

**CA Intermediate May 24 Onwards**

# **FM ICAI EXAM PAPER COMPILER**

**INCLUDES LATEST NOV 23 EXAM PAPER  
ICAI PYQ COMPILER FROM 2018**

**REFER TELEGRAM CHANNEL FOR BEST QUESTIONS  
SELECTED PERSONALLY BE ME**



**CA Shubham Gupta AIR 10  
CFA, US L1 cleared  
Scored 83 in CA Final SFM/AFM**



# MEET ME!

*This side, CA Shubham Gupta.*

*With a stellar **academic background**, I scored **All India Rank of 10** in the CA Final examinations (May/July 21 attempt) and cleared my CA in the first attempt at the age of 21. Major highlight was the CA Final SFM (finance), where I scored exceptionally well 83.*

*Armed with a solid foundation in commerce, I also earned a Bachelor's degree with Honors in B.Com. Alongside, I cleared Level 1 of the Chartered Financial Analyst (**CFA**), USA program.*

*From the very beginning, I am highly inclined to the world of finance. Be it opening and regularly trading in my own **Demat account from the age of 18** or handling family portfolios running in lakhs to making big financial decisions, I find finance very fascinating and interesting.*

*With **over 2.5 years of invaluable experience in business management consulting** during my job tenure post-qualification, I bring a wealth of practical knowledge to the table having established a comprehensive understanding of the intricacies of the finance industry.*

*I feel very delighted **to start my journey as an educator** in the field of finance and having picked up subjects*

- CA Inter Paper 6 FM-SM
- CA Final Paper 2 AFM

*Do join me for **CA Inter FM Xpress Revision batch** for May 24 onwards, launched in collaboration with our favorite **BB sir – CA Bhanwar Borana & BB Virtuals**. I hope you find the content useful and it adds value to your knowledge helping you clear exams and enter the prestigious CA club!*

**Tayyari CA Ki!**

**Yours CA Shubham Gupta AIR 10**

# PREFACE

---

Welcome to the world of **joyous learning with the CA Inter FM Xpress Batch by CA Shubham Gupta**.

In this quick revision, we're here to make your learning journey not just effective but delightful!

It's your secret weapon for a **quick and effective revision of all the concepts**. Our revision is presented in a **colorful and easy-to-understand format**, making learning a joyous experience

Get ready for happy studying where most of **the exam-oriented topics** are covered in a very crisp and concise manner, paying sufficient attention to details.

What makes this revision truly special?

Dive into **handy notes and vibrant revision videos** available on our **YouTube channel**, [BB Virtuals Intermediate](#) & [CASHubhamGuptaAIR10](#), providing the perfect companions for your last-day revision.

Ever wondered about those **tricky ICAI treatments & MCQs** in different sums? Wonder no more! I will guide you through, ensuring you're well-equipped to tackle any challenge

So, if you're feeling the joy, hit that like button (on YouTube), **share the love**, and make sure to subscribe to **our YouTube and Telegram channels** – because learning with CA Shubham Gupta is an experience like no other.

After all, why just study when you can study with joy? Cheers to CA Inter FM success! 🚀

**Tayyari CA Ki!**

**Yours CA Shubham Gupta AIR 10**

# SOCIAL MEDIA

---

*Our Social Media handles are as follows:*

*Direct hyperlinks are attached to them*

*Please click on them to follow and subscribe!*

© Author

*All Rights Reserved!*



[BB Virtuals Intermediate](#)  
[CA Shubham Gupta AIR10](#)



Telegram

[CA Shubham Gupta AIR10](#)  
[Doubts & Discussions](#)



Instagram

[CA Shubham Gupta AIR10](#)



[CA Shubham Gupta AIR10](#)



**BB VIRTUALS**

[Free Resources](#)

---

*Links are attached to the above logos and channel names.  
Please click directly to subscribe*

---

# SCAN ME!



Youtube



Telegram



Linkedin



Instagram

---

*Concept Revision & Super 30 Question videos → **YouTube***

*Concept notes, Super 30 Questions, compilers for MTP, RTP, PYQ,  
general discussion, and doubts → **Telegram channel***

---

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

**SECTION – A: FINANCIAL MANAGEMENT****Question 1**

- (a) Y Limited requires ₹ 50,00,000 for a new project. This project is expected to yield earnings before interest and taxes of ₹ 10,00,000. While deciding about the financial plan, the company considers the objective of maximizing earnings per' share. It has two alternatives to finance the project - by raising debt ₹ 5,00,000 or ₹ 20,00,000 and the balance, in each case, by issuing Equity Shares. The company's share is currently selling at ₹ 300, but is expected to decline to ₹ 250 in case the funds are borrowed in excess of ₹ 20,00,000. The funds can be borrowed at the rate of 12 percent upto ₹ 5,00,000 and at 10 percent over ₹ 5,00,000. The tax rate applicable to the company is 25 percent.

