PAPER – 3: COST ACCOUNTING AND FINANCIAL MANAGEMENT

PART I: COST ACCOUNTING

QUESTIONS

Material

1. Arnav Udyog, a small scale manufacturer, produces a product X by using two raw materials A and B in the ratio of 3:2. Material A is perishable in nature and if not used within 5 days of purchase it becomes obsolete. Material B is durable in nature and can be used even after one year. The company has estimated a sales volume of 30,000 kg. for the month of July 2016 and expects that the trend will continue for the entire year. The ratio of input and output is 5:3. The purchase price of per kilogram of raw material A and B is ₹15 and ₹22 respectively exclusive of taxes. Material A can be purchased from the local market within 1 to 2 days period. On the other hand Material B is purchased from neighbouring state and it takes 2 to 4 days to receive the material in the store.

   To place an order the company has to incur an administrative cost of ₹120. Carrying cost for Material A and B is 15% and 5% respectively.

   At present Material A is purchased in a lot of 8,000 kg. to avail 10% discount on market price.

   VAT applicable for material A is 4% (credit available) and CST on Material B is 2% (credit not available).

   Company works for 25 days in a month and production is carried out evenly.

   You are required to calculate:

   (i) Economic Order Quantity (EOQ) for each material;

   (ii) Maximum stock level for Material A;

   (iii) Calculate saving/ loss in Material A if purchase quantity equals to EOQ.

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. PQR Ltd. manufactures two products A and B. The manufacturing division consists of two production department P_1 and P_2 and two service departments S_1 and S_2. Budgeted overhead rates are used in the production departments to absorb factory overhead to the products. The rate of department P_1 is based on direct machine hours, while the rate of department P_2 is based on direct labour hours. In applying overheads, the pre-determined rates are multiplied by actual hours.

For allocating the service department costs to production departments, the basis adopted is as follows:

(i) Cost of department S_1 to department P_1 and P_2 equal and

(ii) Cost of department S_2 to department P_1 and P_2 in the ratio of 2:1 respectively.

Annual profit plan data:

Factory Overheads budgeted for the year:

Departments	P_1	P_2	S_1	S_2
Amount (₹)	25,50,000	21,75,000	6,00,000	4,50,000

Budgeted output of product A and B are 50,000 units and 30,000 units respectively.

Budgeted raw material cost per unit for product A and B are ₹120 and ₹150 respectively.

Budgeted time required for production per unit:

	Product A	Product B
Department P_1	1.5 machine hours	1.0 machine hours
Department P_2	2 direct labour hours	2.5 direct labour hours

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Average wage rates budgeted in Department P_2 are: Product A – ₹ 72 per hour and Product B – ₹ 75 per hour.

All materials are used in Department P_1 only.

Actual data (for the month of July 2016)

Units actually produced: Product A 4,000 units

Product B 3,000 units

Actual direct machine hours worked in Department P_1:

On Product A – 6,100 hours, Product B – 4,150 hours.

Actual direct labour hours worked in Department P_2:

On Product A – 8,200 hours, Product B – 7,400 hours.

Costs actually incurred:

	Product A	Product B
Raw Materials	4,89,000	4,56,000
Wages	5,91,000	5,52,000

Factory Overheads:

Departments	P_1	P_2	S_1	S_2
Amount (₹)	2,31,000	2,04,000	60,000	48,000

You are required to:

(i) Compute the predetermined overhead rate for each production department.

(ii) Prepare a Statement showing Budgeted and Actual costs for the month of July, 2016.

Non- Integrated Accounts

4. The following is the summarised Trading and Profit and Loss Account of XYZ Ltd. for the year ended 31st March 2016:

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	

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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.

Contract Costing

5. ABC Construction Ltd. has started a contract on 1st April 2015. The Trial balance as on 31st March 2016 showed the following balances:

Particulars	Dr. (₹)	Cr. (₹)
Paid up share capital		1,75,00,000
Land and buildings	46,00,000	
Machinery at cost (80% at site)	36,00,000	
Cash and bank	30,000	
Materials at cost	25,26,000	
Creditors for materials		10,30,600
Direct wages	13,28,000	
Site expenses	9,60,000	
Vehicles	32,20,000	
Furniture	3,22,000	
Office equipments	6,40,000	
Postage and Stationery	29,600	
Office expenses	6,26,000	
Rates and taxes	25,600	
Fuel and power	8,46,000	
Outstanding wages		2,24,000
Advance rates and taxes	1,400	
	1,87,54,600	1,87,54,600

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The contract price is ₹ 2,50,00,000 and work certified is ₹ 1,00,00,000. The cost of work uncertified is ₹ 12,00,000. Machinery costing ₹ 2,00,000 was returned to stores at the end of the year. Stock of material at site on 31st March 2016 was of the value of ₹ 50,000. Depreciation on Machinery, Vehicles and furniture are 10%, 20% and 15% respectively.

You are required to calculate the profit from the contract.

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 2016:

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

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Process Costing

7. Following data are available for a product for the month of July, 2016:

Particulars	Process- I (₹)	Process- II (₹)
Opening work-in- progress	Nil	Nil
Costs incurred during the month:		
- Direct materials	6,00,000	
- Labour	1,20,000	1,60,000
- Factory overheads	2,40,000	2,00,000
Units of production:		
Received in process	40,000	36,000
Completed and transferred	36,000	32,000
Closing work-in-progress	2,000	?
Normal loss in process	2,000	1,500

Production remaining in process has to be valued as follows:

Materials 100% Labour 50% Overheads 50%

There has been no abnormal loss in Process- II.

The company follows weighted average method for valuing inventory.

Prepare Process Accounts after working out the missing figures and with detailed workings.

Standard Costing

8. 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.

The standard loss in processing is 15%.

During July, 2016 the company produced 2,000 kg. of finished output.

