

MOCK TEST PAPER 1
INTERMEDIATE (IPC): GROUP – I
PAPER – 3: COST ACCOUNTING AND FINANCIAL MANAGEMENT
SUGGESTED ANSWERS/HINTS

1. (a) (i) Contribution per unit = Selling price – Variable cost
 = Rs.100 – Rs.60
 = Rs.40
- Break-even Point = $\frac{\text{Rs.24,00,000}}{\text{Rs.40}}$
 = 60,000 units
- Percentage Margin of Safety = $\frac{\text{Actual Sales} - \text{Break - even Sales}}{\text{Actual Sales}}$
- Or, 60% = $\frac{\text{Actual Sales} - 60,000 \text{ units}}{\text{Actual Sales}}$
- ∴ Actual Sales = 1,50,000 units

(Rs.)	
Sales Value (1,50,000 units × Rs.100)	1,50,00,000
Less: Variable Cost (1,50,000 units × Rs.60)	90,00,000
Contribution	60,00,000
Less: Fixed Cost	24,00,000
Profit	36,00,000
Less: Income Tax @40%	14,40,000
Net Return	21,60,000

$$\text{Rate of Net Return on Sales} = 14.40\% \left(\frac{\text{Rs.21,60,000}}{\text{Rs.1,50,00,000}} \times 100 \right)$$

(ii) Products

	X (Rs.)	Y (Rs.)
Selling Price per unit	100	150
Variable Cost per unit	60	100
Contribution per unit	40	50

Composite contribution will be as follows:

$$\text{Contribution per unit} = \left(\frac{40}{8} \times 5 \right) + \left(\frac{50}{8} \times 3 \right)$$

$$= 25 + 18.75 = \text{Rs.43.75}$$

$$\text{Break-even Sale} = 64,000 \text{ units} \left(\frac{\text{Rs.28,00,000}}{\text{Rs.43.75}} \right)$$

Break-even Sales Mix:

$$X \text{ (64,000 units} \times 5/8) = 40,000 \text{ units}$$

$$Y \text{ (64,000 units} \times 3/8) = 24,000 \text{ units}$$

(b) Workings:

Annual production of Product X = Annual demand – Opening stock

$$= 5,00,000 - 12,000 = 4,88,000 \text{ units}$$

Annual requirement for raw materials = Annual production × Material per unit – Opening stock of material

$$\text{Material A} = 4,88,000 \times 4 \text{ units} - 24,000 \text{ units} = 19,28,000 \text{ units}$$

$$\text{Material B} = 4,88,000 \times 16 \text{ units} - 52,000 \text{ units} = 77,56,000 \text{ units}$$

(i) Computation of EOQ when purchase order for the both materials is placed separately

$$\text{EOQ} = \sqrt{\frac{2 \times \text{Annual Requirement for material} \times \text{Ordering cost}}{\text{Carrying cost per unit per annum}}}$$

$$\text{Material A} = \sqrt{\frac{2 \times 19,28,000 \text{ units} \times \text{Rs. } 15,000}{13\% \text{ of Rs. } 150}} = \sqrt{\frac{38,56,000 \times \text{Rs. } 15,000}{\text{Rs. } 19.5}}$$

$$= 54,462 \text{ units}$$

$$\text{Material B} = \sqrt{\frac{2 \times 77,56,000 \text{ units} \times \text{Rs. } 15,000}{13\% \text{ of Rs. } 200}} = \sqrt{\frac{1,55,12,000 \times \text{Rs. } 15,000}{\text{Rs. } 26}}$$

$$= 94,600 \text{ units}$$

(ii) Computation of EOQ when purchase order for the both materials is not placed separately

$$\text{Material A \& B} = \sqrt{\frac{2 \times (19,28,000 + 77,56,000) \text{ units} \times \text{Rs. } 15,000}{13\% \text{ of Rs. } 190^*}}$$

$$= \sqrt{\frac{1,93,68,000 \times \text{Rs. } 15,000}{\text{Rs. } 24.7}} = 1,08,452 \text{ units}$$

$$\text{Material A} = \frac{1,08,452 \times 19,28,000}{96,84,000} = 21,592 \text{ units}$$

$$\text{Material A} = \frac{1,08,452 \times 77,56,000}{96,84,000} = 86,860 \text{ units}$$

$$* \frac{(\text{Rs. } 150 \times 19,28,000) + (\text{Rs. } 200 \times 77,56,000)}{(19,28,000 + 77,56,000)} = \text{Rs. } 190$$

(c) Future Value = Rs.50,00,000

Interest (i) = 10% p.a.

