3,03,750 | 78,750 | -- |
| Debtors | 2,53,125 | 2,75,625 | 22,500 | -- |
| Bills Receivables | 45,000 | 73,125 | 28,125 | -- |
| Prepaid Expenses | 11,250 | 13,500 | 2,250 | -- |
| | 5,34,375 | 6,66,000 | -- | -- |
| **Current Liabilities** | | | | |
| Accrued Expenses | 11,250 | 13,500 | -- | 2,250 |
| Creditors | 1,80,000 | 2,81,250 | -- | 1,01,250 |
| Provision for Taxation | 78,750 | 85,500 | -- | 6,750 |
| | 2,70,000 | 3,80,250 | -- | -- |
| Working Capital | 2,64,375 | 2,85,750 | -- | -- |
| Increase in Working Capital | 21,375 | - | - | 21,375 |
| | 2,85,750 | 2,85,750 | 1,31,625 | 1,31,625 |

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**4.** Determination of specific costs:

(i) Cost Debt ($K_d$) = $\dfrac{\text{Interest}(1-t)+\dfrac{(RV-NP)}{N}}{\dfrac{(RV+NP)}{2}} = \dfrac{₹11(1-0.35)+\dfrac{(₹100-₹96)}{10\text{ years}}}{\dfrac{(₹100+₹96)}{2}}$

$= \dfrac{₹7.15+₹0.4}{₹98} = 0.077 \text{ or } 7.70\%$

(ii) Cost of Preference Shares ($K_p$) $= \dfrac{PD+\dfrac{(RV-NP)}{N}}{\dfrac{(RV+NP)}{2}} = \dfrac{₹12+\dfrac{(₹100-₹95)}{10\text{ years}}}{\dfrac{(₹100+₹95)}{2}}$

$= \dfrac{₹12+₹0.5}{₹97.5} = 0.1282 \text{ or } 12.82\%$

(iii) Cost of Equity shares ($K_e$) $= \dfrac{D_1}{P_0}+G = \dfrac{₹2}{₹22-₹2}+0.07 = 0.17 \text{ or } 17\%$

I – Interest, t – Tax, RV- Redeemable value, NP- Net proceeds, N- No. of years, PD- Preference dividend, $D_1$- Expected Dividend, $P_0$- Price of share (net)

Using these specific costs, we can calculate WACC on the basis of book value and market value weights as follows:

(a) Weighted Average Cost of Capital ($K_0$) based on Book value weights

| Source of capital | Book value (₹) | Weights | Specific cost (%) | WACC (%) |
|---|---|---|---|---|
| Debentures | 8,00,000 | 0.40 | 7.70 | 3.08 |
| Preferences shares | 2,00,000 | 0.10 | 12.82 | 1.28 |
| Equity shares | 10,00,000 | 0.50 | 17.00 | 8.50 |
| | 20,00,000 | 1.00 | | 12.86 |

(b) Weighted Average Cost of Capital ($K_0$) based on market value weights:

| Source of capital | Market value (₹) | Weights | Specific cost (%) | WACC (%) |
|---|---|---|---|---|
| Debentures | 8,80,000 | 0.265 | 7.70 | 2.04 |

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| | | | | |
|---|---|---|---|---|
| $\left(\frac{₹8,00,000}{₹100}\times₹110\right)$ | | | | |
| Preferences shares $\left(\frac{₹2,00,000}{₹100}\times₹120\right)$ | 2,40,000 | 0.072 | 12.82 | 0.92 |
| Equity shares $\left(\frac{₹10,00,000}{₹10}\times₹22\right)$ | 22,00,000 | 0.663 | 17.00 | 11.27 |
| | 33,20,000 | 1.000 | | 14.23 |

**5. Ascertainment of probable price of shares of Akash limited**

| Particulars | Plan-I | Plan-II |
|---|---|---|
| | **If ₹ 4,00,000 is raised as debt (₹)** | **If ₹ 4,00,000 is raised by issuing equity shares (₹)** |
| Earnings Before Interest and Tax (EBIT) {20% of new capital i.e. 20% of (₹14,00,000 + ₹4,00,000)} (Refer working note1) | 3,60,000 | 3,60,000 |
| *Less*: Interest on old debentures (10% of ₹4,00,000) | (40,000) | (40,000) |
| *Less*: Interest on new debt (12% of ₹4,00,000) | (48,000) | -- |
| Earnings Before Tax (EBT) | 2,72,000 | 3,20,000 |
| *Less:* Tax @ 50% | (1,36,000) | (1,60,000) |
| Earnings for equity shareholders (EAT) | 1,36,000 | 1,60,000 |
| No. of Equity Shares (refer working note 2) | 30,000 | 40,000 |
| Earnings per Share (EPS) | ₹ 4.53 | ₹ 4.00 |
| Price/ Earnings (P/E) Ratio (refer working note 3) | 8 | 10 |
| Probable Price Per Share (PE Ratio × EPS) | ₹ 36.24 | ₹ 40 |