Which form of financing should the company choose?

**(5 Marks)**

- (b) Following information relating to Jee Ltd. are given:

**Particulars**

Profit after tax	₹ 10,00,000
Dividend payout ratio	50%
Number of Equity Shares	50,000
Cost of Equity	10%
Rate of Return on Investment	12%

- (i) What would be the market value per share as per Walter's Model?  
 (ii) What is the optimum dividend payout ratio according to Walter's Model and Market value of equity share at that payout ratio? **(5 Marks)**
- (c) The following is the information of XML Ltd. relate to the year ended 31-03-2018 :

Gross Profit	20% of Sales
Net Profit	10% of Sales
Inventory Holding period	3 months
Receivable collection period	3 months

**2 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018**

Non-Current Assets to Sales	1 : 4
Non-Current Assets to Current Assets	1 : 2
Current Ratio	2 : 1
Non-Current Liabilities to Current Liabilities	1 : 1
Share Capital to Reserve and Surplus	4 : 1
Non-current Assets as on 31 <sup>st</sup> March, 2017	₹ 50,00,000

Assume that:

- (i) No change in Non-Current Assets during the year 2017-18
- (ii) No depreciation charged on Non-Current Assets during the year 2017-18.
- (iii) Ignoring Tax

You are required to Calculate cost of goods sold, Net profit, Inventory, Receivables and Cash for the year ended on 31<sup>st</sup> March, 2018

- (d) From the following details relating to a project, analyse the sensitivity of the project to changes in the Initial Project Cost, Annual Cash Inflow and Cost of Capital :

**Particulars**

Initial Project Cost	₹ 2,00,00,000
Annual Cash Inflow	₹ 60,00,000
Project Life	5 years
Cost of Capital	10%

To which of the 3 factors, the project is most sensitive if the variable is adversely affected by 10%?

Cumulative Present Value Factor for 5 years for 10% is 3.791 and for 11% is 3.696.

**(5 Marks)**

**Answer**

- (a) Plan I = Raising Debt of Rs 5 lakh + Equity of Rs 45 lakh.
- Plan II = Raising Debt of ₹ 20 lakh + Equity of ₹ 30 lakh.

**Calculation of Earnings per share (EPS)**

Particulars	Financial Plans	
	Plan I ₹	Plan II ₹
Expected EBIT	10,00,000	10,00,000



## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

3

Less: Interest (Working Note 1)	(60,000)	(2,10,000)
Earnings before taxes	9,40,000	7,90,000
Less: Taxes @ 25%	(2,35,000)	(1,97,500)
Earnings after taxes (EAT)	7,05,000	5,92,500
Number of shares (Working Note 2)	15,000	10,000
Earnings per share (EPS)	47	59.25

Financing Plan II (i.e. Raising debt of ₹ 20 lakh and issue of equity share capital of ₹ 30 lakh) is the option which maximises the earnings per share.

**Working Notes:****1. Calculation of interest on Debt.**

Plan I	(₹ 5,00,000 × 12%)		₹ 60,000
Plan II	(₹ 5,00,000 × 12%)	₹ 60,000	₹ 2,10,000
	(₹ 15,00,000 × 10%)	₹ 1,50,000	

**2. Number of equity shares to be issued**

$$\text{Plan I: } \frac{\text{Rs. } 45,00,000}{\text{Rs. } 300 \text{ (Market Price of share)}} = 15,000 \text{ shares}$$

$$\text{Plan II: } \frac{\text{Rs. } 30,00,000}{\text{Rs. } 300 \text{ (Market Price of share)}} = 10,000 \text{ shares}$$

(\*Alternatively, interest on Debt for Plan II can be 20,00,000 X 10% i.e. ₹ 2,00,000. accordingly, the EPS for the Plan II will be ₹60)