Period (n) = 10 years

(i) To make annual payment into the fund at the end of each year:

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

$$\text{Rs. } 50,00,000 = A (\text{FVIFA}_{10\%, 10})$$

$$\text{Or, A} = \frac{\text{Rs. } 50,00,000}{15.937} = \text{Rs. } 3,13,735$$

(ii) To invest a lumpsum amount in the fund at the end of the year:

$$\text{Future Value} = \text{Amount} \times (\text{FVIF}_{10\%, 10}) \text{ or } \text{Amount} \times (1 + 0.1)^{10}$$

$$\text{Or, A} = \frac{\text{Rs. } 50,00,000}{2.594} = \text{Rs. } 19,27,525$$

(iii) To make annual payment into the fund at the beginning of each year:

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

$$\text{Rs. } 50,00,000 = A (\text{FVIFA}_{10\%, 10}) \times (1 + 0.1)$$

$$\text{Or, A} = \frac{\text{Rs. } 50,00,000}{15.937 \times 1.1} = \frac{\text{Rs. } 50,00,000}{17.531} = \text{Rs. } 2,85,209 \text{ (approx.)}$$

(d) Statement of Cash Flows for the year ended 31st March 2019

		(Rs.)
Cash flow from Operating Activities		
Net profit before taxation		20,78,000
Add: Depreciation charged to P & L account		8,00,000
Less: Profit on Sale of Plant & Machinery		(2,20,000)
Operating profit before working capital changes		26,58,000
Add: Decrease in Stock	6,80,000	
Add: Increase in Creditors	20,000	
Less: Increase in Debtors	(2,40,000)	
Less: Decrease in Current Liabilities	(1,50,000)	3,10,000
Cash generated from Operating activities		29,68,000
Less: Income tax		7,28,000
Net Cash from Operating activities		22,40,000

2. (a) (i) Production Budget of 'X' for the Second Quarter

Particulars	Bags (Nos.)
Budgeted Sales	50,000
Add: Desired Closing stock	11,000
Total Requirements	61,000
Less: Opening stock	15,000
Required Production	46,000

(ii) Raw-Materials Purchase Budget in Quantity as well as in Rs. for 46,000 Bags of 'X'

Particulars	'Y' Kgs.	'Z' Kgs.	Empty Bags Nos.
Production Requirements Per bag of 'X'	2.5	7.5	1.0

Requirement for Production	1,15,000 (46,000 × 2.5)	3,45,000 (46,000 × 7.5)	46,000 (46,000 × 1)
Add: Desired Closing Stock	26,000	47,000	28,000
Total Requirements	1,41,000	3,92,000	74,000
Less: Opening Stock	32,000	57,000	37,000
Quantity to be purchased	1,09,000	3,35,000	37,000
Cost per Kg./Bag	Rs.120	Rs.20	Rs.80
Cost of Purchase (Rs.)	1,30,80,000	67,00,000	29,60,000

(iii) Computation of Budgeted Variable Cost of Production of 1 Bag of 'X'

Particulars	(Rs.)
Raw – Material	
Y 2.5 Kg @120	300.00
Z 7.5 Kg. @20	150.00
Empty Bag	80.00
Direct Labour (Rs.50× 9 minutes / 60 minutes)	7.50
Variable Manufacturing Overheads	45.00
Variable Cost of Production per bag	582.50

(b) Computation – Collections from Debtors

Particulars	Feb (Rs.)	Mar (Rs.)	Apr (Rs.)	May (Rs.)	Jun (Rs.)	Jul (Rs.)	Aug (Rs.)	Sep (Rs.)
Total Sales	1,20,000	1,40,000	80,000	60,000	80,000	1,00,000	80,000	60,000
Credit Sales (80% of total Sales)	96,000	1,12,000	64,000	48,000	64,000	80,000	64,000	48,000
Collection (within one month)		72,000	84,000	48,000	36,000	48,000	60,000	48,000
Collection (within two months)			24,000	28,000	16,000	12,000	16,000	20,000
Total Collections			1,08,000	76,000	52,000	60,000	76,000	68,000

