INTERMEDIATE
Group II
Paper 10 : COST & MANAGEMENT ACCOUNTING AND FINANCIAL MANAGEMENT
(SYLLABUS – 2016)

Section A – Cost & Management Accounting

PART – I : OBJECTIVE QUESTIONS

1. (a) Choose the correct answer from the given four alternatives:

(i) Contribution margin is equal to:
- **(A) Sales-Fixed Cost –Profit**
- **(B) Profit+ Variable Cost**
- **(C) Fixed Cost –Loss**
- **(D) None of the above**

(ii) When Fixed cost is ₹10,000 and P/V ratio is 50%, the breakeven point will be:
- **(A) ₹20000**
- **(B) ₹40000**
- **(C) ₹50000**
- **(D) None of these.**

(iii) In break even chart, Y–axis represents:
- **(A) Volume of sales in units**
- **(B) Value of sales in rupees.**
- **(C) Cost and Sales in rupees**
- **(D) Value of Production in rupees.**

(iv) The scare factors is also known as
- **(A) Key factor**
- **(B) Abnormal factor**
- **(C) Linking factor**
- **(D) None of the above**

(v) A budgeting process which demands each manager to justify his entire budget in detail from beginning is
- **(A) Functional budget**
- **(B) Master budget**
- **(C) Zero base budgeting**
- **(D) None of the above**

(vi) One of the most important tools of cost planning is
- **(A) Cost sheet**
- **(B) Unit cost**
- **(C) Direct Cost**
- **(D) Budget**

(vii) Material price variance is ₹300(A), material mix variance is ₹150(A) and material sub-usage variance is ₹50(F). The material cost variance is
(A) ₹400(A)
(B) ₹450(A)
(C) ₹500(A)
(D) Cannot be computed.

(viii) Overhead budget variance is a sub-variance of
(A) Overhead volume variance
(B) Overhead efficiency variance
(C) Overhead cost variance
(D) None of the above

(ix) Which of the following is not a source of improvement in learning curves?
(A) Employee training and education
(B) Changes in administration, equipment, and product design
(C) Work specialization
(D) Frequently redesigned product

(x) Which of the following are tools of management accounting?
(i) Decision accounting
(ii) Standard costing
(iii) Budgetary control
(iv) Human Resources Accounting

(A) (i), (iii) and (iv)
(B) (i), (ii) and (iv)
(C) (i), (ii) and (iii)
(D) (i), (ii), (iii) and (iv)

(b) Match the column 'A' with Column 'B'

Column 'A'		Column 'B'	
1.	Transfer Price	(A)	Goal Congruence
2.	Zero Base Budgeting	(B)	Responsibility Accounting
3.	Performance Budgeting	(C)	Performance Measurement
4.	Throughput Accounting	(D)	Notional Profit
5.	Profit Earned on a Contract Account	(E)	Not on the Basis of Trends
6.	Determines priorities in functional budget	(F)	Value Analysis
7.	Margin of Safety	(G)	Decision making
8.	Cost reduction	(H)	Key factor
9.	Differential costing	(I)	Cannot be used for cost control.
10.	Normal standard	(J)	Difference between actual sales and BEP

(c) State whether the following statements are True/False.

(i) Fixed budgets are more suited for fixed expenses.
(ii) There may be two or more key factors operating at the same time.
(iii) Total cost variance is the difference between total standard cost of standard output and actual cost incurred.
(iv) Idle time variance is calculated by multiplying idle hours with standard rate.

(v) Overhead cost variance is sub–divided into fixed, variable and semi variable overhead variances.
(vi) The angle which the sales line makes with variable cost line is known as angle of incidence.
(vii) A high margin of safety shows that actual sales are much more than break-even sales.
(viii) A rise in fixed cost will not affect P/V ratio.
(ix) The learning curve assumes that production will continue without any major interruptions.
(x) Management Accounting Reports are public documents.

Answer:

1. (a)

(i)- (C) Fixed Cost –Loss
(ii)- (A) ₹20000
(iii)- (C) Cost and Sales in rupees
(iv)- (A) Key factor
(v)- (C) Zero base budgeting
(vi)- (D) Budget
(vii)- (A) ₹400(A)
(viii)- (C) Overhead cost variance
(ix)- (D) Frequently redesigned product
(x) - (C) (i), (ii) and (iii)

(b) Match the following

Column 'A'		Column 'B'	
1.	Transfer Price	(A)	Goal Congruence
2.	Zero Base Budgeting	(E)	Not on the Basis of Trends
3.	Performance Budgeting	(B)	Responsibility Accounting
4.	Throughput Accounting	(C)	Performance Measurement
5.	Profit Earned on a Contract Account	(D)	Notional Profit
6.	Determines priorities in functional budget	(H)	Key factor
7.	Margin of Safety	(J)	Difference between actual sales and BEP
8.	Cost reduction	(F)	Value Analysis
9.	Differential costing	(G)	Decision making
10.	Normal standard	(I)	Cannot be used for cost control.

(c) (i) False
(ii) True
(iii) False.
(vi) True
(v) False.
(vi) False.
(vii) True.
(viii) True.
(ix) True.
(x) False.

PART – II : SUBJECTIVE QUESTIONS

DECISION MAKING TOOLS

2. A company fixes the inter-divisional transfer prices for its products on the basis of cost plus and estimated return on investment in its division. The relevant portion of the budget for the Division A for the year 2017-18 is given below:

	₹
Fixed assets	**5,00,000**
Current assets (other than debtors)	**3,00,000**
Debtors	**2,00,000**
Annual fixed cost of the division	**8,00,000**
Variable cost per unit of product	**10**
Budgeted volume of production per year (units)	**4,00,000**
Desired return on investment	**28%**

You are required to determine the transfer price for the division A.

Ans:

Statement showing the transfer price for Division A

Particulars	₹	₹
Fixed assets		5,00,000
Working capital – Current assets - Debtors	3,00,000 2,00,000	5,00,000
Total Investment		10,00,000
Desired Rate of Return		28%
Total Return (i.e. profit) ₹10,00,000 x 28%		2,80,000
Budgeted Production p.a. (units)		4,00,000
Return per unit (2,80,000/4,00,000)		0.70
Variable cost per unit		10.00
Fixed Cost per unit (8,00,000 /4,00,000)		2.00
Transfer price for Div A		12.70

So, the transfer price is ₹ 12.70

3. A review of the result of the first quarter of the year made by the top management of M/s. SS Ltd., which makes only one product, revealed the following:

Sales in units	**10,000**
Loss	**₹10,000**
Fixed cost (for the year ₹1,20,000)	**₹30,000**
Variable cost per unit	**₹ 8**

The Finance Manager who feels perturbed suggests that the company should at least break-even in the second quarter with a drive for increased sales. Towards this, the company should introduce a better packing which will increase the cost by ₹0.50 per unit.

The Sales Manager has an alternative proposal. For the second quarter, additional sales promotion expenses can be increased to the extent of ₹5,000 and a profit of ₹5,000 can be aimed at during the period with increased sales.

The Production Manager feels otherwise. To improve the demand, the selling price per unit has to be reduced by 3%. As a result, the sales volume can be increased to attain a profit level of ₹4,000 for the quarter.

The Managing Director asks you as a Cost Accountant to evaluate the three proposals, calculate the P/V ratio and additional sales volume that would be required in each case and suggest which proposal should be accepted.

Ans:

Selling Price per unit for the first quarter

Fixed cost	₹ 30,000
Less: Loss	₹ 10,000
Contribution	₹ 20,000
Contribution per unit	₹ 2.00 (20,000 ÷10,000)

S-V = Contribution or S=Contribution + V = ₹2.00 + 8.00 or ₹ 10.00

For second quarter: Finance Manager's Proposal

Revised variable cost	= ₹8.00 + 0.50	= ₹8.50
Revised contribution	= ₹10.00 - 8.50	= ₹1.50
Break-even point(units)	= Fixed cost ÷ contribution per unit	
	= ₹ 30,000 ÷ ₹ 1.50	= 20,000 units
P/V ratio	= 1.5/10 × 100	=15%.