**(b) (i) Walter's model is given by –**

$$P = \frac{D + (E - D)(r / K_e)}{K_e}$$

Where,

P = Market price per share,

E = Earnings per share = ₹ 10,00,000 ÷ 50,000 = ₹ 20

D = Dividend per share = 50% of 20 = ₹ 10

r = Return earned on investment = 12%

K<sub>e</sub> = Cost of equity capital = 10%

4

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018

$$\therefore P = \frac{10 + (20 - 10) \times \frac{0.12}{0.10}}{0.10} = \frac{22}{0.10} = ₹ 220$$

- (ii) According to Walter's model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is Nil. So, at a payout ratio of zero, the market value of the company's share will be:-

$$P = \frac{0 + (20 - 0) \times \frac{0.12}{0.10}}{0.10} = \frac{24}{0.10} = ₹ 240$$

## (c) Workings

$$\frac{\text{Non Current Assets}}{\text{Current Assets}} = \frac{1}{2}$$

$$\text{Or } \frac{50,00,000}{\text{Current Assets}} = \frac{1}{2}$$

$$\text{So, Current Assets} = ₹ 1,00,00,000$$

Now further,

$$\frac{\text{Non Current Assets}}{\text{Sales}} = \frac{1}{4}$$

$$\text{Or } \frac{50,00,000}{\text{Sales}} = \frac{1}{4}$$

$$\text{So, Sales} = ₹ 2,00,00,000$$

**Calculation of Cost of Goods sold, Net profit, Inventory, Receivables and Cash:**

- (i) Cost of Goods Sold (COGS):

$$\text{Cost of Goods Sold} = \text{Sales} - \text{Gross Profit}$$

$$= ₹ 2,00,00,000 - 20\% \text{ of } ₹ 2,00,00,000$$

$$= ₹ 1,60,00,000$$

- (ii) Net Profit = 10% of Sales = 10% of ₹ 2,00,00,000

$$= ₹ 20,00,000$$

- (iii) Inventory:

$$\text{Inventory Holding Period} = \frac{12 \text{ Months}}{\text{Inventory Turnover Ratio}}$$

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

5

Inventory Turnover Ratio =  $12 / 3 = 4$

$$4 = \frac{\text{COGS}}{\text{Average Inventory}}$$

$$4 = \frac{1,60,00,000}{\text{Average Inventory}}$$

Average or Closing Inventory = ₹ 40,00,000

(iv) Receivables :

$$\text{Receivable Collection Period} = \frac{12 \text{ Months}}{\text{Receivables Turnover Ratio}}$$

$$\text{Or Receivables Turnover Ratio} = 12 / 3 = 4 = \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$$

$$\text{Or } 4 = \frac{2,00,00,000}{\text{Average Accounts Receivable}}$$

So, Average Accounts Receivable/Receivables = ₹ 50,00,000/-

(v) Cash:

Cash\* = Current Assets\* – Inventory- Receivables

Cash = ₹ 1,00,00,000 - ₹ 40,00,000 - ₹ 50,00,000

= ₹ 10,00,000

(it is assumed that no other current assets are included in the Current Asset)

**(d) Calculation of NPV through Sensitivity Analysis**

	₹
PV of cash inflows (₹ 60,00,000 × 3.791)	2,27,46,000
Initial Project Cost	2,00,00,000
NPV	27,46,000

Situation	NPV	Changes in NPV
Base(present)	₹ 27,46,000	
If initial project cost is varied adversely by 10%	(₹ 2,27,46,000 – ₹ 2,20,00,000*) = ₹ 7,46,000	(₹ 27,46,000 - ₹ 7,46,000) ₹ 27,46,000 = (72.83%)

6

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018

If annual cash inflow is varied adversely by 10%	[₹ 54,00,000(revised cash flow) ** × 3.791) – (₹ 2,00,00,000)] = ₹ 4,71,400	$\frac{(\text{₹ } 27,46,000 - \text{₹ } 4,71,400)}{\text{₹ } 27,46,000}$ = 82.83%
If cost of capital is varied adversely by 10% i.e. it becomes 11%	(₹ 60,00,000 × 3.696)– ₹ 2,00,00,000 = ₹ 21,76,000	$\frac{(\text{₹ } 27,46,000 - \text{₹ } 21,76,400)}{\text{₹ } 27,46,000}$ = 20.76%