**Working Notes:**

**1. Calculation of existing Return of Capital Employed (ROCE):**

| | (₹) |
|---|---|
| Equity Share capital (30,000 shares × ₹10) | 3,00,000 |

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| | |
|---|---|
| 10% Debentures $\left(₹40,000 \times \frac{100}{10}\right)$ | 4,00,000 |
| Reserves and Surplus | 7,00,000 |
| Total Capital Employed | 14,00,000 |
| Earnings before interest and tax (EBIT) (given) | 2,80,000 |
| ROCE = $\frac{₹2,80,000}{₹14,00,000} \times 100$ | 20% |

**2. Number of Equity Shares to be issued in Plan-II:**

$= \frac{₹4,00,000}{₹40} = 10,000$ shares

Thus, after the issue total number of shares = 30,000+ 10,000 = 40,000 shares

**3. Debt/Equity Ratio if ₹ 4,00,000 is raised as debt:**

$= \frac{₹8,00,000}{₹18,00,000} \times 100 = 44.44\%$

As the debt equity ratio is more than 40% the P/E ratio will be brought down to 8 in Plan-I

**6.** Total Assets = ₹ 400 crores

Asset Turnover Ratio = 2.5

Hence, Total Sales = 400 × 2.5 = ₹ 1,000 crores

**Computation of Profits after Tax (PAT)**

| | **(₹ in crore)** |
|---|---|
| Sales | 1,000 |
| *Less*: Variable operating cost (65% of ₹1,000 crore) | (650) |
| Contribution | 350 |
| *Less*: Fixed cost (other than Interest) | (80) |
| EBIT | 270 |
| *Less*: Interest on debentures (15% × ₹200 crore) | (30) |
| EBT | 240 |
| *Less*: Tax 40% | (96) |
| EAT (earnings available to equity share holders) | 144 |

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**(i) Earnings per share (EPS)**

$$\therefore \text{EPS} = \frac{₹\ 144 \text{ crores}}{10 \text{ crore equity shares}} = ₹\ 14.40$$

**(ii) Operating Leverage**

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{350}{270} = 1.296$$

It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

**(iii) Financial Leverage**

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{270}{240} = 1.125$$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

**(iv) Combined Leverage**

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}}$$

Or, Operating Leverage × Financial Leverage $= 1.296 \times 1.125 = 1.458$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

**7.** Since the life span of each machine is different and time span exceeds the useful lives of each model, we shall use Equivalent Annual Cost method to decide which brand should be chosen.

**(i) If machine is used for 20 years**

**Present Value (PV) of cost if machine of Brand XYZ is purchased**

| Period | Cash Outflow (₹) | PVF@12% | Present Value |
|---|---|---|---|
| 0 | 6,00,000 | 1.000 | 6,00,000 |
| 1-5 | 20,000 | 3.605 | 72,100 |
| 6-10 | 28,000 | 2.045 | 57,260 |
| 11-15 | 39,000 | 1.161 | 45,279 |
| 15 | (64,000) | 0.183 | (11,712) |
| | | | 7,62,927 |

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PVAF for 1-15 years 6.811

Equivalent Annual Cost = $\frac{₹7,62,927}{6.811}$ = ₹ 1,12,014

**Present Value (PV) of cost if machine of Brand ABC is purchased**

| Period | Cash Outflow (₹) | PVF@12% | Present Value |
|---|---|---|---|
| 0 | 4,50,000 | 1.000 | 4,50,000 |
| 1 - 5 | 31,000 | 3.605 | 1,11,755 |
| 6 -10 | 53,000 | 2.045 | 1,08,385 |
| 10 | (57,000) | 0.322 | (18,354) |
| | | | 6,51,786 |

PVAF for 1-10 years 5.65

Equivalent Annual Cost = $\frac{₹6,51,786}{5.65}$ = ₹ 1,15,360

**Present Value (PV) of cost if machine of Brand ABC is taken on Rent**

| Period | Cash Outflow (₹) | PVF@12% | Present Value |
|---|---|---|---|
| 0 | 1,02,000 | 1.000 | 1,02,000 |
| 1 - 4 | 1,02,500 | 3.037 | 3,11,293 |
| 5-9 | 1,09,950 | 2.291 | 2,51,895 |
| | | | 6,65,188 |

PVAF for 1-10 years 5.65

Equivalent Annual Cost = $\frac{₹6,65,188}{5.65}$ = ₹ 1,17,732

**Decision:** Since Equivalent Annual Cash Outflow is least in case of purchase of Machine of brand XYZ the same should be purchased.