Therefore additional 10,000 units should be sold to breakeven.

Sales Manager's Proposal

Present fixed cost	₹ 30,000
Add: Sales promotion expenses	5,000
Revised fixed cost	₹ 35,000
Revised Profit	5,000
Revised contribution	40,000

Revised Sales Volume = Revised contribution ÷ contribution per unit (first quarter) = ₹40,000 ÷ ₹2. or 20,000 units.

In this case also, the additional sales volume of 10,000 units is required.

Production Manager's Proposal

Revised selling price	= ₹ 9.70 (reduced by 3%) Contribution per unit	
	= ₹9.70 - ₹8.00	= ₹ 1.70
Revised contribution	= Existing fixed cost + Revised profit	
	= ₹30,000 + ₹4,000	= ₹34,000
Revised sales volume	= Revised contribution ÷ contribution per unit	
	= ₹34,000 ÷1.70 = 20,000 units.	
P/V ratio =1.70/9.70 × 100	= 17,52%.	

Additional Sales Volume required is 10,000 units.

Conclusion:

The summary of profitability of the three proposals:

Proposals

	Financial Manager	Sales manager	Production Manager
P/V ratio	15%	20%	17.52%
Net Profit	Nil	₹5,000	₹4,000

It is noticed that the additional Sales volume in all the three proposals is 10,000 units to achieve the desired objective. Therefore, the sales volume does not affect the decision. The P/V ratio and Net Profit of Sales Manager's proposal are the maximum and therefore this proposal should be accepted.

4. The cost of an article at a capacity level of 10,000 units is given under A below. For a variation in capacity above or below this level, the individual expenses vary as indicated in B below:

	A (₹)	**B**
Material Cost	**50,000**	**100% varying**
Labour Cost	**30,000**	**100% varying**
Power	**3,000**	**80% varying**
Repairs and Maintenance	**3,500**	**80% varying**
Stores	**2,000**	**100% varying**
Inspection	**800**	**25% varying**
Depreciation	**10,000**	**100% varying**
Administrative Overhead	**3,600**	**25% varying**
Selling Overhead	**4,500**	**50% varying**
Total	**1,07,400**	
Cost per unit	**10.74**	

Find out the unit cost of the product under each individual expenses at production level of 8000 units and 12000 units.

Ans:

Production (units)	10,000	8,000	12,000
1. VARIABLE Cost:	₹	₹	₹
Material Cost(100% variable)	50,000	40,000	60,000
Labour cost (100% variable)	30,000	24,000	36,000
Power(80% variable)	2,400	1,920	2,880
Repairs and Maintenance(80% variable)	2,800	2,240	3,360
Stores (100% variable)	2,000	1,600	2,400
Inspection(25% variable)	200	160	240
Depreciation (100% variable)	10,000	8,000	12,000
Administrative overhead(25% variable)	900	720	1,080
Selling overhead(50% variable)	2,250	1,800	2,700
Total Variable Cost	1,00,550	80,440	1,20,660
2. Fixed Cost			
Power (20% fixed)	600	600	600
Repairs (20% fixed)	700	700	700
Inspection (75% fixed)	600	600	600

Admn. overhead (75% fixed)	2700	2,700	2,700
Selling overhead (50% fixed)	2,250	2,250	2,250
Total fixed cost	6,850	6,850	6,850
Total cost (1+2)	1,07,400	87,290	1,27,510
Cost per unit	10.74	10.91	10.63

5. In 2017 the turnover of Akash Ltd., which operated at a margin of safety of 25%, amounted to ₹12,00,000 and its profit volume ratio was 40%. During 2018 the company estimated that although the same volume of sales would be maintained, the sale value would go down due to decrease in selling price. There will be no change in variable costs. The company proposes to reduce its fixed costs through an intensive cost reduction programme. These changes will alter the profit volume ratio and margin of safety to $\frac{100}{3}$ % and 40% respectively in 2018.

Ans:

Comparative statement indicating sales, variable costs, fixed costs and profits of the company for 2017 and 2018:

	2017		2018	
	Note no.	**(₹)**	**Note no**	**(₹)**
Sales (S)		1200000	7	1080000
Variable Cost (VC)	1	720000	6	720000
Contribution (C)	2	480000	8	360000
BEP	3	900000	9	648000
Fixed Cost (FC)	4	360000	10	216000
Profit (P)	5	120000	11	144000

Working Notes:

2017:

P/V Ratio = 0.4 (Given)

VC/S = 1-P/V = 1-0.4 = 0.6 MOS = 0.25 *S (Given)

1. VC = (VC/S)*S = 0.6* 1200000 = ₹ 7,20,000
2. C = S - VC = ₹ 4,80,000
3. BEP = S -MOS = S-0.25*S = 0.75*S = ₹ 9,00,000
4. FC = BEP*P/V = 900000*0.4 = ₹ 3,60,000
5. P = C-FC = 480000-360000 = ₹ 1,20,000

2018:

6. VC = ₹ 720000 (Same as 2014)
   P/V Ratio = 100/3% = 1/3 (Given)
   VC/S = 1-1/3 =2/3
   MOS = 0.40*S (Given)
7. S = VC*(3/2) = 720000*3/2 = ₹ 10,80,000
8. C = S-VC= 1080000-720000 = ₹ 3,60,000
9. BEP = S -MOS =1080000-0.40*S = 1080000-432000 = ₹ 6,48,000
10. FC = BEP*P/V = 648000* 100/3% = ₹ 2,16,000
11. P = C - FC = 360000-216000 = ₹ 1,44,000

6. The following data extracted from the records of DHOORA LTD. are given to you:

Particulars	Year 2017-18	
	First six months (₹)	Second six months (₹)
Cost of sales	10,50,000	15,30,000
Profit/Loss (-)	(-) 50,000	2,70,000

You are required to calculate for the year 2017-18:

(i) P/V Ratio
(ii) Fixed cost
(iii) BEP
(iv) The amount of profit where sales are ₹ 25,00,000
(v) Amount of sales required to earn a profit of ₹ 6,50,000
(vi) Amount of sales required to earn a profit of 25% on cost

Ans:

DHOORA LTD.

(i) $\text{P/V ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100$

Sales for first 6 months = 10,50,000 - 50,000 = ₹ 10,00,000
Sales for last 6 months = 15,30,000 + 2,70,000 = ₹ 18,00,000
P/V ratio = 270000-(-50000)/1800000-1000000*100 = 320000/800000*100 = 40%

(ii) Fixed cost for the year 17-18:
= (Total sales x P/V Ratio) - Profit
= (2800000 x 40%) - 220000
= ₹ 900000

(iii) BEP= Fixed Cost/(P/V ratio)=9,00000/40%=₹22,50,000

(iv) Profit at sales of ₹ 25,00,000:
= 25,00,000 x 40% - 9,00,000
= 10,00,000 - 9,00,000 = ₹ 1,00,000

(v) Required sales to earn a profit of ₹ 6,50,000
Required Sales = (F+P)/(P/V ratio) = (900000+650000)/40% =1550000/40% = ₹3875000

(vi) Required sales to earn a profit of 25% on cost or 20% on sales:

Let 'x' be required sales
Required Sales = (F+P)/(P/V ratio)

X = (900000+0.2x)/40%
or 0.4 x - 0.2 x = 9,00,000 or 0.2x = 9,00,000

Or x = ₹ 45,00,000:
Hence, required sales to earn a profit of 25% on

Cost will be ₹ 45,00,000

BUDGETING AND BUDGETARY CONTROL

7. Prepare a Cash Budget for the three months ending on 30th June, 2019 from the information given below:

(i)

Month	Sales (₹)	Materials (₹)	Wages (₹)	Overheads (₹)
February	14,000	9,600	3,000	1,700
March	15,000	9,000	3,000	1,900
April	16,000	9,200	3,200	2,000
May	17,000	10,000	3,600	2,200
June	18,000	10,400	4,000	2,300

(ii) Credit terms are:
Sales : 10% sales are on cash, 50% of the credit sales are collected in the next month and the balance in the following month.
Creditors - Materials 2 months
- Wages ¼ month
- Overheads ½ month

(iii) Cash and Bank balance on 1st April, 2019 is expected to be ₹6,000.