\*Revised initial project Cost = 2,00,00,000 × 110% = 2,20,00,000

\*\*Revised Cash Flow = ₹ 60,00,000 × (100 – 10) % = ₹ 54,00,000

**Conclusion:** Project is most sensitive to 'annual cash inflow'

**Question 2**

Following is the Balance Sheet of Soni Ltd. as on 31st March, 2018 :

Liabilities	Amount in ₹
<b>Shareholder's Fund</b>	
Equity Share Capital (₹10 each)	25,00,000
Reserve and Surplus	5,00,000
Non-Current Liabilities (12 Debentures)	50,00,000
Current Liabilities	20,00,000
<b>Total</b>	<b>1,00,00,000</b>
<b>Assets</b>	
<b>Amount in ₹</b>	
Non-Current Assets	60,00,000
Current Assets	40,00,000
<b>Total</b>	<b>1,00,00,000</b>

Additional Information:

- (i) Variable Cost is 60% of Sales.
- (ii) Fixed Cost p.a. excluding interest ₹20,00,000.
- (iii) Total Asset Turnover Ratio is 5 times.
- (iv) Income Tax Rate 25%

You are required to:

- (1) Prepare Income Statement

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

(2) Calculate the following and comment:

- (a) Operating Leverage  
 (b) Financial Leverage  
 (c) Combined Leverage

(10 Marks)

**Answer****Workings:-**

Total Assets = ₹ 1 crore

Total Asset Turnover Ratio i.e.  $\frac{\text{Total Sales}}{\text{Total Assets}}$  = 5

Hence, Total Sales = ₹ 1 Crore × 5 = ₹ 5 crore

(1) Income Statement

	(₹ in crore)
Sales	5
Less: Variable cost @ 60%	3
Contribution	2
Less: Fixed cost (other than Interest)	0.2
EBIT (Earnings before interest and tax)	1.8
Less: Interest on debentures (12% × 50 lakhs)	0.06
EBT (Earning before tax)	1.74
Less: Tax 25%	0.435
EAT (Earning after tax)	1.305

(2) (a) **Operating Leverage**

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{2}{1.8} = 1.11$$

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

(b) **Financial Leverage**

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{1.8}{1.74} = 1.03$$

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

8 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018

(c) Combined Leverage

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}} = 1.11 \times 1.03 = 1.15$$

Or

$$\frac{\text{Contribution}}{\text{EBT}} = \frac{2}{1.74} = 1.15$$

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

The leverages— operating, financial and combined are measures of risk.

**Question 3**

PD Ltd. an existing company, is planning to introduce a new product with projected life of 8 years. Project cost will be ₹ 2,40,00,000. At the end of 8 years no residual value will be realized. Working capital of ₹ 30,00,000 will be needed. The 100% capacity of the project is 2,00,000 units p.a. but the Production and Sales Volume is expected are as under :

Year	Number of Units
1	60,000 units
2.	80,000 units
3-5	1,40,000 units
6-8	1,20,000 units

Other Information:

- (i) Selling price per unit ₹ 200
- (ii) Variable cost is 40 of sales.
- (iii) Fixed cost p.a. ₹ 30,00,000.
- (iv) In addition to these advertisement expenditure will have to be incurred as under:

Year	1	2	3-5	6-8
Expenditure (₹)	50,00,000	25,00,000	10,00,000	5,00,000

- (v) Income Tax is 25%.
- (vi) Straight line method of depreciation is permissible for tax purpose.
- (vii) Cost of capital is 10%.
- (viii) Assume that loss cannot be carried forward.

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

9

**Present Value Table**

Year	1	2	3	4	5	6	7	8
PVF@ 10	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

Advise about the project acceptability.

(10 Marks)

**Answer****Computation of initial cash outlay(COF)**

	(₹ in lakhs)
Project Cost	240
Working Capital	30
	<u>270</u>

**Calculation of Cash Inflows(CIF):**

Years	1	2	3-5	6-8
Sales in units	60,000	80,000	1,40,000	1,20,000
	₹	₹	₹	₹
Contribution (₹ 200 x 60% x No. of Unit)	<u>72,00,000</u>	<u>96,00,000</u>	<u>1,68,00,000</u>	<u>1,44,00,000</u>
Less: Fixed cost	30,00,000	30,00,000	30,00,000	30,00,000
Less: Advertisement	50,00,000	25,00,000	10,00,000	5,00,000
Less: Depreciation (24000000/8) = 30,00,000	<u>30,00,000</u>	<u>30,00,000</u>	<u>30,00,000</u>	<u>30,00,000</u>
Profit/(loss)	(38,00,000)	11,00,000	98,00,000	79,00,000
Less: Tax @ 25%	NIL	<u>2,75,000</u>	<u>24,50,000</u>	<u>19,75,000</u>
Profit/(Loss) after tax	(38,00,000)	8,25,000	73,50,000	59,25,000
Add: Depreciation	<u>30,00,000</u>	<u>30,00,000</u>	<u>30,00,000</u>	<u>30,00,000</u>
Cash inflow	(8,00,000)	38,25,000	1,03,50,000	89,25,000