The positions of stock and purchases for the month of July, 2016 are as under:

Material	Stock on 1st July 2016	Stock on 31st July 2016	Purchases during July 2016	
			Quantity	Amount (₹)
A	40 kg.	10 kg.	900 kg.	42.50
B	50 kg.	60 kg.	1,400 kg.	25.00

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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

9. ABC Baggage Ltd. sells different styles of laptop bags with identical purchase costs and selling prices. The company is trying to find out the profitability of opening another store which will have the following expenses and revenues:

	Amount per piece (₹)
Selling Price	600
Variable costs:	
Material cost	410
Salesmen's commission	60
Total variable cost	470
Annual fixed expenses are:	(₹)
- Rent	6,00,000
- Office and administrative expenses	20,00,000
- Advertising	8,00,000
- Other fixed expenses	2,00,000

For the each following independent situation, you are required to:

(i) Calculate the annual break-even point in units and in value. Also determine the profit or loss if 35,000 units of bags are sold.

(ii) The sales commissions are proposed to be discontinued, but instead a fixed amount of ₹ 9,00,000 is to be incurred in fixed salaries. A reduction in selling price of 5% is also proposed. What will be the break-even point in units?

(iii) It is proposed to pay the store manager ₹ 5 per piece as further commission. The selling price is also proposed to be increased by 5%. What would be the break-even point in units?

Budget and Budgetary Control

10. 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:

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	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.
-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, 2016		800	1,600
31st March, 2017		1,000	2,100
	Material-X (kg)	Material-Y (kg)	Material-Z (ltr)
1st April, 2016	25,000	30,000	14,000
31st March, 2017	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.

SUGGESTED HINTS/ANSWERS

1. Workings:

Monthly Production of X = 30,000 kgs.

Raw Material Required = $\frac{30,000}{3} \times 5$ = 50,000 kgs.

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Material A = $\frac{50,000}{5} \times 3$ = 30,000 kg.

Material B = $\frac{50,000}{5} \times 2$ = 20,000 kg.

(i) Calculation of Economic Order Quantity (EOQ):

Material A = $\sqrt{\frac{2 \times \text{Annual consumption} \times \text{Order cost}}{\text{Carrying cost per unit p.a.}}}$

= $\sqrt{\frac{2 \times (30,000 \text{ kg.} \times 12 \text{ months}) \times ₹120}{(15\% \text{ of } ₹15)}}$

= $\sqrt{\frac{8,64,00,000}{2.25}}$ = 6,196.77 kg. or 6,197 kg.

Material B = $\sqrt{\frac{2 \times (20,000 \text{ kg.} \times 12 \text{ months}) \times ₹120}{(5\% \text{ of } ₹22.44^*)}}$

= $\sqrt{\frac{5,76,00,000}{1.122}}$ = 7,164.97 or 7,165 kg.

*Purchase price + 2% CST = ₹ 22 + 2% of ₹ 22 = ₹ 22.44

(ii) Calculation of Maximum Stock level: Since, the Material A is perishable in nature and it required to be used within 5 days, hence, the Maximum Stock Level shall be lower of two:

(a) Stock equal to 5 days consumption

= $\frac{30,000 \text{ kg.}}{25 \text{ days}} \times 5 \text{ days}$ = 6,000 kg.

(a) Maximum Stock Level for Material A:

Re-order Quantity + Re-order level – (Min consumption* × Min. lead time)

Where, Re-order Quantity = 8,000 kg.

Re-order level = Max. Consumption* × Max. Lead time

= 30,000/25 × 2 days = 2,400 kg.

Maximum stock Level = 8,000 kg. + 2,400 kg. - (30,000/25 × 1 day)

= 10,400 – 1,200 = 9,200 kg.

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Stock required for 5 days consumption is lower than the maximum stock level calculated through the formula. Therefore, Maximum Stock Level will be 6,000 kg.

(*Since, production is processed evenly throughout the month hence material consumption will also be even.)

(iii) Calculation of Savings/ loss in Material A if purchase quantity equals to EOQ.

	Purchase Quantity = 8,000 kg.	Purchase Quantity = EOQ i.e. 6,197 kg.
Annual consumption	3,60,000 kg. (30,000 × 12 months)	3,60,000 kg. (30,000 × 12 months)
No. of orders [Note- (i)]	60 (3,60,000 ÷ 6,000)	60 (3,60,000 ÷ 6,000)
Ordering Cost (a)	₹7,200 (₹120 × 60)	₹7,200 (₹120 × 60)
Carrying Cost (b) [Note- (ii)]	₹8,100 (15% of ₹13.50 × 4,000)	₹6,972 (15% of ₹15 × 3,098.5)
Purchase Cost (c) (for good portion)	₹48,60,000 (₹13.50 × 3,60,000)	₹54,00,000 (₹15 × 3,60,000)
Loss due to obsolescence (d) [Note- (iii)]	₹16,20,000 [₹13.5 × (60 × 2,000)]	₹1,77,300 [₹15 × (60 × 197)]
Total Cost [(a) + (b) + (c) + (d)]	₹ 64,95,300	₹ 55,91,472

If purchase quantity equals to EOQ, there will be a saving of ₹9,03,828 i.e. ₹ 64,95,300 - ₹ 55,91,472.

Notes: (i) As after 5 days of purchase the Material A gets obsolete, the quantity in excess of 5 days consumption i.e. 6,000 kg. are wasted. Hence, after 6,000 kg. a fresh order needs to be given.

(ii) Carrying cost is incurred on average stock of Materials purchased.

(iii) the excess quantity of material gets obsolete and loss has to be incurred.

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

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(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.

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 (Hours)
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)

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

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

3. (i) Computation of predetermined overhead rate for each production department for budgeted data

Particulars	Production Departments		Service Departments	
	P_1 (₹)	P_2 (₹)	S_1 (₹)	S_2 (₹)
Budgeted overhead for the year	25,50,000	21,75,000	6,00,000	4,50,000
Allocation of Service department S_1's cost to Production Dept. P_1 and P_2 equally	3,00,000	3,00,000	(6,00,000)	--
Allocation of Service department S_2's cost to Production Dept. P_1 and P_2 in the ratio of 2:1	3,00,000	1,50,000	--	(4,50,000)
Total	31,50,000	26,25,000	Nil	Nil
Budgeted Machine hours in department P_1 (working note 1)	1,05,000			
Budgeted Direct labour hours in department P_2 (working note 1)		1,75,000		
Budgeted Machine/ Direct labour hour rate	₹30	₹15		

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(ii) Statement showing Budgeted and Actual Costs for the month of July 2016.