(iv) Other relevant information are:
- **Plant and Machinery will be installed in February, 2019 at a cost of ₹96,000. The monthly installments of ₹2,000 is payable from April onwards.**
- **Dividend @ 5% on Preference Share Capital of ₹ 2,00,000 will be paid on 1st June.**
- **Advance to be received for sale of vehicles ₹9,000 in June.**
- **Dividends from investments amounting to ₹1,000 are expected to be received in June.**
- **Income tax (advance) to be paid in June is ₹ 2,000.**

Ans:

Sales realisation		Realization from Debtors	
Month	Sales	Credit sales	₹
February	14,000 × 90%	12,600 × 50%	= 6,300
March	15,000 × 90%	13,500 × 50%	= 6,750
			13,050 in April 2019
March	15,000 × 90%	13,500 × 50%	= 6,750
April	16,000 × 90%	14,400 × 50%	= 7,200
			13,950 in May 2019
April	16,000 × 90%	14,400 × 50%	= 7,200
May	17,000 × 90%	15,300 × 50%	= 7,650
			14,850 in June 2019

Cash Budget

₹

Particulars	April'19	May'19	June'19
A. Opening Balance	6,000	3,950	3,000
B. Receipts from:			
Cash Sales	1,600	1,700	1,800
Debtors	13,050	13,950	14,850
Advance	-	-	9,000
Dividends from Investments	-	-	1.000

Total B	14,650	15,650	26,650
Total **A+B**	20,650	19,600	29,650
C. Payments:			
Creditors	9,600	9,000	9,200
Wages	750	800	900
	2,400	2,700	3,000
Overheads	950	1,000	1,100
	1,000	1,100	1,150
Plant & Machinery :			
Installment	2,000	2,000	2,000
Preference Dividend	-	-	10,000
Advance Income Tax	-	-	2,000
Total C	16,700	16,600	29,350
D. Closing Balance(A+B) -(C)	3,950	3,000	300

8. Sintex Ltd. has prepared its expense budget for 20,000 units in its factory for the year 2019 as detailed below:

	₹ per unit
Direct Materials	**45**
Direct Labour	**20**
Variable overhead	**15**
Direct Expenses	**6**
Selling Expenses (20% fixed)	**15**
Factory Expenses (100% fixed)	**7**
Administration Expenses (100% fixed)	**4**
Distribution Expenses (85% variable)	**12**
Total	**₹124**

Prepare Flexible budget for the production of 14,000 units and 18,000 units.

Ans:

In the books of Sintex Ltd.
Flexible Budget

	Production	
Particulars	**14,000 units**	**18,000 units**
	₹	₹
Direct material @ ₹45 per unit	6,30,000	8,10,000
Direct Labour @ ₹20 per unit	2,80,000	3,60,000
Direct Expenses @ ₹6 per unit	84,000	1,08,000
Variable Overhead @ ₹15 per unit	2,10,000	2,70,000
Selling Expenses:		
Fixed: (₹15 × 20,000 units × 20%)	60,000	60,000
Variable: (₹15 × 20,000 units × 80%) ÷ 20,000 units = ₹12 per unit	1,68,000	2,16,000
Factory Expenses (100% Fixed)		
Fixed: (₹7 × 20,000 units)	1,40,000	1,40,000
Administration Exp. (100% Fixed)		
Fixed: (₹4 × 20,000 units)	80,000	80,000
Distribution Expenses		
Fixed: (₹12 × 20,000 × 15%)	36,000	36,000
Variable: (₹12 × 20,000 × 85%) ÷ 20,000 units = ₹10.20 per unit	1,42,800	1,83,600
Total Cost	18,30,800	22,63,600

9. From the following data, prepare a Production Budget for ABC Co. Ltd., for the six months period ending on 30th June, 2019

Stocks for the budgeted period:

(in units)

Product	As on 01 January, 2019	As on 30 June, 2019
A	6,000	10,000
B	9,000	8,000
C	12,000	17,500

Other relevant data:

Product	Normal loss in production	Requirement to fulfill sales programme (units)
A	4%	60,000
B	2%	50,000
C	5%	80,000

Ans:

Production budget for 6 months ending on 30 June 2019

Details	Products (units)		
	A	B	C
Budgeted sales	60000	50000	80000
Add: Closing stock	10000	8000	17500
Total required stock	70000	58000	97500
Less: Opening stock	6000	9000	12000
Net production	64000	49000	85500
Add: Normal loss in production = Net production × Normal Loss %/(100 - Normal Loss %)	(4%) 2666.67	(2%) 1000.00	(5%) 4500.00
Gross production	66666.67	50000.00	90000.00

10. XYZ Ltd., which has a system of assessment of Divisional Performance on the basis of residual income, has two Divisions, Alfa and Beta. Alfa has annual capacity to manufacture 15,00,000 units of a special component that it sells to outside customers but has idle capacity. The budgeted residual income of Beta is ₹ 1,20,00,000 and that of Alfa is ₹ 1,00,00,000.

Other relevant details extracted from the budget for the current year are as follows:

Particulars of Alfa:

Sale (Outside customers)	**12,00,000 units @ ₹ 180 per unit**
Variable cost per unit	**₹ 160**
Divisional fixed cost	**₹ 80,00,000**
Capital employed	**₹ 7,50,00,000**
Cost of Capital	**12%**

Beta has received a special order for which it requires components similar to the ones made by Alfa. Fully aware of the idle capacity of Alfa, Beta has asked Alfa to quote for manufacture and supply of 3,00,000 units of the components with a slight modification during final processing. Alfa and Beta agreed that this will involve an extra variable cost to Alfa amounting to ₹ 5 per unit.

Calculate the transfer price, which Alfa should quote to Beta to achieve its budgeted residual income.

Ans:

Contribution required for budgeted Residual Income of Alfa:

	₹
Fixed Cost	8000000
Capital Charge on 75000000 ×12%	9000000
Residual Income	10000000
Total Contribution required	27000000

	₹	₹
Contribution required from existing units	1200000 × 20	24000000
Contribution required on 300000 units	27000000 - 24000000	3000000
Required contribution per unit	3000000/300000	10
Variable cost per unit (existing)		160
Increase in variable cost per unit		5
Transfer Price per unit	10 + 160 + 5	175

STANDARD COSTING AND VARIANCE ANALYSIS

11. A manufacturing company operates a costing system and showed the following data in respect of the month of November, 2017.

Budgeted		Actual	
Working days	**20**	**Working days**	**22**
Man hours	**4,000**	**Man hours**	**4,200**
Fixed Overhead Cost (₹)	**2,400**	**Fixed Overhead Cost (₹)**	**2,500**
Output (units)	**800**	**Output (units)**	**900**

You are required to calculate fixed overhead variances from the above data.

Ans:

WN 1:

Standard fixed overhead per unit = budgeted fixed overhead cost/ budgeted units of output = 2400/800 = ₹ 3

Standard fixed overhead per man hour = budgeted fixed overhead cost/ budgeted man hours = 2400/4000 = ₹ 0.6

Standard fixed overhead per day = budgeted fixed overhead cost/ budgeted days = 2400/20 = ₹ 120

WN 2:

A. Standard Fixed Overhead Cost = Standard fixed overhead per unit × Actual Output (units) = ₹ 3 × 900 = ₹ 2700
B. Fixed Overhead absorbed in actual hours = Standard fixed overhead per hour × Actual hours = ₹ 0.6 × 4200 = ₹ 2520
C. Fixed Overhead Cost absorbed in actual days = Standard fixed overhead per days × Actual days = ₹ 120 × 22 = ₹ 2640
D. Budgeted Fixed Overhead Cost = ₹ 2400
E. Actual Fixed Overhead Cost = ₹ 2500

Computation of Variances:
Fixed Overhead Efficiency Variance = A - B = ₹ 2700 - ₹ 2520 = ₹ 180 (Favourable)
Fixed Overhead Capacity Variance = B - C = ₹ 2520 - ₹ 2640 = ₹ 120 (Adverse)
Fixed Overhead Calendar Variance = C - D = ₹ 2640 - ₹ 2400 = ₹ 240 (Favourable)
Fixed Overhead Volume Variance = A - D = 12700 - ₹ 2400 = ₹ 300 (Favourable)
Fixed Overhead Expenditure Variance = D - E = ₹ 2400 - ₹ 2500 = ₹ 100 (Adverse)
Fixed Overhead Efficiency Variance = A - E = ₹ 2700 - ₹ 2500 = ₹ 200 (Favourable)

12. From the following particulars furnished by M/s. Starlight Co. Ltd. find out (i) Material cost variance; (ii) Material usage variance and (iii) Material price variance.