(Note: Since variable cost is 40%, Contribution shall be 60% of sales)

**Computation of PV of CIF**

Year	CIF	PV Factor	₹
	₹	@ 10%	
1	(8,00,000)	0.909	(7,27,200)
2	38,25,000	0.826	31,59,450
3	1,03,50,000	0.751	77,72,850

## 10 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018

4	1,03,50,000	0.683	70,69,050
5	1,03,50,000	0.621	64,27,350
6	89,25,000	0.564	50,33,700
7	89,25,000	0.513	45,78,525
8	89,25,000	0.467	55,68,975
Working Capital	30,00,000		
			3,88,82,700
	PV of COF		2,70,00,000
		<b>NPV</b>	<b>1,18,82,700</b>

**Recommendation:** Accept the project in view of positive NPV.

**Question 4**

MN Ltd. has a current turnover of ₹ 30,00,000 p.a. Cost of Sale is 80% of turnover and Bad Debts are 2% of turnover, Cost of Sales includes 70% variable cost and 30% Fixed Cost, while company's required rate of return is 15%. MN Ltd. currently allows 15 days credit to its customer, but it is considering increase this to 45 days credit in order to increase turnover.

It has been estimated that this change in policy will increase turnover by 20%, while Bad Debts will increase by 1%. It is not expected that the policy change will result in an increase in fixed cost and creditors and stock will be unchanged.

Should MN Ltd. introduce the proposed policy? (Assume 360 days year) **(10 Marks)**

**Answer****Statement Showing Evaluation of Credit Policies**

	Particulars	Present Policy	Proposed Policy
A.	Expected Contribution		
	(a) Credit Sales	30,00,000	36,00,000
	(b) Less: Variable Cost	<u>16,80,000</u>	<u>20,16,000</u>
	(c) Contribution	<u>13,20,000</u>	<u>15,84,000</u>
	(d) Less: Bad Debts	<u>60,000</u>	<u>1,08,000</u>
	(e) Contribution after Bad debt [(c)-(d)]	<u>12,60,000</u>	<u>14,76,000</u>
B.	Opportunity Cost of investment in Receivables	<u>15,000</u>	<u>54,000</u>
C.	Net Benefits [A-B]	<u>12,45,000</u>	<u>14,22,000</u>
D.	Increase in Benefit		<u>1,77,000</u>



## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

11

**Recommendation:** Proposed Policy i.e credit from 15 days to 45 days should be implemented by NM Ltd since the net benefit under this policy are higher than those under present policy

**Working Note: (1)**

	Present Policy (₹)	Propose Policy (₹)
Sales	30,00,000	36,00,000
Cost of Sales (80% of sales)	24,00,000	28,80,000
Variable cost (70% of cost of sales)	16,80,000	20,16,000

**2. Opportunity Costs of Average Investments**

$$= \text{Variable Cost} \times \frac{\text{Collection Period}}{360} \times \text{Rate of Return}$$

$$\text{Present Policy} = ₹ 24,00,000 \times \frac{45}{360} \times 15\% = ₹ 54,000$$

$$\text{Proposed Policy} = ₹ 28,80,000 \times \frac{15}{360} \times 15\% = ₹ 18,000$$

**Question 5**

The following data relate to two companies belonging to the same risk class :

Particulars	A Ltd.	B Ltd.
Expected Net Operating Income	₹ 18,00,000	₹ 18,00,000
12% Debt	₹ 54,00,000	-
Equity Capitalization Rate	-	18

Required:

- (a) Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming no taxes as per M.M. Approach.
- (b) Determine the total market value, Equity capitalization rate and weighted average cost of capital for each company assuming 40% taxes as per M.M. Approach. **(10 Marks)**