	Budgeted (₹)	Actual (₹)
Raw Materials used in Department P_1		
-A (4,000 units × ₹120)	4,80,000	4,89,000
-B (3,000 units × ₹150)	4,50,000	4,56,000
Direct Labour Cost on the basis of labour hours worked in department P_2		
-A (4,000 × 2 hrs × ₹72)	5,76,000	5,91,000
-B (3,000 × 2.5 hrs × ₹75)	5,62,500	5,52,000
Factory Overheads:		
On machine hour basis in Department P_1		
-A (4,000 × 1.5 hrs × ₹30)	1,80,000	1,74,370*
-B (3,000 × 1 hr × ₹30)	90,000	1,18,630*
On Direct labour hour basis in Department P_2		
-A (4,000 × 2 hrs × ₹15)	1,20,000	1,31,410*
-B (3,000 × 2.5 hrs × ₹15)	1,12,500	1,18,590*
	25,71,000	26,31,000

*Refer Working Note- 3

Working Notes:

		Product A	Product B	Total
1.	Budgeted output (in units)	50,000	30,000	
	Budgeted Machine hours in Department P_1	75,000 hrs (50,000 × 1.5 hrs)	30,000 hrs (30,000 × 1 hr)	1,05,000 hrs
	Budgeted Direct labour hour in Department P_2	1,00,000 hrs (50,000 × 2 hrs)	75,000 hrs (30,000 × 2.5 hrs)	1,75,000 hrs
2.	Actual output (units)	4,000	3,000	
	Actual Machine hours utilized in Department P_1	6,100	4,150	10,250
	Actual Direct labour hours utilized in Department P_2	8,200	7,400	15,600

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3. Computation of actual overhead rates for each production department from actual data

Particulars	Production Departments		Service Departments	
	P_1 (₹)	P_2 (₹)	S_1 (₹)	S_2 (₹)
Actual factory overhead for July 2016.	2,31,000	2,04,000	60,000	48,000
Allocation of Service department S_1's cost to Production Dept. P_1 and P_2 equally	30,000	30,000	(60,000)	--
Allocation of Service department S_2's cost to Production Dept. P_1 and P_2 in the ratio of 2:1	32,000	16,000	--	(48,000)
Total	2,93,000	2,50,000	Nil	Nil
Actual Machine hours in department P_1 (Working note 2)	10,250			
Actual Direct labour hours in department P_2 (Working note 2)		15,600		
Machine hour rate (₹ 2,93,000 ÷ 10,250)	₹28.5853			
Direct Labour hour rate (₹ 2,50,000 ÷ 15,600)		₹16.0256		
Product A	1,74,370 (₹28.5853 × 6,100)	1,31,410 (₹16.0256 × 8,200)		
Product B	1,18,630 (₹28.5853 × 4,150)	1,18,590 (₹16.0256 × 7,400)		
Total	2,93,000	2,50,000		

4. (i) Costing Profit and Loss Account for the year ended 31st March 2016:

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		

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Less: Work in progress	(54,000)		
Factory cost	25,35,600		
Administration overheads (₹5 × 32,000 units)	1,60,000		
Cost of production of goods produced	26,95,600		
Less: Finished stock	(1,68,475)		
Cost of production 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. Contract Account

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To Materials		25,26,000	By material at site		50,000
To Direct wages	13,28,000		By Work in progress:		
Add: outstanding	2,24,000	15,52,000	- Work certified	1,00,00,000	
To Site expenses		9,60,000	- Work uncertified	12,00,000	1,12,00,000
To Office expenses		6,26,000			

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To Postage and Stationery		29,600			
To Rates and taxes	25,600				
Less: Advance	(1,400)	24,200			
To Fuel and power		8,46,000			
To Depreciation*		9,80,300			
To Notional profit c/d		37,05,900			
		1,12,50,000			1,12,50,000

* Depreciation

(i) On Machinery = {10% on (₹36,00,000 × 0.8)} = ₹2,88,000

(ii) On Vehicles = 20% on ₹32,20,000 = ₹6,44,000

(iii) On Furniture = 15% on ₹3,22,000 = ₹48,300

= ₹9,80,300

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
- Driver's salary	12,000
- Repairs & Maintenance	1,800
- Cost of tyres	880
- Depreciation	11,453
Total Running cost (A)	43,893

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Fixed Costs:	
- 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)	11,050
Total cost {(A) + (B)}	54,943

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

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

7. Statement of Equivalent Units (Process- I)

Input (Units)	Particulars	Output (Units)	Equivalent Production			
			Materials		Labour and Overheads	
			Units	(%)	Units	(%)
40,000	Introduced and completed	36,000	36,000	100	36,000	100
	Normal loss	2,000	-	-	-	-
	Closing stock	2,000	2,000	100	1,000	50
40,000		40,000	38,000		37,000	

Computation of cost per Equivalent Unit for each element of cost (Process- I)

Elements of Cost	Total Cost (₹)	Equivalent units	Cost per Equivalent units (₹)
Direct Materials	6,00,000	38,000	15.7895
Labour	1,20,000	37,000	3.2432
Factory Overheads	2,40,000	37,000	6.4865

Statement of Apportionment of Cost

Items	Elements	Equivalent units	Cost per unit (₹)	Cost (₹)	Total (₹)
Units introduced and completed	Materials	36,000	15.7895	5,68,422.00	
	Labour	36,000	3.2432	1,16,755.20	
	Overheads	36,000	6.4865	2,33,514.00	9,18,691.20

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Closing stock	Materials	2,000	15.7895	31,579.00	
	Labour	1,000	3.2432	3,243.20	
	Overheads	1,000	6.4865	6,486.50	41,308.70

Process- I Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Materials	40,000	6,00,000	By Normal loss	2,000	-
To Labour		1,20,000	By Process II	36,000	9,18,691
To Overheads		2,40,000	By Closing stock	2,000	41,309
	40,000	9,60,000		40,000	9,60,000

Statement of Equivalent Units (Process- II)

Input (Units)	Particulars	Output (Units)	Equivalent Production			
			Materials		Labour and Overheads	
			Units	(%)	Units	(%)
36,000	Units transferred from Process- I					
	Normal loss	1,500	-	-	-	-
	Completed	32,000	32,000	100	32,000	100
	Closing stock (balancing figure)	2,500	2,500	100	1,250	50
36,000		36,000	34,500		33,250	