Value of Material purchased	**₹ 9,000 units**
Quantity of Material purchased	**3,000 units**
Standard quantity of materials required per tonne of Finished product	**25 units**
Standard rate of material	**₹2 per units**
Opening Stock	**Nil**
Closing stock of material	**500 units**
Finished production during the period	**80 tonnes**

Ans:

Material consumed = Quantity of material purchased - Closing stock of materials
= 3000 units - 500 units
= 2500 units

Actual rate of material $= \frac{\text{Value of material purchased}}{\text{Quantity of material purchased}}$

$= \frac{₹9,000}{3,000}$

= ₹ 3 per unit

Standard Quantity for actual output = 25 units x 80 tonnes
= 2000 units

(i) Material Cost Variance
= Standard Cost - Actual Cost
= Standard Price x Standard Quantity - Actual Price x Actual Quantity
= (₹ 2 x 2000 units) - (₹ 3 x 2500 units)
= ₹ 4,000 – ₹ 7,500
= ₹ 3,500 (A)

(ii) Material Price Variance
= Actual Quantity x (Standard Price - Actual Price)
= 2500 x (₹ 2 – ₹ 3)
= 2500 x (- ₹ 1)
= ₹ 2,500 (A)

(iii) Material Usage Variance
= Standard Price (Standard Quantity - Actual Quantity)
= ₹2 (2000 units - 2500 units)
= ₹ 2 (-500 units)
= ₹1,000 (A)

13. The following information pertains to labour force of UDHHAMI LTD. engaged in a week of November 2017 for a JOB-PH.

	Skilled	Semi-skilled	Unskilled	Total
No. of workers in standard gang:	**16**	**12**	**8**	**36**
Standard rate per hour (₹)	**60**	**30**	**10**	**—**
No. of workers in actual gang:	**—**	**—**	**—**	**—**
Actual rate per hour (₹)	**70**	**20**	**20**	**—**

In a 40 hours week, the gang produced 1080 standard hours. The actual number of semi-skilled workers is two times of the actual number of unskilled workers. Total number of actual workers are same as standard gang. The rate variance of semi-skilled workers is ₹ 6400 (F).

You are required to find the following:

(a) The actual number of workers/labours in each category.
(b) Labour gang (mix) variance.
(c) Labour sub-efficiency variance.
(d) Labour rate variance.
(e) Labour cost variance.

Ans:

Working Notes:

UDHHAMI LTD.

(i) Actual No. of workers:
Rate variance = AH (SR-AR)
Rate variance for semi-skilled workers = AH (30-20) = ₹ 6400 (F)
AH = 6400/10 = 640 hours of semi-skilled workers
Actual semi skilled = 2x Actual unskilled workers = 640 hours
Actual unskilled = 640/2 = 320 hours
Actual skilled hours = Total actual hours - (Semi skilled+ unskilled)
= 36x40 - (640+320) = 1440 - (640 + 320) = 480 hours
Hence, Actual No. of workers = skilled: 480/40 = 12
Semi skilled: 640/40 = 16 and unskilled: 320/40 = 8 workers

(ii) Total standard hours:
Skilled- 30x16 - 480 hrs: semi skilled - 30x12 = 360 hours and
Unskilled - 30x8 = 240 hrs = Total 1080 hours

(iii) Weekly standard gang hours = 1080/36 = 30 hours

(iv) Revised standards hrs (RSH)
Skilled - 1440 x (480/1080) = 640 hours; semi skilled- 1440 x (360/1080)
= 480 hrs. Unskilled – 1440 x (240/1080)
= 320 hour

(v)

TSC= SR×SH (₹)		TAC= AR × AH (₹)	SR × RSH (₹)	SR × AH (₹)
Skilled: 60 x 480	= 28800	70x480 = 33600	60x640 = 38400	60x480 = 28800
Semi skilled: 30 x 360	=10800	20x640 = 12800	30x480 = 14400	30x640 = 19200
Unskilled: 10 x 240	= 2400	20x320 = 6400	10x320 = 3200	10x320 = 3200
Total	42000	52800	56000	51200

Labour Gang (Mix) variance = SR (RSH-AH) or (SR x RSH)- (SRxAH)
= 56000-51200 = ₹ 4800 (FAV)

Labour sub-efficiency variance = SR (SH- RSH) or (SR x SH) - (SR x RSH)
= 42000- 56000 = ₹ 14000 (ADV)

Labour rate variance = AH (SR-AR) or (AH x SR) - (AH x AR) = 51200- 52800 = ₹ 1600 (ADV)

Labour cost variance = TSC-TAC or (SRxSH) - (AR x AH) = ₹ 42000- ₹ 52800 = ₹ 10800 (ADV)

LEARNING CURVE

14. A company has just completed the manufacture of 40 units of a new product. The manufacturing costs are:-

Direct materials	**2,00,000**
Direct labour: 8000 hours at ₹20 per hour	**1,60,000**
Variable overheads	**80,000**
Special tools (re-usable)	**10,000**
Fixed overhead apportioned	**1,00,000**
Total	**5,50,000**

The Company policy is to add a profit of 12% on selling price.
The Company received another order for 120 units of this product for which the company quoted, based on its policy on absorption cost basis, a price of ₹15,625 per unit. The customer struck the order to ₹11,000 per unit. The Company is short of work and so is keen to take up more orders but it is reluctant to accept this order price because it is against the policy to accept any price below its cost. The Company experiences a learning curve of 90%.
(i) Compute the gain or loss arising from acceptance of the order of ₹11,000 per unit.
(ii) Advice whether the company should accept this order for 120 units or not.

Ans:

(i) Computation of selling price of First Order for 40 units

a. Total Costs (As given above)	₹5,50,000
b. Number of units	40 units
c. Average cost per unit	₹13,750
d. Since profit is 12% on price, it is 12/88 on cost	₹1,875
e. Price Quoted (Cost+ Profit)	₹15,625

(ii) Computation of Time required for 120 units

No. of units	Time required per unit	Total time required	Cumulative time
40	8,000 hrs÷40 units=200 hours	(given) 8,000 hours	8,000 hours
80	200 x90%=180 hours	80 units x 180 hours pu	14,400 hours
160	180x 90%=162 hours	160 units x 162 hours pu	25,920 hours

Time required for 120 units=Cumulative Time required for 162 units – Time required for first 40 units = 25,920 - 8,000 = 17,920 hours.

Cost Sheet for order of 120 units

Particulars	Computation	₹
Direct Material	(₹2,00,000÷40) × 120 units	6,00,000

Direct Labour	17,920 hours×₹20 per hour	3,58,400
Variable Overheads	17,920 hours×₹10 per hour	1,79,200
Special Tools-(Re-usable)	Hence, Relevant Cost is Nil	Nil
Fixed Overheads	Idle Capacity – Not relevant	Nil
Total Cost		11,37,600
Cost per unit	₹11,37,600÷120	9,480
Price offered		11,000
Hence, Profit per unit		1,520
Total profit from 120 units	₹1,520×120 units	1,82,400

Decision: The order should be accepted.

PART – III : SHORT NOTES

15. Write short note on:

(a) Analyse B.E.P with help of a graph.

(b) What are the limitations of ZBB?

(c) State the general principles of Standard Costing.