**Answer****(a) Assuming no tax as per MM Approach.**

Calculation of Value of Firms 'A Ltd.' and 'B Ltd' according to MM Hypothesis

Market Value of 'B Ltd' [Unlevered(u)]

$$\text{Total Value of Unlevered Firm } (V_u) = [\text{NOI}/k_e] = 18,00,000/0.18 = ₹ 1,00,00,000$$

## 12 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018

$K_e$  of Unlevered Firm (given) = 0.18

$K_o$  of Unlevered Firm (Same as above =  $k_e$  as there is no debt) = 0.18

Market Value of 'A Ltd' [Levered Firm (l)]

Total Value of Levered Firm ( $V_L$ ) =  $V_u + (\text{Debt} \times \text{Nil}) = ₹ 1,00,00,000 + (54,00,000 \times \text{nil})$   
 $= ₹ 1,00,00,000$

**Computation of Equity Capitalization Rate and  
Weighted Average Cost of Capital (WACC)**

	Particulars	A Ltd.	B Ltd.
A.	Net Operating Income (NOI)	18,00,000	18,00,000
B.	Less: Interest on Debt (I)	6,48,000	-
C.	Earnings of Equity Shareholders (NI)	11,52,000	18,00,000
D.	Overall Capitalization Rate ( $k_o$ )	0.18	0.18
E.	Total Value of Firm ( $V = \text{NOI}/k_o$ )	1,00,00,000	1,00,00,000
F.	Less: Market Value of Debt	54,00,000	-
G.	Market Value of Equity (S)	46,00,000	1,00,00,000
H.	Equity Capitalization Rate [ $k_e = \text{NI}/S$ ]	0.2504	0.18
I.	Weighted Average Cost of Capital [WACC ( $k_o$ )] $k_o = (k_e \times S/M) + (k_d \times D/M)$	0.18	0.18

\*Computation of WACC A Ltd

Component of Capital	Amount	Weight	Cost of Capital	WACC
Equity	46,00,000	0.46	0.2504	0.1152
Debt	54,00,000	0.54	0.12*	0.0648
Total	81,60,000			0.18

\* $K_d = 12\%$  (since there is no tax)

WACC = 18%

**(b) Assuming 40% taxes as per MM Approach**

Calculation of Value of Firms 'A Ltd.' and 'B Ltd' according to MM Hypothesis

Market Value of 'B Ltd' [Unlevered(u)]

Total Value of unlevered Firm ( $V_u$ ) =  $[\text{NOI} (1 - t)/k_e] = 18,00,000 (1 - 0.40) / 0.18$   
 $= ₹ 60,00,000$

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

13

$K_e$  of unlevered Firm (given) = 0.18

$K_o$  of unlevered Firm (Same as above =  $k_e$  as there is no debt) = 0.18

Market Value of 'A Ltd' [Levered Firm (I)]

Total Value of Levered Firm ( $V_L$ ) =  $V_u + (\text{Debt} \times \text{Tax})$

$$= ₹ 60,00,000 + (54,00,000 \times 0.4)$$

$$= ₹ 81,60,000$$

**Computation of Weighted Average Cost of Capital (WACC) of 'B Ltd.'**

= 18% (i.e.  $K_e = K_o$ )

**Computation of Equity Capitalization Rate and  
Weighted Average Cost of Capital (WACC) of a Ltd**

Particulars	A Ltd.
Net Operating Income (NOI)	18,00,000
Less: Interest on Debt (I)	6,48,000
Earnings Before Tax (EBT)	11,52,000
Less: Tax @ 40%	4,60,800
Earnings for equity shareholders (NI)	6,91,200
Total Value of Firm (V) as calculated above	81,60,000
Less: Market Value of Debt	54,00,000
Market Value of Equity (S)	27,60,000
Equity Capitalization Rate [ $k_e = NI/S$ ]	0.2504
Weighted Average Cost of Capital ( $k_o$ )* $k_o = (k_e \times S/M) + (k_d \times D/M)$	13.23

\*Computation of WACC A Ltd

Component of Capital	Amount	Weight	Cost of Capital	WACC
Equity	27,60,000	0.338	0.2504	0.0846
Debt	54,00,000	0.662	0.072*	0.0477
Total	81,60,000			0.1323

$$*K_d = 12\% (1 - 0.4) = 12\% \times 0.6 = 7.2\%$$

$$\text{WACC} = 13.23\%$$

14

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2018

**Question 6***Answer the following:**(a) Explain in brief following Financial Instruments:**(i) Euro Bonds**(ii) Floating Rate Notes**(iii) Euro Commercial paper**(iv) Fully Hedged Bond***(1 x 4 = 4 Marks)***(b) Discuss the Advantages of Leasing.***(4 Marks)***(c) Write two main objectives of Financial Management.*