Computation of cost per Equivalent Unit for each element of cost (Process- I)

Elements of Cost	Total Cost (₹)	Equivalent units	Cost per Equivalent units (₹)
Cost of 36,000 units transferred from Process- I	9,18,691	34,500	26.6287
Labour	1,60,000	33,250	4.8120
Factory Overheads	2,00,000	33,250	6.0150

Statement of Apportionment of Cost

Items	Elements	Equivalent units	Cost per unit (₹)	Cost (₹)	Total (₹)
Units introduced and completed	Materials	32,000	26.6287	8,52,118.40	
	Labour	32,000	4.8120	1,53,984.00	
	Overheads	32,000	6.0150	1,92,480.00	11,98,582.40

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Closing stock	Materials	2,500	26.6287	66,571.75	
	Labour	1,250	4.8120	6,015.00	
	Overheads	1,250	6.0150	7,518.75	80,105.50

Process- II Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Units introduced	36,000	9,18,691	By Normal loss	1,500	-
To Labour		1,60,000	By Finished stock	32,000	11,98,582
To Overheads		2,00,000	By Closing stock	2,500	80,109*
	36,000	12,78,691		36,000	12,78,691

*Difference arose due to rounding-off has been adjusted.

8. 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 $= ₹30 \{(\frac{60\% \text{ of } 2,000}{0.85}) - 1,390 \text{ kg}\}$

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

= ₹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)

9. (i) Total Fixed Cost = ₹6,00,000 + ₹20,00,000 + ₹8,00,000 + ₹2,00,000

= ₹36,00,000

Contribution per unit = ₹600 - ₹470 = ₹130

P/V Ratio = $\frac{\text{Contribution per unit}}{\text{Selling Price}} \times 100 = \frac{₹130}{₹600} \times 100 = 21.67\%$

Break-even Point = $\frac{\text{Total Fixed Cost}}{\text{Contribution per unit}} \times 100$

= $\frac{₹36,00,000}{₹130}$ = 27,692.31 or 27,693 units

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Break-even Sales $= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}} = \frac{₹36,00,000}{21.67\%} = ₹1,66,12,829$

Calculation of Profit/ (loss):

Total Contribution (₹130 × 35,000 units) = ₹45,50,000

Less: Fixed Cost = ₹36,00,000

Profit = ₹ 9,50,000

(ii) Revised Selling Price = ₹600 – 5% of ₹600 = ₹570

Revised Variable cost = ₹410

Revised Contribution = ₹570 – ₹410 = ₹160

Break-even Point $= \frac{₹36,00,000 + ₹9,00,000}{₹160}$ = 28,125 units

(iii) Revised Selling Price = ₹600 + 5% of ₹600 = ₹630

Revised Variable cost = ₹470 + ₹5 = ₹475

Revised Contribution = ₹630 – ₹475 = ₹155

Break-even Point $= \frac{₹36,00,000}{₹155}$ = 23,225.81 or 23,226 units

10. (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

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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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PART II: FINANCIAL MANAGEMENT

QUESTIONS

Time Value of Money

1. Mr. X wish to get her daughter admitted into a medical college after 15 years from now. He will be required total ₹ 25,00,000 to get admission into the college. For this he has identified a fund, which pays interest @ 9% p.a. In this regard he wanted to know the amount to be invested in each of the following situations:

   (a) If he decides to make annual payment into the fund at the end of each year;

   (b) If he decides to invest a lump sum in the fund at the end of the year;

   (c) If he decides to make annual payment into the fund at the beginning of each year.

   (FVIF/ CVF $_{(15, 0.09)}$ = 3.642, FVIFA/ CVFA $_{(15, 0.09)}$ = 29.361, PVIF/ PVF$_{(15, 0.09)}$ = 0.275 and PVIFA/ PVFA $_{(15, 0.09)}$ = 8.061).

Ratio Analysis

2. Assuming the current ratio of a Company is 2, state in each of the following cases whether the ratio will improve or decline or will have no change:

   (i) Payment of current liability

   (ii) Purchase of fixed assets by cash

   (iii) Cash collected from Customers

   (iv) Bills receivable dishonoured

   (v) Issue of new shares.

Fund Flow Analysis

3. Balance Sheets of RST Limited as on March 31, 20X8 and March 31, 20X9 are as under:

Liabilities	31.3.20X8 (₹)	31.3.20X9 (₹)	Assets	31.3.20X8 (₹)	31.3.20X9 (₹)
Equity Share Capital (₹10 face value per share)	10,00,000	12,00,000	Land & Building	6,00,000	7,00,000
General Reserve	3,50,000	2,00,000	Plant & Machinery	9,00,000	11,00,000
9% Preference Share Capital	3,00,000	5,00,000	Investments (Long-term)	2,50,000	2,50,000
Share Premium A/c	25,000	4,000	Stock	3,60,000	3,50,000
Profit & Loss A/c	2,00,000	3,00,000	Debtors	3,00,000	3,90,000
8% Debentures	3,00,000	1,00,000	Cash & Bank	1,00,000	95,000

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Creditors	2,05,000	3,00,000	Prepaid Expenses	15,000	20,000
Bills Payable	45,000	81,000	Advance Tax Payment	80,000	1,05,000
Provision for Tax	70,000	1,00,000	Preliminary Expenses	40,000	35,000
Proposed Dividend	1,50,000	2,60,000			
	26,45,000	30,45,000		26,45,000	30,45,000

Additional information:

(i) Depreciation charged on building and plant and machinery during the year 20X8-X9 were ₹ 50,000 and ₹ 1,20,000 respectively.

(ii) During the year an old machine costing ₹ 1,50,000 was sold for ₹ 32,000. Its written down value was ₹ 40,000 on date of sale.

(iii) During the year, income tax for the year 20X7-X8 was assessed at ₹76,000. A cheque of ₹ 4,000 was received along with the assessment order towards refund of income tax paid in excess, by way of advance tax in earlier years.

(iv) Proposed dividend for 20X7-X8 was paid during the year 20X8-X9.

(v) 9% Preference shares of ₹ 3,00,000, which were due for redemption, were redeemed during the year 20X8-X9 at a premium of 5%, out of the proceeds of fresh issue of 9% Preference shares.