**(ii) If machine is used for 5 years**

(a) Scrap Value of Machine of Brand XYZ

= ₹ 6,00,000 – ₹ 2,00,000 – ₹ 6,00,000 × 0.04 × 4 = ₹ 3,04,000

(b) Scrap Value of Machine of Brand ABC

= ₹ 4,50,000 – ₹ 1,50,000 – ₹ 4,50,000 × 0.06 × 4 = ₹ 1,92,000

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**Present Value (PV) of cost if machine of Brand XYZ is purchased**

| Period | Cash Outflow (₹) | PVF@12% | Present Value |
|---|---|---|---|
| 0 | 6,00,000 | 1.000 | 6,00,000 |
| 1 - 5 | 20,000 | 3.605 | 72,100 |
| 5 | (3,04,000) | 0.567 | (1,72,368) |
| | | | 4,99,732 |

**Present Value (PV) of cost if machine of Brand ABC is purchased**

| Period | Cash Outflow (₹) | PVF@12% | Present Value |
|---|---|---|---|
| 0 | 4,50,000 | 1.000 | 4,50,000 |
| 1-5 | 31,000 | 3.605 | 1,11,755 |
| 5 | (1,92,000) | 0.567 | (1,08,864) |
| | | | 4,52,891 |

**Present Value (PV) of cost if machine of Brand ABC is taken on Rent**

| Period | Cash Outflow (₹) | PVF@12% | Present Value |
|---|---|---|---|
| 0 | 1,02,000 | 1.000 | 1,02,000 |
| 1-4 | 1,02,500 | 3.037 | 3,11,293 |
| 5 | 50,000 | 0.567 | 28,350 |
| | | | 4,41,643 |

**Decision:** Since Cash Outflow is least in case of lease of Machine of brand ABC the same should be taken on rent.

**8. (i) Statement showing Working Capital Investment for each policy**

**(₹ in crore)**

| | Working Capital Policy | | |
|---|---|---|---|
| | Conservative | Moderate | Aggressive |
| Current Assets: (i) | 4.50 | 3.90 | 2.60 |
| Fixed Assets: (ii) | 2.60 | 2.60 | 2.60 |
| Total Assets: (iii) | 7.10 | 6.50 | 5.20 |
| Current liabilities: (iv) | 2.34 | 2.34 | 2.34 |
| Net Worth: (v) = (iii) - (iv) | 4.76 | 4.16 | 2.86 |
| Total liabilities: (iv) + (v) | 7.10 | 6.50 | 5.20 |
| Estimated Sales: (vi) | 12.30 | 11.50 | 10.00 |

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| | | | |
|---|---|---|---|
| EBIT: (vii) | 1.23 | 1.15 | 1.00 |
| (a) Net working capital position: (i) - (iv) | 2.16 | 1.56 | 0.26 |
| (b) Rate of return: (vii) /(iii) | 17.32% | 17.69% | 19.23% |
| (c) Current ratio: (i)/ (iv) | 1.92 | 1.67 | 1.11 |

**(ii) Statement Showing Effect of Alternative Financing Policy**

**(₹ in crore)**

| Financing Policy | Conservative | Moderate | Aggressive |
|---|---|---|---|
| Current Assets (i) | 3.90 | 3.90 | 3.90 |
| Fixed Assets (ii) | 2.60 | 2.60 | 2.60 |
| Total Assets (iii) | 6.50 | 6.50 | 6.50 |
| Current Liabilities (iv) | 2.34 | 2.34 | 2.34 |
| Short term Debt (v) | 0.54 | 1.00 | 1.50 |
| Total current liabilities (vi) = (iv) + (v) | 2.88 | 3.34 | 3.84 |
| Long term Debt (vii) | 1.12 | 0.66 | 0.16 |
| Equity Capital (viii) | 2.50 | 2.50 | 2.50 |
| Total liabilities (ix) = (vi)+(vii)+(viii) | 6.50 | 6.50 | 6.50 |
| Forecasted Sales | 11.50 | 11.50 | 11.50 |
| EBIT (x) | 1.15 | 1.15 | 1.15 |
| *Less*: Interest on short-term debt | 0.06 (12% of ₹0.54) | 0.12 (12% of ₹ 1) | 0.18 (12% of ₹ 1.5) |
| Interest on long term debt | 0.18 (16% of ₹1.12) | 0.11 (16% of ₹0.66) | 0.03 (16% of ₹0.16) |
| Earnings before tax (EBT) (xi) | 0.91 | 0.92 | 0.94 |
| Taxes @ 35% (xii) | 0.32 | 0.32 | 0.33 |
| Earnings after tax: (xiii) = (xi) – (xii) | 0.59 | 0.60 | 0.61 |
| (a) Net Working Capital Position: (i) - [(iv) + (v)] | 1.02 | 0.56 | 0.06 |
| (b) Rate of return on shareholders Equity capital: (xiii)/ (viii) | 23.6% | 24.0% | 24.4% |
| (c) Current Ratio (i) / (vi) | 1.35 | 1.17 | 1.02 |