Monthly Cash Budget for Six Months: April to September, 2019

Particulars	April (Rs.)	May (Rs.)	June (Rs.)	July (Rs.)	August (Rs.)	Sept. (Rs.)
Receipts:						
Opening Balance	20,000	20,000	20,000	20,000	20,000	20,000
Cash Sales	16,000	12,000	16,000	20,000	16,000	12,000
Collections from Debtors	1,08,000	76,000	52,000	60,000	76,000	68,000
Total Receipts (A)	1,44,000	1,08,000	88,000	1,00,000	1,12,000	1,00,000
Payments:						
Purchases	48,000	64,000	80,000	64,000	48,000	80,000
Wages and Salaries	9,000	8,000	10,000	10,000	9,000	9,000
Interest on Loan	3,000	-----	-----	3,000	-----	-----

Tax Payment	-----	-----	-----	5,000	-----	-----
Total Payment (B)	60,000	72,000	90,000	82,000	57,000	89,000
Minimum Cash Balance	20,000	20,000	20,000	20,000	20,000	20,000
Total Cash Required (C)	80,000	92,000	1,10,000	1,02,000	77,000	1,09,000
Surplus/ (Deficit) (A)-(C)	64,000	16,000	(22,000)	(2,000)	35,000	(9,000)
Investment/Financing: Total effect of (Invest)/ Financing (D)	(64,000)	(16,000)	22,000	2,000	(35,000)	9,000
Closing Cash Balance (A) + (D) - (B)	20,000	20,000	20,000	20,000	20,000	20,000

3. (a) (i) **Table of Primary Distribution of Overheads**

Particulars	Basis of Apportionment	Total Amount	Production Department		Service Departments	
			Fabrication	Assembly	Stores	Maintenance
Overheads Allocated		27,28,000	15,52,000	7,44,000	2,36,000	1,96,000
Direct Costs	Actual	86,36,000	71,88,000	14,48,000	---	---
Other Overheads:						
Factory rent	Floor Area (48:20:5:7)	15,28,000	9,16,800	3,82,000	95,500	1,33,700
Factory building insurance	Floor Area (48:20:5:7)	1,72,000	1,03,200	43,000	10,750	15,050
Plant & Machinery insurance	Value of Plant & Machinery (66:30:3:7)	1,96,000	1,22,038	55,472	5,547	12,943
Plant & Machinery Depreciation	Value of Plant & Machinery (66:30:3:7)	2,65,000	1,65,000	75,000	7,500	17,500
Canteen Subsidy	No. of employees (60:40:19:6)	4,48,000	2,15,040	1,43,360	68,096	21,504
		1,39,73,000	1,02,62,078	28,90,832	4,23,393	3,96,697

Re-distribution of Service Departments' Expenses:

Particulars	Basis of Apportionment	Production Department		Service Departments	
		Fabrication	Assembly	Stores	Maintenance
Overheads as per Primary distribution	As per Primary distribution	1,02,62,078	28,90,832	4,23,393	3,96,697
Maintenance Department Cost	Maintenance Hours (28:23:4:-)	2,01,955	1,65,891	28,851	(3,96,697)
Stores Department	No. of Requisition (18:7:-:-)	1,04,64,033	30,56,723	4,52,244	---
		3,25,616	1,26,628	(4,52,244)	---
		1,07,89,649	31,83,351	---	---

(ii) Overhead Recovery Rate

Department	Apportioned Overhead (Rs.) (I)	Basis of Overhead Recovery Rate (II)	Overhead Recovery Rate (Rs.) [(I) ÷ (II)]
Fabrication	1,07,89,649	30,00,000 Machine Hours	3.60 per Machine Hour
Assembly	31,83,351	26,00,000 Labour Hours	1.22 per Labour Hour

(b) (i)

Year	Cash flow (Rs.)	Discount Factor (15%)	Present value (Rs.)
0	(70,00,000)	1.000	(70,00,000)
1	(1,00,00,000)	0.870	(87,00,000)
2	25,00,000	0.756	18,90,000
3	30,00,000	0.658	19,74,000
4	35,00,000	0.572	20,02,000
5–10	40,00,000	2.163	86,52,000
		Net Present Value	(11,82,000)

As the net present value is negative, the project is unacceptable.