(vi) Bonus shares were issued to the existing equity shareholders at the rate of one share for every five shares held on 31.3.20X8 out of general reserves.

(vii) Debentures were redeemed at the beginning of the year at a premium of 3%.

(viii) Interim dividend paid during the year 20X8-X9 was ₹ 50,000.

Required:

(a) Schedule of Changes in Working Capital; and

(b) Fund Flow Statement for the year ended March 31, 20X9.

Cost of Capital

4. M/s. Sensation Corporation has a capital structure of 40% debt and 60% equity. The company is presently considering several alternative investment proposals costing less than ₹ 20 lakhs. The corporation always raises the required funds without disturbing its present debt equity ratio.

The cost of raising the debt and equity are as under:

Project cost	Cost of debt	Cost of equity
Upto ₹ 2 lakhs	10%	12%
Above ₹ 2 lakhs & upto to ₹ 5 lakhs	11%	13%

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Above ₹ 5 lakhs & upto ₹10 lakhs	12%	14%
Above ₹10 lakhs & upto ₹ 20 lakhs	13%	14.5%

Assuming the tax rate at 50% calculate:-

(i) Cost of capital of two projects X and Y whose fund requirements are ₹ 6.5 lakhs and ₹ 14 lakhs respectively.

(ii) If a project is expected to give after tax return of 10% determine under what conditions it would be acceptable?

Capital Structure

5. J Ltd. is an all equity financed company with a market value of ₹ 25,00,000 and cost of equity (K_e) 21%. The company wants to buyback equity shares worth ₹5,00,000 by issuing and raising 15% perpetual debt of the same amount. Rate of tax may be taken as 30%. After the capital restructuring and applying MM Model (with taxes), you are required to calculate:

(i) Market value of J Ltd.

(ii) Cost of Equity (K_e)

(iii) Weighted average cost of capital (using market weights) and comment on it.

Leverage

6. The capital structure of the Shiva Ltd. consists of equity share capital of ₹ 10,00,000 (shares of ₹ 100 per value) and ₹ 10,00,000 of 10% Debentures, sales increased by 20% from 1,00,000 units to 1,20,000 units, the selling price is ₹ 10 per unit: variable costs amount to ₹ 6 per unit and fixed expenses amount to ₹ 2,00,000. The income-tax rate is assumed to be 50%.

(a) You are required to calculate the following:

(i) The percentage increase in earnings per share;

(ii) Financial leverage at 1,00,000 units and 1,20,000 units.

(iii) Operating leverage at 1,00,000 units and 1,20,000 units.

(b) Comment on the behaviour of Operating and Financial leverages in relation to increase in production from 1,00,000 units to 1,20,000 units.

Capital Budgeting

7. A Ltd. an existing profit-making company, is planning to introduce a new product with a projected life of 8 years. Initial equipment cost will be ₹ 150 lakhs and additional equipment costing ₹ 10 lakhs will be needed at the beginning of third year. At the end of the 8 years, the original equipment will have resale value equivalent to the cost of removal, but the additional equipment would be sold for ₹ 1 lakh. Working capital of ₹ 25

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lakhs will be needed. The 100% capacity of the plant is of 4,00,000 units per annum, but the production and sales-volume expected are as under:

Year	Capacity in percentage
1	20
2	30
3 - 5	75
6 - 8	50

A sale price of ₹100 per unit with a profit volume ratio of 60% is likely to be obtained. Fixed Operating Cash Costs are likely to be ₹16 lakhs per annum. In addition to this the advertisement expenditure will have to be incurred as under:

Year	1	2	3 - 5	6 - 8
Expenditure each year (₹ in lakhs)	30	15	10	4

The company is subjected to 50% tax, straight-line method of depreciation, (permissible for tax purposes also) and taking 12% as appropriate after tax cost of Capital, should the project be accepted?

Working Capital Management

8. The following information has been extracted from the records of a Company:

Product Cost Sheet	₹ / unit
Raw materials	45
Direct labour	20
Overheads	40
Total	105
Profit	15
Selling price	120

- Raw materials are in stock on an average of two months.
- The materials are in process on an average for 4 weeks. The degree of completion is 50%.
- Finished goods stock on an average is for one month.
- Time lag in payment of wages and overheads is 1½ weeks.
- Time lag in receipt of proceeds from debtors is 2 months.
- Credit allowed by suppliers is one month.

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- 20% of the output is sold against cash.
- The company expects to keep a Cash balance of ₹ 1,00,000.
- Take 52 weeks per annum.

The Company is poised for a manufacture of 1,44,000 units in the year.

You are required to prepare a statement showing the Working Capital requirements of the Company.

Receivable Management

9. Tony Limited manufacturers of Colour TV sets are considering the liberalization of existing credit terms to three of their large customers A, B and C. The credit period and likely quantity of TV sets that will be sold to the customers in addition to the other sales are as follows:

Quantity sold (No. of TV Sets)

Credit Period (Days)	A	B	C
0	1,000	1,000	-
30	1,000	1,500	-
60	1,000	2,000	1,000
90	1,000	2,500	1,500

The selling price per TV set is ₹ 9,000. The expected contribution is 20% of the selling price. The cost of carrying receivable averages 20% per annum.

You are required:-

(a) Determine the credit period to be allowed to each customer.

(Assume 360 days in a year for calculation purposes).

(b) What other problems the company might face in allowing the credit period as determined in (a) above?

Miscellaneous

10. (a) What is debt securitisation? Explain the basics of debt securitisation process.

(b) "The profit maximization is not an operationally feasible criterion." Comment on it.

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SUGGESTED HINTS/ANSWERS

1. (a) To get ₹25,00,000 after 15 years from now, Mr. X needs to deposit an amount at the end of each year, which gets accumulated @9% p.a. for 15 years to become an amount to ₹25,00,000. This can be calculated as follows:

Future Value = Annual Payment × (FVIFA $_{n, i}$) or Annual Payment × $\left(\frac{(1+i)^n - 1}{i}\right)$

Future Value = ₹25,00,000

Interest (i) = 9% p.a.