OR

*Write two main reasons for considering risk in Capital Budgeting decisions. (2 Marks)***Answer**

- (a) (i) Euro bonds:** Euro bonds are debt instruments which are not denominated in the currency of the country in which they are issued. E.g. a Yen note floated in Germany.
- (ii) Floating Rate Notes:** Floating Rate Notes: are issued up to seven years maturity. Interest rates are adjusted to reflect the prevailing exchange rates. They provide cheaper money than foreign loans.
- (iii) Euro Commercial Paper(ECP):** ECPs are short term money market instruments. They are for maturities less than one year. They are usually designated in US Dollars.
- (iv) Fully Hedged Bond:** In foreign bonds, the risk of currency fluctuations exists. Fully hedged bonds eliminate the risk by selling in forward markets the entire stream of principal and interest payments.
- (b) (i) Lease may low cost alternative:** Leasing is alternative to purchasing. As the lessee is to make a series of payments for using an asset, a lease arrangement is similar to a debt contract. The benefit of lease is based on a comparison between leasing and buying an asset. Many lessees find lease more attractive because of low cost.
- (ii) Tax benefit:** In certain cases tax benefit of depreciation available for owning an asset may be less than that available for lease payment
- (iii) Working capital conservation:** When a firm buy an equipment by borrowing from a bank (or financial institution), they never provide 100% financing. But in case of lease one gets normally 100% financing. This enables conservation of working capital.

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

15

- (iv) **Preservation of Debt Capacity:** So, operating lease does not matter in computing debt equity ratio. This enables the lessee to go for debt financing more easily. The access to and ability of a firm to get debt financing is called debt capacity (also, reserve debt capacity).
- (v) **Obsolescence and Disposal:** After purchase of leased asset there may be technological obsolescence of the asset. That means a technologically upgraded asset with better capacity may come into existence after purchase. To retain competitive advantage the lessee as user may have to go for the upgraded asset.
- (c) Two Main Objective of Financial Management

Two objectives of financial management are:

**(i) Profit Maximisation**

It has traditionally been argued that the primary objective of a company is to earn profit; hence the objective of financial management is also profit maximisation.

Wealth / Value Maximization

Wealth / Value Maximization Model. Shareholders wealth are the result of cost benefit analysis adjusted with their timing and risk i.e. time value of money. This is the real objective of Financial Management. So,

$\text{Wealth} = \text{Present Value of benefits} - \text{Present Value of Costs}$
--

Or

**(c) Main reasons for considering risk in capital budgeting decisions:**

Main reasons for considering risk in capital budgeting decisions are as follows

1. There is an opportunity cost involved while investing in a project for the level of risk. Adjustment of risk is necessary to help make the decision as to whether the returns out of the project are proportionate with the risks borne and whether it is worth investing in the project over the other investment options available.
2. Risk adjustment is required to know the real value of the Cash Inflows.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

*Question No. 1 is compulsory.*

*Attempt any **four** questions out of the remaining **five** questions.*

*In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.*

*Working notes should form part of the answer*

**Question 1**

(a) *Following figures and ratios are related to a company Q Ltd. :*

(i) Sales for the year (all credit)	₹ 30,00,000
(ii) Gross Profit ratio	25 per cent
(iii) Fixed assets turnover (based on cost of goods sold)	1.5
(iv) Stock turnover (based on cost of goods sold)	6
(v) Liquid ratio	1 : 1
(vi) Current ratio	1.5 : 1
(vii) Receivables (Debtors) collection period	2 months
(viii) Reserves and surplus to share capital	0.6 : 1
(ix) Capital gearing ratio	0.5
(x) Fixed assets to net worth	1.20 : 1

*You are required to calculate :*

*Closing stock, Fixed Assets, Current Assets, Debtors and Net worth. (5 Marks)*

(b) *Alpha Ltd. has furnished the following information :*

- Earning Per Share (EPS)	₹ 4
- Dividend payout ratio	25%
- Market price per share	₹ 50
- Rate of tax	30%
- Growth rate of dividend	10%

*The company wants to raise additional capital of ₹ 10 lakhs including debt of ₹ 4 lakhs. The cost of debt (before tax) is 10% up to ₹ 2 lakhs and 15% beyond that. Compute the after tax cost of equity and debt and also weighted average cost of capital. (5 Marks)*

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

59

(c) Kanoria Enterprises wishes to evaluate two mutually exclusive projects X and Y.