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**9. Statement showing Estimate of Working Capital Needs**

| | (Amount in ₹) | (Amount in ₹) |
|---|---|---|
| **A. Current Assets** | | |
| (i) Inventories: | | |
| Raw material (1 month or 4 weeks) $\left(\frac{1,30,000\text{ units}\times ₹100}{52\text{ weeks}}\times 4\text{ weeks}\right)$ | 10,00,000 | |
| WIP Inventory (1 week) $\left(\frac{1,30,000\text{ units}\times ₹212.50}{52\text{ weeks}}\times 1\text{week}\right)\times 0.8$ | 4,25,000 | |
| Finished goods inventory (2 weeks) $\left(\frac{1,30,000\text{ units}\times ₹212.50}{52\text{ weeks}}\times 2\text{ weeks}\right)$ | 10,62,500 | 24,87,500 |
| (ii) Receivables (Debtors) (4 weeks) $\left(\frac{1,30,000\text{ units}\times ₹212.50}{52\text{ weeks}}\times 4\text{ weeks}\right)\times \frac{4}{5_{th}}$ | | 17,00,000 |
| (iii) Cash and bank balance | | 37,500 |
| Total Current Assets | | 42,25,000 |
| **B. Current Liabilities:** | | |
| (i) Payables (Creditors) for materials (3 weeks) $\left(\frac{1,30,000\text{ units}\times ₹100}{52\text{ weeks}}\times 3\text{ weeks}\right)$ | | 7,50,000 |
| (ii) Outstanding wages (1 week) $\left(\frac{1,30,000\text{ units}\times ₹37.50}{52\text{ weeks}}\times 1\text{week}\right)$ | | 93,750 |
| (iii) Outstanding overheads (2 weeks) $\left(\frac{1,30,000\text{ units}\times ₹75}{52\text{ weeks}}\times 2\text{ weeks}\right)$ | | 3,75,000 |
| Total Current Liabilities | | 12,18,750 |
| Net Working Capital Needs (A – B) | | 30,06,250 |

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**10. (a) Functions of Finance Manager**

The Finance Manager's main objective is to manage funds in such a way so as to ensure their optimum utilisation and their procurement in a manner that the risk, cost and control considerations are properly balanced in a given situation. To achieve these objectives the Finance Manager performs the following functions:

(i) *Estimating the requirement of Funds:* Both for long-term purposes i.e. investment in fixed assets and for short-term i.e. for working capital. Forecasting the requirements of funds involves the use of techniques of budgetary control and long-range planning.

(ii) *Decision regarding Capital Structure:* Once the requirement of funds has been estimated, a decision regarding various sources from which these funds would be raised has to be taken. A proper balance has to be made between the loan funds and own funds. He has to ensure that he raises sufficient long term funds to finance fixed assets and other long term investments and to provide for the needs of working capital.

(iii) *Investment Decision:* The investment of funds, in a project has to be made after careful assessment of various projects through capital budgeting. Assets management policies are to be laid down regarding various items of current assets. For e.g. receivable in coordination with sales manager, inventory in coordination with production manager.

(iv) *Dividend decision:* The finance manager is concerned with the decision as to how much to retain and what portion to pay as dividend depending on the company's policy. Trend of earnings, trend of share market prices, requirement of funds for future growth, cash flow situation etc., are to be considered.

(v) *Evaluating financial performance:* A finance manager has to constantly review the financial performance of the various units of organisation generally in terms of ROI Such a review helps the management in seeing how the funds have been utilised in various divisions and what can be done to improve it.

(vi) *Financial negotiation:* The finance manager plays a very important role in carrying out negotiations with the financial institutions, banks and public depositors for raising of funds on favourable terms.

(vii) *Cash management:* The finance manager lays down the cash management and cash disbursement policies with a view to supply adequate funds to all units of organisation and to ensure that there is no excessive cash.

(viii) K*eeping touch with stock exchange:* Finance manager is required to analyse major trends in stock market and their impact on the price of the company share.

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**(b) Inter-relationship between Investment, Financing and Dividend Decisions**

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.

The above discussion makes it clear that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

**(c) Debt Securitisation:** It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g. housing finance, auto loans, and credit card receivables.

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*Process of Debt Securitisation*

(i) *The origination function* – A borrower seeks a loan from a finance company, bank. The credit worthiness of borrower is evaluated and contract is entered into with repayment schedule structured over the life of the loan.

(ii) *The pooling function* – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favour of Special purpose Vehicle (SPV), which acts as a trustee for investors.

(iii) *The securitisation function* – SPV will structure and issue securities on the basis of asset pool. The securities carry a coupon and expected maturity which can be asset-based/mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds.

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