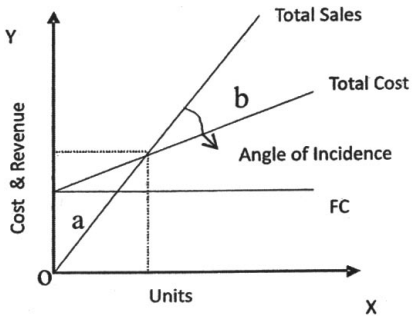
(d) What are the Pre-requisites for Installation of a Uniform Costing System?

(e) Discuss distinctive Features of Learning Curve Theory

Ans:

(a) Break Even Point (B.E.P) is the volume of production or sales where total costs equals to total revenue. It is a no profit no loss situation for the company. It helps in finding out the relationship of costs and revenues to output. In understanding the breakeven point, cost, volume and profit are always used.

A formal break even chart would be as follows.



The number of units is expressed on X-axis and the costs and revenues are expressed on Y-axis. There are three other lines, Fixed Cost (FC), Total Cost and Total sales. B.E.P is the point where total cost and total sales line intersect.

(b) The limitations are as follows:

(i) Lack of co-ordination: Various operational problems are likely to be faced in implementing the technique of ZBB. It requires the wholehearted support from Top Management.

(ii) Old is gold attitude: Generally, managers are reluctant to start afresh. They tend to plan for future just by reference to past actions and budgets.

(iii) Time consuming: It is time consuming as well as costly. It needs properly trained managerial personnel to do the required job.
(iv) Lack of adequate data: ZBB requires data for justifying the allocation of resources to various alternatives in every period. Sometimes, this data may not be available for analysis.

(c)

(i) Predetermination of technical data related to production i.e., details of material and labour operations required for each product, the quantum of inevitable losses, efficiencies expected, level of activity etc
(ii) Predetermination of standard cost in full details under each element of cost, viz., labour, material and overhead.
(iii) Comparison of actual performance and costs with the standards and working out of the variances. i.e., the differences between the actual and the standards.
(iv) Analysis of variances in order to determine the reasons for deviations of actual from the standards.
(v) Presentation of information to the appropriate level of management to enable suitable action (remedial measure or revision of the standards) being taken.

(d) Essential Pre-requisites for installation of a Uniform costing System:

A successful system of uniform costing requires the following essential requisites for its installation.

- There should be a spirit of mutual trust, co-operation and a policy of give and take amongst the participating members.
- Mutual exchange of ideas, methods used, special achievements made, research and know-how etc. should be frequent.
- Bigger units should take the lead towards sharing their experience and know-how with smaller units to enable the latter to improve their performance.
- Uniformity must be established with regard to several points before the introduction of uniform costing in an unit. In fact, uniformity should be with regard to the following points:
  - Size of the various units covered by uniform costing.
  - Production methods.
  - Accounting methods, principles, and procedures used.

It should be willing to share/furnish relevant data/information.

(e)

(i) Learning curve is not a cost reduction technique. It is a naturally occurring human phenomenon.
(ii) It is a human characteristic that a person engaged in repetitive task will improve his performance over time.
(iii) In the initial stage of production, generally the workers do not have the confidence of completing the job successfully. When they produce a few units, they gain confidence. People learn from errors.
(iv) When the workers produce more and more units, they come to know the problems and their reasons. Now they are able to avoid the problems.
(v) The workers are able to find the new methods of doing the job; they are able to complete task in less time.
(vi) Better equipments and tools are developed.
(vii) Better product designs lead to increased efficiency.

Section B – Financial Management

PART – I : OBJECTIVE QUESTIONS

16. (a) Choose the correct answer from the alternatives:

(i) The formula used to calculate current ratio is
- **(A) Current assets/Current liabilities**
- **(B) Current liabilities/Current assets**
- **(C) Inventory/Current liabilities**
- **(D) Current liabilities / Inventory**

(ii) Which of the following is not a characteristic of debentures?
- **(A) Credit instrument**
- **(B) Maturity Date**
- **(C) Promise a rate of interest.**
- **(D) Have voting rights.**

(iii) Investment is the _____
- **(A) net additions made to the nation's capital stocks**
- **(B) person's commitment to buy a flat or house**
- **(C) employment of funds on assets to earn returns**
- **(D) employment of funds on goods and services that are used in production process**

(iv) Financial Management is mainly concerned with _____
- **(A) arrangement of funds.**
- **(B) all aspects of acquiring and utilizing financial resources for firms activities.**
- **(C) efficient Management of every business.**
- **(D) profit maximization**

(v) Which statement is prepared in the process of funds flow analysis?
- **(A) Schedule of changes in working capital**
- **(B) Funds Flow Statement**
- **(C) Both A and B**
- **(D) None of the above**

(vi) Which of the following are sources of funds?
- **(A) Issue of bonus shares**
- **(B) Issue of shares against the purchase of fixed assets**
- **(C) Conversion of debentures into shares**
- **(D) None of the above.**

(vii) If reserve for bad and doubtful debts is mentioned in the question of Funds Flow Statement Preparation, it can be shown as
- **(A) In the schedule by deducting from total debtors under current assets**
- **(B) In the schedule separately under the heading of capital liabilities**
- **(C) Both A & B**
- **(D) None of the above**

(viii)_____varies inversely with profitability.

(A) Liquidity
(B) Risk
(C) Both A and B
(D) None of the above.

(ix) During planning period, a marginal cost for raising a new debt is classified as

(A) debt cost
(B) relevant cost
(C) borrowing cost
(D) embedded cost

(x) A project whose cash flows are more than capital invested for rate of return then net present value will be

(A) positive
(B) independent
(C) negative
(D) zero

(b) Match the column 'A' with Column 'B'

Column 'A'		Column 'B'	
1.	Investment decisions	(i)	Cost of Capital
2.	Dividend decisions	(ii)	Constant growth
3.	Financing decisions	(iii)	Capital budgeting
4.	Profitability Ratio	(iv)	Inventory turnover ratio
5.	Activity Ratio	(v)	Retained -Earnings
6.	Solvency Ratio	(vi)	Theory of Capital structure
7.	Gordan Model	(vii)	Return on Investment
8.	Modigiliani and Miller Hypothesis	(viii)	Capital gearing
9.	Graham & Dodd Model	(ix)	MM model
10.	Dividend Irrelevancy Model	(x)	Dividends are relevant

(c) State whether the following statements are 'True' or 'False'?

(i) Debentures don not offer any coupon payments, but are issued at a discount.
(ii) All investments are speculative by nature.
(iii) A goal or objective is a necessary first step for effective financial management.
(iv) Maximizing the price of a share of the firm's common stock is the equivalent of maximizing the wealth of the firm's present owners.
(v) "Funds" (as in "flow of funds") always means cash and near-cash equivalents.
(vi) Depreciation is a use of funds.
(vii) The hedging approach to financing involves matching maturities of debt with specific financing needs.
(viii) All other things equal, reducing a firm's current assets will decrease profitability as measured by ROI.
(ix) A firm's overall cost of capital is simply the sum of the firm's cost of equity, cost of debt, and cost of preferred stock.
(x) A capital investment involves making a current cash outlay in the expectation of future benefits.

Ans:

(a) (i)- (A) Current assets / Current liabilities
(ii)- (D) Have voting rights.
(iii)- (C) employment of funds on assets to earn returns
(iv)- (B) all aspects of acquiring and utilizing financial resources for firms activities.
(v)- (A) Schedule of changes in working capital
(vi)- (D) None of the above.
(vii)- (C) Both A & B
(viii)- (A) Liquidity
(ix)- (B) relevant cost
(x)- (A) positive

(b)

Column 'A'		Column 'B'	
1.	Investment decisions	(iii)	Capital budgeting
2.	Dividend decisions	(v)	Retained -Earnings
3.	Financing decisions	(i)	Cost of Capital
4.	Profitability Ratio	(vii)	Return on Investment
5.	Activity Ratio	(iv)	Inventory turnover ratio
6.	Solvency Ratio	(viii)	Capital gearing
7.	Gordan Model	(ii)	Constant growth
8.	Modigiliani and Miller Hypothesis	(vi)	Theory of Capital structure
9.	Graham & Dodd Model	(x)	Dividends are relevant
10.	Dividend Irrelevancy Model	(ix)	MM model

(c) (i) False
(ii) False
(iii) True
(iv) True
(v) False
(vi) False
(vii) True
(viii) False
(ix) False
(x) True.