(ii) Similarly, NPV at 10% discount rate can be computed as follows:

Year	Cash flow (Rs.)	Discount Factor (10%)	Present value (Rs.)
0	(70,00,000)	1.000	(70,00,000)
1	(1,00,00,000)	0.909	(90,90,000)
2	25,00,000	0.826	20,65,000
3	30,00,000	0.751	22,53,000
4	35,00,000	0.683	23,90,500
5–10	40,00,000	2.974	1,18,96,000
		Net Present Value	25,14,500

Since NPV = Rs.25,14,500 is positive, hence the project would be acceptable.

$$(iii) \text{ IRR} = LR + \frac{NPV \text{ at } LR}{NPV \text{ at } LR - NPV \text{ at } HR} \times (HR - LR)$$

$$= 10\% + \frac{Rs.25,14,500}{Rs.25,14,500 - (-)11,82,000} \times (15\% - 10\%)$$

$$= 10\% + 3.4012 \text{ or } 13.40\%$$

(iv) Payback Period = 6 years:

$$-Rs.70,00,000 - Rs.1,00,00,000 + Rs.25,00,000 + Rs.30,00,000 + Rs.35,00,000 + Rs.40,00,000 + Rs.40,00,000 = 0$$

4. (a) COMPUTATION OF VARIANCES

(i) Overhead Cost Variance	= Absorbed Overheads – Actual Overheads
	= (Rs.87,200 + Rs.44,800) – (Rs.1,21,520 + Rs.55,680)
	= Rs. 45,200 (A)
(ii) Fixed Overhead Cost Variance	= Absorbed Fixed Overheads – Actual Fixed Overheads
	= Rs. 87,200 – Rs.1,21,520
	= Rs.34,320 (A)
(iii) Variable Overhead Cost Variance	= Standard Variable Overheads for Production – Actual Variable Overheads
	= Rs. 44,800 – Rs. 55,680
	= Rs. 10,880 (A)
(iv) Fixed Overhead Volume Variance	= Absorbed Fixed Overheads – Budgeted Fixed Overheads
	= Rs. 87,200 – Rs.1,09,000
	= Rs. 21,800 (A)
(v) Fixed Overhead Expenditure Variance	= Budgeted Fixed Overheads – Actual Fixed Overheads
	= Rs.10.90 × 10,000 units – Rs.1,21,520
	= Rs.12,520 (A)

WORKING NOTE

Fixed Overheads per Unit = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \frac{\text{Rs.12,00,000}}{1,20,000\text{units}}$	Rs. 10
Fixed Overheads element in <i>Semi-Variable</i> Overheads i.e. 60% of Rs.1,80,000	Rs. 1,08,000
Fixed Overheads per Unit = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \frac{\text{Rs.1,08,000}}{1,20,000\text{units}}$	Rs. 0.90
Standard Rate of Absorption of Fixed Overheads <i>per unit</i> (Rs.10 + Rs.0.90)	Rs.10.90
Fixed Overheads Absorbed on 8,000 units @ Rs10.90	Rs. 87,200
Budgeted Variable Overheads	Rs. 6,00,000
Add : Variable element in Semi-Variable Overheads 40% of Rs.1,80,000	<u>Rs.72,000</u>
Total Budgeted Variable Overheads	Rs.6,72,000
Standard Variable Cost <i>per unit</i> = $\frac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}} = \frac{\text{Rs.6,72,000}}{1,20,000\text{units}}$	Rs.5.60
Standard Variable Overheads for 8,000 units @ Rs.5.60	Rs.44,800
Budgeted Annual Fixed Overheads (Rs.12,00,000 + 60% of Rs.1,80,000)	Rs.13,08,000
Actual Fixed Overheads (Rs.1,10,000 + 60% of Rs.19,200)	Rs.1,21,520
Actual Variable Overheads (Rs.48,000 + 40% of Rs.19,200)	Rs. 55,680

(b) (A) (i) Cost of new debt

$$K_d = \frac{I(1-t)}{P_0}$$
$$= \frac{16(1-0.5)}{96} = 0.0833$$

(ii) Cost of new preference shares

$$K_p = \frac{PD}{P_0} = \frac{1.1}{9.2} = 0.12$$

(iii) Cost of new equity shares

$$K_e = \frac{D_1}{P_0} + g$$
$$= \frac{11.80}{236} + 0.10 = 0.05 + 0.10 = 0.15$$

Calculation of D_1

$$D_1 = 50\% \text{ of } 2019 \text{ EPS} = 50\% \text{ of } 23.60 = \text{Rs. } 11.80$$

(B) Calculation of marginal cost of capital

Type of Capital	Proportion	Specific Cost	Product
(1)	(2)	(3)	(2) × (3) = (4)
Debenture	0.15	0.0833	0.0125
Preference Share	0.05	0.12	0.0060
Equity Share	0.80	0.15	0.1200
	Marginal cost of capital		0.1385