Period (n) = 15 years

₹ 25,00,000 = A (FVIFA $_{15, 0.09}$)

Or, A = $\frac{₹25,00,000}{29.361}$ = ₹85,146.96 p.a.

(b) To get ₹25,00,000 after 15 years from now, Mr. X needs to deposit a lump sum payment to the fund which gets accumulated @9% p.a. for 15 years to become an amount to ₹25,00,000. This can be calculated as follows:

Future Value = Amount × ($FVIF_{15, 0.09}$) or Amount × $(1+ 0.09)^{15}$

Or, Amount = $\frac{₹25,00,000}{3.642}$ = ₹ 6,86,436.02

(c) To get ₹ 25,00,000 after 15 years from now, Mr. X needs to deposit an amount at the beginning of each year which gets accumulated @9% p.a. for 15 years to become an amount to ₹25,00,000. This can be calculated as follows:

Future Value = Annual Payment × (FVIFA $_{n, i}$) × (1+i)

₹ 25,00,000 = A (FVIFA $_{15, 0.09}$) × 1.09

₹ 25,00,000 = A (29.361 × 1.09)

Or, A = $\frac{₹25,00,000}{32.003}$ = ₹ 78,117.68 p.a.

2. Current Ratio = $\frac{\text{Current Assets(CA)}}{\text{Current Liabilities(CL)}}$ = 2 i.e. 2 : 1

S. No.	Situation	Improve/ Decline/ No Change	Reason
(i)	Payment of	Current Ratio will	let us assume CA is ₹ 2 lakhs & CL is

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	Current liability	improve	₹1 lakh. If payment of Current Liability = ₹10,000 then, CA = 1, 90,000 CL = 90,000. Current Ratio = $\frac{1,90,000}{90,000}$ = 2.11 : 1. When Current Ratio is 2:1 Payment of Current liability will reduce the same amount in the numerator and denominator. Hence, the ratio will improve.
(ii)	Purchase of Fixed Assets by cash	Current Ratio will decline	Since cash will be reduced, Current Asset will decrease and current ratio will fall.
(iii)	Cash collected from Customers	Current Ratio will not change	Cash will increase and Debtors will reduce. Hence No Change in Current Asset.
(iv)	Bills Receivable dishonoured	Current Ratio will not change	Bills Receivable will come down and debtors will increase. Hence no change in Current Assets.
(v)	Issue of New Shares	Current Ratio will improve	As Cash will increase, Current Assets will increase and current ratio will increase.

3. (a) Schedule of Changes in Working Capital

Particulars	31st March		Working Capital	
	20X8 (₹)	20X9 (₹)	Increase (₹)	Decrease (₹)
A. Current Assets:				
Stock	3,60,000	3,50,000	--	10,000
Sundry Debtors	3,00,000	3,90,000	90,000	--
Prepaid expenses	15,000	20,000	5,000	--
Cash and Bank	1,00,000	95,000	--	5,000
Total (A)	7,75,000	8,55,000		
B. Current Liabilities:				
Sundry Creditors	2,05,000	3,00,000	--	95,000
Bills Payables	45,000	81,000	--	36,000
Total (B)	2,50,000	3,81,000		

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Working Capital (A – B)	5,25,000	4,74,000		
Decrease in Working Capital		51,000	51,000	
Total	5,25,000	5,25,000	1,46,000	1,46,000

(b) Funds Flow Statement for the year ending 31st March, 20X9

		(₹)
A.	Sources of Funds:	
	(i) Fund from Business Operations	7,49,000
	(ii) Proceeds from issue of 9% Preference shares	5,00,000
	(iii) Proceeds from sale of Plant & Machinery	32,000
	(iv) Income tax refund	4,000
	Total sources	12,85,000
B.	Application of Funds:	
	(i) Purchase of Land and Building	1,50,000
	(ii) Purchase of Plant and Machinery	3,60,000
	(iii) Redemption of 8% Debentures	2,06,000
	(iv) Redemption of 9% Preference shares	3,15,000
	(v) Payment of income tax assessed	1,05,000
	(vi) Payment of Interim dividend	50,000
	(vii) Payment of dividend	1,50,000
	Total uses	13,36,000
	Net Decrease in Working Capital (A – B)	51,000

Working Notes:

(1) Computation of Funds from Business Operation

		(₹)
	Profit & Loss as on March 31, 20X9	3,00,000
Add:	Depreciation on Land and Building	50,000
	Depreciation on Plant and Machinery	1,20,000
	Loss on sale of Plant and Machinery	8,000
	Preliminary expenses written off	5,000
	Transfer to General Reserve	50,000

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	Proposed dividend	2,60,000
	Provision for tax	1,06,000
	Interim dividend paid	50,000
		9,49,000
Less:	Profit and loss as on March 31, 20X8	2,00,000
	Fund from Operations	7,49,000

(2) Plant & Machinery A/c

	(₹)		(₹)
To Balance b/d	9,00,000	By Depreciation	1,20,000
To Bank [Purchase (Bal. Fig.)]	3,60,000	By Bank (Sale)	32,000
		By P/L A/c (Loss on Sale)	8,000
		By Balance c/d	11,00,000
	12,60,000		12,60,000

(3) Land and Building A/c

	(₹)		(₹)
To Balance b/d	6,00,000	By Depreciation	50,000
To Bank (Purchase) (Bal. Fig.)	1,50,000	By Balance c/d	7,00,000
	7,50,000		7,50,000

(4) Advance Tax Payment A/c

	(₹)		(₹)
To Balance b/d	80,000	By Provision for taxation A/c	76,000
To Bank (paid for 08-09)	1,05,000	By Bank (Refund of tax)	4,000
		By Balance c/d	1,05,000
	1,85000		1,85,000

(5) Provision for Taxation A/c

	(₹)		(₹)
To Advance tax payment A/c	76,000	By Balance b/d	70,000
To Balance c/d	1,00,000	By P/L A/c (additional provision for 20X7-X8)	6,000
		By P/L A/c (Provision for X8-X9)	1,00,000
	1,76,000		1,76,000

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(6) 8% Debentures A/c

	(₹)		(₹)
To Bank (2,00,000 x 103%) (redemption)	2,06,000	By Balance b/d	3,00,000
To Balance c/d	1,00,000	By Premium on redemption of Debentures A/c	6,000
	3,06,000		3,06,000