PART – II : SUBJECTIVE QUESTIONS

TOOLS OF FINANCIAL ANALYSIS AND PLANNING

17. Based on the following information, what will be the amount of Inventory?
Current ratio=2.6: 1 Liquid ratio=1.5:1 Current liabilities= ₹40,000.

Ans:

Current ratio = Current Asset/Current Liability

2.6	= CA/40,000	
CA	= 40000*2.6	= ₹1, 04,000
Liquid Assets	= 40,000*1.5	= ₹ 60000
Inventory	= CA- LA	= ₹ 44000.

18. A PX company has a profit margin of 30% and asset turnover of 3 times. What is the company's return on investment? How will this return on investment vary if
i) Profit margin is increased by 10%?
ii) Asset turnover is decreased to 2 times?
iii) Profit margin is decreased by 10% and asset turnover is increase to 4 times?

Ans:

Net profit ratio	= 30% (given)
Assets turnover ratio	= 3 times (given)
Return on Investment (ROI)	= Net Profit ratio x Assets turnover ratio
	= 30% x 3 times = 90%

(i) If net profit ratio is increased by 10%:

Then Revised Net Profit Ratio	= 30 + 10 = 40%
Asset Turnover Ratio (as before)	= 3 times
Therefore, ROI = 40 % x 3 times	= 120%

(ii) If assets turnover ratio is decreased to 2 times:

NP Ratio (as before)	= 30%
Revised Asset Turnover Ratio	= 2 times
Therefore, ROI = 30% x 2 times	= 60 %

(iii) If net profit ratio falls by 10% and assets turnover ratio raises to 4 times:

Then Revised NP Ratio	= 30 – 10	= 20%
Revised Asset Turnover Ratio	= 4 times	
Therefore, ROI = 20% x 4	= 80%	

19. G LTD. has total assets of ₹60 crore and a Debt/equity ratio of 0.5. Its sales are ₹27 crore and it has total fixed cost of ₹7 crore. If the company's EBIT is ₹6 crore, its tax rate is 40% and the interest rate on debt is 12%, the ROE of G LTD. would be how much?

Ans:

Total Equity+ Total Debt	= ₹60 crore		
Total equity= (60/1.5)	= ₹40 crore		
Total Debt= (60-40)	= ₹20 crore		
Net income= [(EBIT)-I] × (1-t)	= (6-2.40) (1-.40)	=3.60×0.6	= ₹2.16 crore.
ROE = (2.16/40) ×100	= 5.40%.		

20. M LTD. gives you the following information for the year ended 31s' March, 2018:

(i) Sales for the year totalled ₹96,00,000. The company sells goods for cash only.

(ii) Cost of goods sold was 60% of sales. Closing inventory was higher than opening inventory by ₹ 20,000.

(iii) Tax paid amounted to ₹ 7,00,000. Other expenses totaled ₹21,45,000. Outstanding expenses on 31st March, 2017 and 31s1 March, 2018 totalled ₹ 82,000 and ₹ 91,000 respectively.

(iv) New machinery and furniture costing ₹ 10,50,000 in all were purchased. One equipment was sold for ₹ 20,000.

(v) A right issue was made of 50,000 shares of ₹10 each at a premium of ₹3 per share. The entire money was received with application.

(vi) Dividends totalling ₹ 4,00,000 were distributed among the share holders.

(vii) Cash in hand and at Bank as at 31sl March, 2017 and 31st March, 2018 totalled ₹ 2,10,000 and ₹ 4,14,000 respectively.

You are required to prepare cash flow statement for the year ended 31sl March, 2018 using the direct method.

Ans:

MINTEX LTD.

Cash Flow Statement For The Year Ended 31st March, 2018

(Under Direct Method) **(₹ In lakh)**

Cash Flow from Operating Activities:		
Cash receipts from customers	96.00	
Cash paid to suppliers and employees	(79.16)	
Cash inflow from operation	16.84	
Tax Paid	(7.00)	
Net Cash from Operating Activities		9.84
Cash Flow from Investing Activities:		
Purchase of Fixed Assets	(10.50)	
Proceeds from sale of Equipment	0.20	
Net cash from Investing Activities		(10.30)
Cash Flow from Financing Activities:		
Proceeds from issue of share capital	6.50	
Dividend paid	(4.00)	
Net Cash from Financing Activities		2.50
Net Increase in Cash and Cash equivalents		
Cash and Cash equivalents as at 31st March, 2017		2.04
Cash and Cash equivalents as at 31st March, 2018		2.10
(Closing Balance)		4.14

Working Notes:

(i) Calculation of cash paid to suppliers and employees:

(₹ in Lakh)

Cost of sales, 60% of ₹96.00 lakh	57.60
Add: Expenses incurred	21.45
Outstanding expenses on 31.03.17	0.82
Excess of closing inventory over opening inventory	0.20
	80.07
Less: Outstanding Expenses on 31.03.2018	0.91
	79.16

(ii) Proceeds from issue of share Capital:
Issue price of one share = ₹10 + ₹3 = ₹13
Proceeds from issue of 50,000 x 13 = ₹6.50 lakh.

21. From the following figures, prepare a statement showing the changes in the working capital and fund flow statement during the year 2017:-

Assets	Dec.31,2016	Dec.31,2017
Fixed Assets (net) ₹	5,10,000	6,20,000
Investment	30,000	80,000
Current Assets	2,40,000	3,75,000
Discount on debentures	10,000	5,000
	7,90,000	10,80,000
Liabilities		
Equity share capital	3,00,000	3,50,000
Preference share capital	2,00,000	1,00,000
Debentures	1,00,000	2,00,000
Reserves	1,10,000	2,70,000
Provision for doubtful debts	10,000	15,000
Current liabilities	70,000	1,45,000
	7,90,000	10,80,000

You are informed that during the year:
(a) A machine costing ₹ 70,000 book value ₹ 40,000 was disposed of for ₹ 25,000.
(b) Preference share redemption was carried out at a premium of 5% and
(c) Dividend at 10% was paid on equity share for the year 2016.

Further:
(i) The provision for depreciation stood at ₹ 1,50,000 on 31.12.16 and at ₹ 1,90,000 on 31.12.17; and
(ii) Stock which was valued at ₹ 90,000 as on 31.12.16; was written up to its cost, ₹ 1,00,000 for preparing Profit and Loss account for the year 2017.

Ans:

Change in working capital

	2016	2017
Current Assets	2,40,000	3,75,000
(+) Stock under valued	10,000	
Current liabilities	70,000	1,45,000
Net working capital	1,80,000	2,30,000
Increase in working capital	50,000	

Fund flow statement

Sources	Amount (₹)	Applications	Amount (₹)
Sale of fixed assets	25,000	Increase in working capital	50,000
Fund from operation	2,80,000	Purchase of fixed assets	2,20,000
Issue of shares	50,000	Purchase of investment	50,000
Debentures	1,00,000	Redemption of preference shares	1,05,000
		Dividend paid	30,000
	4,55,000		4,55,000

Working note:

1. Depreciation

	(₹)
Opening provision	1,50,000
(-) Provided on sale of asset	30,000
	1,20,000
(+) Provided during the year (b /f)	70,000
Closing provision	1,90,000

2. Purchase & Sale of Fixed Assets

	(₹)
Opening (2017)	5,10,000
(-) Provided on sale of asset	40,000
Sold	4,70,000
(-) Depreciation provided	70,000
	4,00,000
(+) Purchases (b /f)	2,20,000
Closing 2017	6,20,000