(C) The company can spend the following amount without increasing marginal cost of capital and without selling the new shares:

$$\text{Retained earnings} = (0.50) (236 \times 10,000) = \text{Rs. } 11,80,000$$

The ordinary equity (Retained earnings in this case) is 80% of total capital

$$11,80,000 = 80\% \text{ of Total Capital}$$

$$\text{Capital investment before issuing equity} = \frac{\text{Rs. } 11,80,000}{0.80} = \text{Rs. } 14,75,000$$

(D) If the company spends in excess of Rs.14,75,000 it will have to issue new shares.

$$\text{The cost of new issue will be} = \frac{\text{Rs. } 11.80}{200} + 0.10 = 0.159$$

The marginal cost of capital will be:

Type of Capital	Proportion	Specific Cost	Product
(1)	(2)	(3)	(2) × (3) = (4)
Debentures	0.15	0.0833	0.0125
Preference Shares	0.05	0.1200	0.0060
Equity Shares (New)	0.80	0.1590	0.1272
			0.1457

5. (a) The essential features, which a good cost accounting system should possess, are as follows:
- (i) **Informative and simple:** Cost accounting system should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.
 - (ii) **Accurate and authentic:** The data to be used by the cost accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken.
 - (iii) **Uniformity and consistency:** There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for benchmarking and comparability of the results of the system for both horizontal and vertical analysis.
 - (iv) **Integrated and inclusive:** The cost accounting system should be integrated with other systems like financial accounting, taxation, statistics and operational research etc. to have a complete overview and clarity in results.
 - (v) **Flexible and adaptive:** The cost accounting system should be flexible enough to make necessary amendments and modification in the system to incorporate changes in technological, reporting, regulatory and other requirements.
 - (vi) **Trust on the system:** Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflects a strong conviction in using information for decision making.

(b)

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

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

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

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

Financing decision: Funds can be raised from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximise their wealth.

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

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

- (d) **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.

Process of Debt Securitisation

- (i) *The origination function* – A borrower seeks a loan from a finance company, bank, HDFC. The credit worthiness of borrower is evaluated and contract is entered into with repayment schedule structured over the life of the loan.
- (ii) *The pooling function* – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favour of Special purpose Vehicle (SPV), which acts as a trustee for investors.
- (iii) *The securitisation function* – SPV will structure and issue securities on the basis of asset pool. The securities carry a coupon and expected maturity which can be asset-based/mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds.

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.

6. (a) (i) **Statement of profitability of an Oil Mill (after carrying out further processing) for the quarter ending 31st March 2019.**

Products	Sales Value after further processing	Share of Joint cost	Additional processing cost	Total cost after processing	Profit (loss)
A	25,87,500	14,80,000	6,45,000	21,25,000	4,62,500
B	2,25,000	2,96,000	1,35,000	4,31,000	(2,06,000)
C	90,000	74,000	–	74,000	16,000

D	6,75,000	3,70,000	22,500	3,92,500	2,82,500
	35,77,500	22,20,000	8,02,500	30,22,500	5,55,000

(ii) **Statement of profitability at the split off point**

Products	Selling price of split off	Output in units	Sales value at split off point	Share of joint cost	Profit at split off point
A	225.00	8,000	18,00,000	14,80,000	3,20,000
B	90.00	4,000	3,60,000	2,96,000	64,000
C	45.00	2,000	90,000	74,000	16,000
D	112.50	4,000	4,50,000	3,70,000	80,000
			27,00,000	22,20,000	4,80,000

Note: Share of Joint Cost has been arrived at by considering the sales value at split off point.

(b) (i) **Calculation of Degree of Operating (DOL), Financial (DFL) and Combined leverages (DCL).**

$$DOL = \frac{\text{Rs. } 34,00,000 - \text{Rs. } 6,00,000}{\text{Rs. } 22,00,000} = 1.27$$

$$DFL = \frac{\text{Rs. } 22,00,000}{\text{Rs. } 16,00,000} = 1.38$$

$$DCL = DOL \times DFL = 1.27 \times 1.38 = 1.75$$

(ii) **Earnings after taxes at the new sales level**

	Increase by 20%	Decrease by 20%
	(Rs.)	(Rs.)
Sales level	40,80,000	27,20,000
Less: Variable expenses	7,20,000	4,80,000
Less: Fixed cost	6,00,000	6,00,000
Earnings before interest and taxes	27,60,000	16,40,000
Less: Interest	6,00,000	6,00,000
Earnings before taxes	21,60,000	10,40,000
Less: Taxes	7,56,000	3,64,000
Earnings after taxes (EAT)	14,04,000	6,76,000