(7) 9% Preference Share Capital A/c

	(₹)		(₹)
To Bank A/c (redemption) (3,00,000 × 105%)	3,15,000	By Balance b/d	3,00,000
To Balance c/d	5,00,000	By Premium on redemption of Preference shares A/c	15,000
		By Bank (Issue)	5,00,000
	8,15,000		8,15,000

(8) Securities Premium A/c

	(₹)		(₹)
To Premium on redemption of debentures A/c	6,000	By Balance b/d	25,000
To Premium on redemption of preference shares A/c	15,000		
To Balance c/d	4,000		
	25,000		25,000

(9) General Reserve A/c

	(₹)		(₹)
To Bonus to Shareholders A/c	2,00,000	By Balance b/d	3,50,000
To Balance c/d	2,00,000	By P/L A/c (transfer)	50,000
	4,00,000		4,00,000

Provision for tax and Advance tax may be taken as current liability and current assets respectively.

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4. (i) Statement of Weighted Average Cost of Capital

Project cost	Financing	Proportion of capital Structure	After tax cost (1–Tax 50%)	Weighted average cost (%)
Upto ₹ 2 Lakhs	Debt	0.4	10% (1 – 0.5) = 5%	0.4 × 5 = 2.0
	Equity	0.6	12%	0.6 × 12 = 7.2
				9.2
Above ₹ 2 lakhs & upto to ₹ 5 Lakhs	Debt	0.4	11% (1 – 0.5) = 5.5%	0.4 × 5.5 = 2.2
	Equity	0.6	13%	0.6 ×13 = 7.8
				10.0%
Above ₹ 5 lakhs & upto ₹ 10 lakhs	Debt	0.4	12% (1 – 0.5) = 6%	0.4 × 6 = 2.4
	Equity	0.6	14%	0.6 × 14 = 8.4
				10.8%
Above ₹ 10 lakhs & upto ₹ 20 lakhs	Debt	0.4	13% (1 – 0.5) = 6.5%	0.4 × 6.5 = 2.6
	Equity	0.6	14.5%	0.4 × 14.5 = 8.7
				11.3%

Project	Fund requirement	Cost of capital
X	₹6.5 lakhs	10.8% (from the above table)
Y	₹14 lakhs	11.3% (from the above table)

(ii) If a Project is expected to give after tax return of 10%, it would be acceptable provided its project cost does not exceed ₹5 lakhs or, after tax return should be more than or at least equal to the weighted average cost of capital.

5. Value of a company (V) = Value of equity (S) + Value of debt (D)

₹ 25,00,000 $= \frac{\text{Net Income (NI)}}{K_e}$ + ₹ 5,00,000

Or, Net Income (NI) = 0.21 (₹25,00,000 – ₹5,00,000)

Market Value of Equity = ₹25,00,000

K_e = 21%

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$\frac{\text{Net income (NI) for equity - holders}}{K_e}$ = Market Value of Equity

$\frac{\text{Net income (NI) for equity holders}}{0.21}$ = 25,00,000

Net income for equity holders = 5,25,000

EBIT= 5,25,000/0.7 = 7,50,000

	All Equity	Debt and Equity
EBIT	7,50,000	7,50,000
Interest to debt-holders	-	(75,000)
EBT	7,50,000	6,75,000
Taxes (30%)	(2,25,000)	(2,02,500)
Income available to equity shareholders	5,25,000	4,72,500
Income to debt holders plus income available to shareholders	5,25,000	5,47,500

Present value of tax-shield benefits = ₹ 5,00,000 × 0.30 = ₹1,50,000

(i) Value of Restructured firm

= ₹ 25,00,000 + ₹ 1,50,000 = ₹ 26,50,000

(ii) Cost of Equity (K_e)

Total Value = ₹ 26,50,000

Less: Value of Debt = ₹ 5,00,000

Value of Equity = ₹ 21,50,000

$K_e = \frac{4,72,500}{21,50,000}$ =0.219 = 21.98%

(iii) WACC (on market value weight)

Cost of Debt (after tax) = 15% (1- 0.3) = 0.15 (0.70) = 0.105 = 10.5%

Components of Costs	Amount	Cost of Capital (%)	Weight	WACC (%)
Equity	21,50,000	21.98	0.81	17.80
Debt	5,00,000	10.50	0.19	2.00
	26,50,000			19.80

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Comment: At present the company is all equity financed. So, $K_e = K_o$ i.e. 21%. However after restructuring, the K_o would be reduced to 19.80% and K_e would increase from 21% to 21.98%.

6. (a) Comparative Statement of EPS, Financial & Operating Leverage

Particulars	1,00,000 units (₹)	1,20,000 units (₹)
Sales at ₹ 10 per unit	10,00,000	12,00,000
Less: Variable costs at ₹ 6 per unit	6,00,000	7,20,000
Contribution (C) at ₹ 4 per unit	4,00,000	4,80,000
Less: Fixed expenses	2,00,000	2,00,000
Operating Profit or EBIT	2,00,000	2,80,000
Less Interest on Debentures (10% on ₹ 10 Lakhs)	1,00,000	1,00,000
Profit before tax (PBT)	1,00,000	1,80,000
Less Tax at 50%	50,000	90,000
Profit after tax (PAT) or net profit	50,000	90,000
(i) Earnings per Share (EPS) [10,000 equity shares]	$\frac{50,000}{10,000}$ = ₹ 5	$\frac{90,000}{10,000}$ = ₹ 9
% increase in EPS	$\left(\frac{9-5}{5}\times 100\right)$ = 80%	
(ii) Financial leverage $\left(\frac{EBIT}{PBT}\right)$	$\frac{2,00,000}{1,00,000}$ = 2	$\frac{2,80,000}{1,80,000}$ = 1.56
(iii) Operating leverage $\left(\frac{Contribution}{EBIT}\right)$	$\frac{4,00,000}{2,00,000}$ = 2	$\frac{4,80,000}{2,80,000}$ = 1.714

(b) In relation to increase in Production & Sales of 1,00,000 units to 1,20,000 units (20% increase), EPS has gone from ₹ 5 to ₹ 9 i.e. increased by 80%. But both the Financial Leverage and Operating Leverage have decreased with increase in sales. Due to this reduction, both the risks i.e. business risk & financial risks of the business are reduced.