3. P&L Adjustment A/c

Particulars	Amount (₹)	Particulars	Amount (₹)
To depreciation	70,000	By balance b/d (1,10,000+10,000)	1,20,000
To loss on sale of fixed assets	15,000	By fund from operations (Bal. fig.)	2,80,000
To loss on redemption of shares	5,000		
To discount written off	5,000		
To provision for doubtful debt	5,000		
To dividend	30,000		
To balance c/d	2,70,000		
	4,00,000		4,00,000

WORKING CAPITAL MANAGEMENT

22. A Company provide the following data:

	Cost per unit (₹)
Raw materials	**52.00**
Direct labour	**19.50**
Overheads	**39.00**
Total cost	**110.50**
Profit	**19.50**
Selling price	**130.00**

The following additional information is available:-
(a) Average raw materials in stock: one month.
(b) Average materials in process: half-a-month
(c) Average finished goods in stock: one month
(d) Credit allowed by suppliers: one month
(e) Credit allowed to debtors: two month
(f) Time lag in payment of wages: one and a half weeks.
(g) Overheads: one month

(h) One-fourth of sales are on cash basis.
(i) Cash balance is expected to be ₹ 1,30,000

You are required to prepare a statement showing the working capital needed to finance a level of activity of 70,000 units of annual output. The production is carried evenly throughout the year and wages and overheads accrue similarly. (Calculation is made on the basis of 30 days a month and 52 weeks a year.)

Ans:

Statement showing estimate of Working Capital

Particulars	Amount (₹)	Amount (₹)
Current Assets:		
Stock of Raw material (70,000 units x 52 x 30/ 360)		3,03,333
Work in progress:		
Raw materials (70,000 units x 52 x 15/ 360)	1,51,667	
Direct labour (70,000 units x 19.50 x 30/ 360 x1/2 × 50%)	28,437	
Overheads (70,000 units x 39 x 30/ 360 x ½ × 50%)	56,875	2,36,979
Stock of finished goods (70,000 units x 110.50 x 30/ 360)		6,44,583
Debtors (70,000 units x 130 x 60/ 360)		15,16,667
Cash balance		1,30,000
(a)		28,31,562
Current Liabilities:		
Creditors for raw material (70,000 units x 52 x 30/ 360)		3,03,333
Creditor for wages (70,000 units x 19.50 x 1.5/ 52)		39,375
Creditors for overheads (70,000 units x 39 x 30/ 360)		2,27,500
(b)		5,70,208
Net working Capital (a) – (b)		**22,61,354**

23. 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.
- 20% of the output is sold against cash.
- The company expects to keep a Cash balance of ₹2,00,000.
- Take 52 weeks per annum.

The Company is poised for a manufacture of 1,50,000 units in the year. You are required to prepare a statement showing the Working Capital requirements of the Company.

Ans:

Statement showing the Working Capital Requirement

A.	Current Assets:	₹
	Stock of raw materials	11,25,000
	[₹67,50,000 / 12 months) × 2 months	
	Work-in-progress	6,05,769
	[(₹1,57,50,000 × 4) / 52 months] × 50%	
	Finished goods	13,12,500
	(₹1,57,50,000 / 12 months)	
	Debtors	24,00,000
	(₹30,00,000 × 80%)	
	(Refer to Working note 2)	
	Cash balances	2,00,000
		56,43,256
	Current Liabilities:	
	Creditors of raw materials	5,62,500
	(₹67,50,000 / 12 months)	
	Creditors for wages & overheads $\left(\frac{₹\,90,00,000}{52\text{ weeks}} \times 1.5\text{ weeks}\right)$	2,59,615
	Net Working Capital (C.A– C.L)	48,21,154
Working Notes:		
1,	Annual raw materials requirements (₹)	67,50,000
	1,50,000 units × ₹45	
	Annual direct labour cost (₹)	30,00,000
	1,50,000 units × ₹20	
	Annual overhead costs (₹)	60,00,000
	1,50,000 units × ₹40	
	Total Cost (₹)	1,57,50,000
2.	Total Sales:	1,80,00,000
	(1,50,000 units × ₹120)	
	Two months sales	30,00,000
	(₹1,80,80,000 / 6 months)	

LEVERAGE ANALYSIS

24. From the following, what is the amount of sales of A Ltd? Financial Leverage – 3:1; interest - ₹200; Operating Leverage -4:1; Variable Cost as a % of sales- 66.67%.

Ans:

Financial Leverage $= \frac{EBIT}{EBT} = \frac{3}{1}$

EBIT = 3EBT

EBIT-200 = EBT

EBIT = 3[EBIT-200]

Therefore, EBIT = ₹300

Operating Leverage $= \frac{S-V}{EBIT} = \frac{4}{1}$

S – v = 4 EBIT = 4×300=1200 (100-66.67%) s =1200

Therefore Sales = $\frac{1200}{33\frac{1}{3}\%}$ = ₹3600

25. The data relating to two companies are as given below:

Particulars	Company A	Company B
Equity capital	**₹6,00,000**	**₹3,50,000**
12% debentures	**₹4,00,000**	**₹6,50,000**
Output (units) per annum	**60,000**	**15,000**
Selling Price/unit	**₹30**	**₹250**
Fixed costs per annum	**7,00,000**	**14,00,000**
Variable cost per unit	**₹10**	**₹75**

You are required to calculate the Operating Leverage, Financial leverage and combined leverage of two companies.

Ans:

Computation of degree of operating Leverage, Financial Leverage & Combined Leverage of two companies:

Particulars	Company A	Company B
Sales revenue (60,000 units x ₹30)(15,000 units x ₹250)	18,00,000	37,50,000
Less: variable costs (60,000 units x ₹10) (15,000 units x ₹75)	(6,00,000)	(11,25,000)
Contribution	12,00,000	26,25,000
Less: Fixed costs	(7,00,000)	(14,00,000)
EBIT	5,00,000	12,25,000
Less: Interest @ 12% on debentures	(48,000)	(78,000)
EBT	4,52,000	11,47,000
DOL = $\frac{\text{Contribution}}{\text{EBIT}}$	$\frac{₹12,00,000}{₹5,00,000} = 2.4$	$\frac{₹26,25,000}{₹12,25,000} = 2.14$
DFL = $\frac{\text{EBIT}}{\text{EBT}}$	$\frac{₹5,00,000}{₹4,52,000} = 1.11$	$\frac{₹12,25,000}{₹11,47,000} = 1.07$
DCL = DOL x DFL	(2.4 x 1.11) = 2.66	(2.14 x 1.07) = 2.29

COST OF CAPITAL

26. The current market price of an equity share of a company is ₹90. The current dividend per share is ₹4.50. In case the dividends are expected to grow at the rate of 9%, then what will be the cost of equity capital?

Ans:

K_e=Cost of equity capital
D_1=Expected dividend per share
NP=Net proceeds of per share (Issue price- flotation Cost)
g=growth in expected dividend

$K_e = D_1/NP + g$
$K_e = 4.50/90 + 0.09$
$K_e = 0.05 + 0.09 = 0.14 = 14\%$

Note: Here market price is taken as net proceed (NP). Here there is no under writing expenses so full amount that is ₹ 90 will be taken.

27. The capital structure of J Ltd. is as under:

	₹
Equity shares @ ₹10 each	**100,00,000**
9% preference shares @ ₹100 each	**30,00,000**
14% Debentures @ ₹100 each	**70,00,000**
The market price of these securities are:	
Equity shares	**35 per share**
Preference shares	**120 per share**
Debentures	**110 per debenture**

Other information are:

- **Equity shares have a floatation cost of ₹5 per share. The next year's expected dividend is ₹3 with annual growth of 5%. The company pays all earnings in the form of dividends.**
- **Preference Shares are redeemable at a premium of 10%, have 2% floatation cost and 10 year maturity.**
- **Debentures are redeemable at par, have 4% floatation and 10 year maturity.**
- **Corporate tax rate is 30%.**

You are required to calculate the weighted average cost of capital using (i) book value weights and (ii) market value weights.