Working Notes:

(i) Variable Costs = Rs. 6,00,000 (total cost – depreciation)

(ii) Variable Costs at:

(a) Sales level, Rs. 40,80,000 = Rs. 7,20,000 (increase by 20%)

(b) Sales level, Rs. 27,20,000 = Rs. 4,80,000 (decrease by 20%)

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

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

(b)

Sr. No	Job Costing	Batch Costing
1	Method of costing used for non- standard and non-repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality

- (c) **Factoring:** It is a new financial service that is presently being developed in India. Factoring involves provision of specialised services relating to credit investigation, sales ledger management, purchase and collection of debts, credit protection as well as provision of finance against receivables and risk bearing. In factoring, accounts receivables are generally sold to a financial institution (a subsidiary of commercial bank-called "Factor"), who charges commission and bears the credit risks associated with the accounts receivables purchased by it.

Its operation is very simple. Clients enter into an agreement with the "factor" working out a factoring arrangement according to his requirements. The factor then takes the responsibility of monitoring, follow-up, collection and risk-taking and provision of advance. The factor generally fixes up a limit customer-wise for the client (seller).

Factoring offers the following advantages which makes it quite attractive to many firms :

- (1) The firm can convert accounts receivables into cash without bothering about repayment.
- (2) Factoring ensures a definite pattern of cash inflows.
- (3) Continuous factoring virtually eliminates the need for the credit department. That is why receivables financing through factoring is gaining popularity as useful source of financing short-term funds requirements of business enterprises because of the inherent advantage of flexibility it affords to the borrowing firm. The seller firm may continue to finance its receivables on a more or less automatic basis. If sales expand or contract it can vary the financing proportionally.
- (4) Unlike an unsecured loan, compensating balances are not required in this case. Another advantage consists of relieving the borrowing firm of substantially credit and collection costs and to a degree from a considerable part of cash management.

However, factoring as a means of financing is comparatively costly source of financing since its cost of financing is higher than the normal lending rates.

- (d) **Financial Break-even and EBIT-EPS Indifference Analysis**

Financial break-even point is the minimum level of EBIT needed to satisfy all the fixed financial charges i.e. interest and preference dividend. It denotes the level of EBIT for which firm's EPS equals zero. If the EBIT is less than the financial breakeven point, then the EPS will be negative

but if the expected level of EBIT is more than the breakeven point, then more fixed costs financing instruments can be taken in the capital structure, otherwise, equity would be preferred.

EBIT-EPS analysis is a vital tool for designing the optimal capital structure of a firm. The objective of this analysis is to find the EBIT level that will equate EPS regardless of the financing plan chosen.

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

Where,

EBIT	=	Indifference point
E ₁	=	Number of equity shares in Alternative 1
E ₂	=	Number of equity shares in Alternative 2
I ₁	=	Interest charges in Alternative 1
I ₂	=	Interest charges in Alternative 2
T	=	Tax-rate

- (e) (i) **Present Value:** "Present Value" is the current value of a "Future Amount". It can also be defined as the amount to be invested today (Present Value) at a given rate over specified period to equal the "Future Amount".

Perpetuity: Perpetuity is an annuity in which the periodic payments or receipts begin on a fixed date and continue indefinitely or perpetually. Fixed coupon payments on permanently invested (irredeemable) sums of money are prime examples of perpetuities.

- (ii) **Equivalent Units:** Equivalent units or equivalent production units, means converting the incomplete production units into their equivalent completed units. Under each process, an estimate is made of the percentage completion of work-in-process with regard to different elements of costs, viz., material, labour and overheads. It is important that the estimate of percentage of completion should be as accurate as possible. The formula for computing equivalent completed units is:

$$\text{Equivalent completed units} = \left(\begin{array}{c} \text{Actual number of units in} \\ \text{the process of manufacture} \end{array} \right) \times \left(\begin{array}{c} \text{Percentage of} \\ \text{Work completed} \end{array} \right)$$

For instance, if 25% of work has been done on the average of units still under process, then 200 such units will be equal to 50 completed units and the cost of work-in-process will be equal to the cost of 50 finished units.