7. Computation of initial cash outlay

	(₹ in lakhs)
Equipment Cost	150
Working Capital	25
	175

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Calculation of Cash Inflows:

Years	1	2	3 - 5	6 - 8
Sales in units	80,000	1,20,000	3,00,000	2,00,000
	(₹)	(₹)	(₹)	(₹)
Contribution @ ₹ 60 p.u.	48,00,000	72,00,000	1,80,00,000	1,20,00,000
Fixed cost	16,00,000	16,00,000	16,00,000	16,00,000
Advertisement	30,00,000	15,00,000	10,00,000	4,00,000
Depreciation	15,00,000	15,00, 000	16,50,000	16,50,000
Profit /(loss)	(13,00,000)	26,00,000	1,37,50,000	83,50,000
Tax @ 50%	NIL	13,00,000	68,75,000	41,75,000
Profit/(Loss) after tax	(13,00,000)	13,00,000	68,75,000	41,75,000
Add: Depreciation	15,00,000	15,00,000	16,50,000	16,50,000
Cash inflow	2,00,000	28,00,000	85,25,000	58,25,000

Computation of PV of Cash Inflow

Year	Cash Inflow (₹)	PV Factor @ 12%	(₹)
1	2,00,000	0.893	1,78,600
2	28,00,000	0.797	22,31,600
3	85,25,000	0.712	60,69,800
4	85,25,000	0.636	54,21,900
5	85,25,000	0.567	48,33,675
6	58,25,000	0.507	29,53,275
7	58,25,000	0.452	26,32,900
8	58,25,000	0.404	23,53,300
Working Capital	15,00,000	0.404	6,06,000
Scrap Value	1,00,000	0.404	40,400
(A)			2,73,21,450
Cash Outflow:			
Initial Cash Outlay	1,75,00,000	1.000	1,75,00,000
Additional Investment	10,00,000	0.797	7,97,000
(B)			1,82,97,000
Net Present Value (NPV) (A – B)			90,24,450

Recommendation: Accept the project in view of positive NPV.

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8. Statement showing the Working Capital Requirement of the Company

A. Current Assets (CA)	(₹)
Stock of raw materials [₹ 64,80,000 / 12 months) × 2 months]	10,80,000
Work-in-progress [(₹ 1,51,20,000 × 4) / 52 months] × 50%	5,81,538
Finished goods (₹ 1,51,20,000 / 12 months)	12,60,000
Debtors (₹ 28,80,000× 80%) (Refer to Working note 2)	23,04,000
Cash balances	1,00,000
	53,25,538
B. Current Liabilities(CL)	
Creditors of raw materials (₹ 64,80,000 / 12 months)	5,40,000
Creditors for wages & overheads $\left(\frac{28,80,000+57,60,000}{52\,\text{weeks}}\times 1.5\,\text{weeks}\right)$	2,49,231
	7,89,231
Net Working Capital (CA– CL)	45,36,307

Working Notes:	(₹)
1, Annual raw materials requirements (1,44,000 units × ₹ 45)	64,80,000
Annual direct labour cost (1,44,000 units × ₹ 20)	28,80,000
Annual overhead costs (1,44,000 units × ₹ 40)	57,60,000
Total Cost (*Rs.*)	1,51,20,000
2. Total Sales (1,44,000 units × ₹ 120)	1,72,80,000
Two months sales (₹ 1,72,80,000 / 6 months)	28,80,000

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9. (a) In case of customer A, there is no increase in sales even if the credit is given. Hence comparative statement for B & C is given below:

Particulars	Customer B				Customer C			
1. Credit period (days)	0	30	60	90	0	30	60	90
2. Sales Units	1,000	1,500	2,000	2,500	-	-	1,000	1,500
	₹ in lakhs				₹in lakhs			
3. Sales Value	90	135	180	225	-	-	90	135
4. Contribution at 20% (A)	18	27	36	45	-	-	18	27
5. Receivables:- $\frac{\text{Credit Period} \times \text{Sales}}{360}$	-	11.25	30	56.25	-	-	15	33.75
6. Debtors at cost i.e. 80% of 11.25	-	9	24	45	-	-	12	27
7. Cost of carrying debtors at 20% (B)	-	1.8	4.8	9	-	-	2.4	5.4
8. Excess of contributions over cost of carrying debtors (A – B)	18	25.2	31.2	36	-	-	15.6	21.6

The excess of contribution over cost of carrying Debtors is highest in case of credit period of 90 days in respect of both the customers B and C. Hence, credit period of 90 days should be allowed to B and C.

(b) Problem;-

(i) Customer A is taking 1000 TV sets whether credit is given or not. Customer C is taking 1000 TV sets at credit for 60 days. Hence A also may demand credit for 60 days compulsorily.

(ii) B will take 2500 TV sets at credit for 90 days whereas C would lift 1500 sets only. In such case B will demand further relaxation in credit period i.e. B may ask for 120 days credit.

10. (a) 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 or bank. The credit worthiness of borrower is evaluated and a contract is entered into with repayment schedule structure 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* – The SPV structure and issue securities on the basis of these assets 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 may be a pension funds, mutual funds, insurance funds.

The process of securitization is generally without recourse i.e. investors bear the credit risk and issuer is under an obligation to pay to investors only if the cash flows are received by him from the collateral. The benefits to the originator are that assets are shifted off the balance sheet, thus giving the originator recourse to off-balance sheet funding.

(b) "The profit maximisation is not an operationally feasible criterion." This statement is true because profit maximisation can be a short-term objective for any organisation and cannot be its sole objective. Profit maximization fails to serve as an operational criterion for maximizing the owner's economic welfare. It fails to provide an operationally feasible measure for ranking alternative courses of action in terms of their economic efficiency. It suffers from the following limitations:

(i) Vague term: The definition of the term profit is ambiguous. Does it mean short term or long term profit? Does it refer to profit before or after tax? Total profit or profit per share?

(ii) Timing of Return: The profit maximization objective does not make distinction between returns received in different time periods. It gives no consideration to the time value of money, and values benefits received today and benefits received after a period as the same.

(iii) It ignores the risk factor.

(iv) The term maximization is also vague.

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