Ans:

Cost of capital (Ke) $= \frac{D}{P} + G$

$= \frac{3}{(35-5)} + 0.05$

$= \frac{3}{30} + 0.05$

$= 0.10 + 0.05$

$= 0.15$ or 15%

Cost of preference capital (kp) $= \frac{9 + \frac{(110-98)}{10}}{\frac{(110+98)}{2}}$

$= \frac{(9+1.2)}{104}$

$= 0.098$ Or 9.8%

$$\text{Cost of Debt (kd)} = \frac{14(1-0.3)+\frac{(100-96)}{10}}{\frac{(100+96)}{2}}$$

$$= \frac{14\times 0.7+0.4}{98}$$

$$= \frac{9.8+0.4}{98}$$

$$= 10.2 / 98$$

$$= 0.1041 \text{ or } 10.41\%$$

Calculation of WACC using value weights:

Source of Capital	Book Value (₹)	Weight (W)	Cost of Capital (K)	WACC
Equity Shares	100,00,000	0.5	0.15	0.075
9% Preference Shares	30,00,000	0.15	0.098	0.0147
14% Debentures	70,00,000	0.35	0.1041	0.0364
	200,00,000	1.00		0.1261

WACC = 0.1261 or 12.61%

Calculation of WACC using market value weights:

Source of Capital	Book Value (₹)	Weight (W)	Cost of Capital (K)	WACC
Equity Shares	350,00,000	0.756	0.15	0.1134
9% Preference Shares	36,00,000	0.078	0.098	0.0076
14% Debentures	77,00,000	0.166	0.1041	0.0173
	463,00,000	1.00		0.1383

WACC = 0.1383 or 13.83%

CAPITAL BUDGETING

28. A bond costing @ ₹800 is redeemable after 5 years @ ₹1,000. No interest is to be received and the discounting rate is 10%. What would be the NPV of bond?

Ans.:

Outflow in purchasing a bond of ₹ 800
Inflow on Redemption of bond at the end of 5th year= ₹1,000
Present value of inflow=1000 x PVIF $_{(10\%,\ 5\text{th year})}$ =1000 x 0.62092 = ₹620.92 i.e. 621
NPV= Present value of inflow - Present value of outflow
NPV= ₹621 - ₹800
NPV= ₹ (179).

29. The directors of X Limited are contemplating the purchase of a new machine to replace a machine which has been in operation in the factory for the last 5 years.

Ignoring interest but considering tax at 50% of net earnings, suggest which of the two alternatives should be preferred. The following are the details:

Particulars	Existing Machine	New Machine
Purchase price	**₹40,000**	**₹60,000**
Estimated life of machine	**10 years**	**10 years**
Machine running hours per annum	**2,000**	**2,000**
Units per hour	**12**	**18**
Wages per running hour	**3**	**5.25**
Power per annum	**2,000**	**4,500**
Consumables stores per annum	**6,000**	**7,500**
All other charges per annum	**8,000**	**9,000**
Materials cost per unit	**1.00**	**1.00**
Selling price per unit	**2.50**	**2.50**

You may assume that the above information regarding sales and cost of sales will hold good throughout the economic life of each of the machines. Depreciation has to be charged according to straight-line method.

Ans:

Appraisal of replacement decision under Average Rate of Return Method (ARR)

Particulars	Existing Machine	New Machine
Cost of Machine (₹)	₹40,000	₹60,000
Life of Machine	10 years	10 Years
Machine running hours	2,000	2,000
Depreciation - [40,000 / 10] [60,000 / 10](₹)	4,000	6,000
Production in units - [2,000 x 12] [2000 x 18]	24,000	36,000

Sales - [24,000 x 2.50] ; [36,000 x 2.50] [A]	**60,000** (₹)	**90,000** (₹)
Cost of sales:		
Depreciation	4,000	6,000
Wages [2000 x 3] [2000 x 5.25]	6,000	10,500
Power	2,000	4,500
Consumables	6,000	7,500
Other charges	8,000	9,000
Material [24,000 x 1.00] [36,000 x 1.00]	24,000	36,000
Total Cost [B]	**50,000**	**73,500**
Profit Before Tax [A-B]	10,000	16,500
Less: Tax at 50%	5,000	8,250
Profit after tax	5,000	8,250

Investment	₹40,000	₹60,000
Average rate of return [On investment] = [Profit after tax/Original investment]x 100	$\frac{₹5,000}{₹40,000} \times 100 = 12.5\%$	$\frac{₹8,250}{₹60,000} \times 100 = 13.75\%$
	= 12.5%	= 13.75%

Comment: From the above computation, it is clear that new machine can be replaced in place of old machine because it has higher ARR.

PART – III : SHORT NOTES

30. Write short notes on:

(a) Foreign Currency Convertible Bonds (FCCBs).

(b) Global Depository Receipt (GDR)

(c) Explain how the combined effects of operating and financial leverages provide the risk profile of an organization.

(d) List out the importance of Cash Management.

(e) What are the assumptions of Walter Model?

Ans:

(a) Foreign Currency Convertible Bonds (FCCBs)

The FCCB means bonds issued in accordance with the relevant scheme and subscribed by a non-resident in foreign currency and convertible into ordinary shares of the issuing company in any manner, either in whole or in part, on the basis of any equity related warrants attached to debt instruments. The FCCBs are unsecured; carry a fixed rate of interest and an option for conversion into a fixed number of equity, shares of the issuer company. Interest and redemption price (if conversion option is not exercised) is payable in dollars. Interest rates are very low by Indian domestic standards. FCCBs are denominated in any freely convertible foreign currency.

FCCBs have been popular with issuers. Local debt markets can be restrictive in nature with comparatively short maturities and high interest rates. On the other hand, straight equity-issue may cause a dilution in earnings, and certainly a dilution in control, which many shareholders, especially major family shareholders, would find unacceptable. Thus, the low coupon security which defers shareholders dilution for several years can be alternative to an issuer. Foreign investors also prefer FCCBs because of the Dollar denominated servicing, the conversion option and the arbitrage opportunities presented by conversion of the FCCBs into equity at a discount on prevailing India market price.

(b) Global Depository Receipt (GDR)

A GDR is a negotiable instrument, basically a bearer instrument which is traded freely in the international market either through the stock exchange or over the counter or among Qualified International Buyers (QIB).

It is denominated in US Dollars and represents shares issued in the local currency.

Characteristics

1. The shares underlying the GDR do not carry voting rights.
2. The instruments are freely traded in the international market.
3. The investors earn fixed income by way of dividend.
4. GDRS can be converted into underlying shares, depository/custodian banks reducing the issue.

(c) The total risk involved in a firm can be determined by combining the operating and financial leverages. The Degree of combined leverage is calculated by multiplying the two leverages. As a rule, a firm having a high operating leverage should have a low financial leverage and vise versa. If a firm has both the leverages at a high level, it will be a very risky proposition because the combined effect of the two is a multiple of these

two leverages. As such if a firm has a high operating leverage the financial leverage should be kept low. Thus it will be necessary to have a proper balance between operating and financial leverage of keep the risk profile of a firm within a reasonable limit. Such a situation should also maximize return to shareholders.

(d) Some of the importance of Cash Management is:

(i) Cash Management ensures that the firm has sufficient cash during peak times for purchase and for other purposes.
(ii) Cash Management help to meet obligatory cash out flows that are all due.
(iii) Cash Management assists in planning capital expenditure projects.
(iv) Cash Management helps to arrange for outside financing at favorable terms and conditions, if necessary.
(v) Cash Management helps to allow the firm to take advantage of discount, special purchases and business opportunities.
(vi) Cash Management helps to invest surplus cash for short or long term periods to keep the idle funds fully employed.

(e) Assumptions of Walter Model:

(i) All financing is done through retained earnings; external sources of funds like debt or new equity capital are not used.
(ii) With additional investment undertaken, the firm's business risk does not change. It implies that 'internal rate of return on investment and the cost of capital are constant.
(iii) There is no change in the key variable namely Earning per share and dividend per share. The values (D) or Dividend per share and (E) or Earning per share may be changed in the model to determine results, but, any given value of E and D are assumed to remain constant in determining a given value.
(iv) The firm has a perpetual (very long) life.