The particulars are as under :

	Project X (₹)	Project Y (₹)
Initial Investment	1,20,000	1,20,000
Estimated cash inflows (per annum for 8 years)		
Pessimistic	26,000	12,000
Most Likely	28,000	28,000
Optimistic	36,000	52,000

The cut off rate is 14%. The discount factor at 14% are :

Year	1	2	3	4	5	6	7	8	9
Discount factor	0.877	0.769	0.675	0.592	0.519	0.456	0.400	0.351	0.308

Advise management about the acceptability of projects X and Y.

**(5 Marks)**

(d) The following information is supplied to you :

Total Earning	₹ 40 Lakhs
No. of Equity Shares (of ₹ 100 each)	4,00,000
Dividend Per Share	₹ 4
Cost of Capital	16%
Internal rate of return on investment	20%
Retention ratio	60%

Calculate the market price of a share of a company by using :

(i) Walter's Formula

(ii) Gordon's Formula

**(5 Marks)**

**Answer**

(a) (i) **Calculation of Closing Stock:**

$$\begin{aligned} \text{Cost of Goods Sold} &= \text{Sales} - \text{Gross Profit (25\% of Sales)} \\ &= ₹ 30,00,000 - ₹ 7,50,000 \\ &= ₹ 22,50,000 \end{aligned}$$

$$\begin{aligned} \text{Closing Stock} &= \text{Cost of Goods Sold} / \text{Stock Turnover} \\ &= ₹ 22,50,000 / 6 = ₹ 3,75,000 \end{aligned}$$

60

INTERMEDIATE (NEW) EXAMINATION: MAY 2019

(ii) Calculation of Fixed Assets:

$$\begin{aligned} \text{Fixed Assets} &= \text{Cost of Goods Sold} / \text{Fixed Assets Turnover} \\ &= ₹ 22,50,000/1.5 \\ &= ₹ 15,00,000 \end{aligned}$$

(iii) Calculation of Current Assets:

$$\begin{aligned} \text{Current Ratio} &= 1.5 \text{ and Liquid Ratio} = 1 \\ \text{Stock} &= 1.5 - 1 = 0.5 \\ \text{Current Assets} &= \text{Amount of Stock} \times 1.5/0.5 \\ &= ₹ 3,75,000 \times 1.5/0.5 = ₹ 11,25,000 \end{aligned}$$

(iv) Calculation of Debtors:

$$\begin{aligned} \text{Debtors} &= \text{Sales} \times \text{Debtors Collection period} / 12 \\ &= ₹ 30,00,000 \times 2 / 12 \\ &= ₹ 5,00,000 \end{aligned}$$

(v) Calculation of Net Worth:

$$\begin{aligned} \text{Net worth} &= \text{Fixed Assets} / 1.2 \\ &= ₹ 15,00,000/1.2 = ₹ 12,50,000 \end{aligned}$$

(b) (i) Cost of Equity Share Capital ( $K_e$ )

$$K_e = \frac{D_0(1+g)}{P_0} + g = \frac{25\% \text{ of } ₹ 4 (1+0.10)}{₹ 50} + 0.10 = \frac{₹ 1.10}{₹ 50} + 0.10 = 0.122 \text{ or } 12.2\%$$

(ii) Cost of Debt ( $K_d$ )

$$K_d = \frac{\text{Interest}}{\text{Net Proceeds}} \times 100 \times (1 - t)$$

$$\text{Interest on first } ₹ 2,00,000 @ 10\% = ₹ 20,000$$

$$\text{Interest on next } ₹ 2,00,000 @ 15\% = ₹ 30,000$$

$$K_d = \frac{50,000}{4,00,000} \times (1 - 0.3) = 0.0875 \text{ or } 8.75 \%$$

(iii) Weighted Average Cost of Capital (WACC)

Source of capital	Amount (₹)	Weights	Cost of Capital (%)	WACC (%)
Equity shares	6,00,000	0.60	12.20	7.32



PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

61

Debt	4,00,000	0.40	8.75	3.50
Total	10,00,000	1.00		<b>10.82</b>

Alternatively Cost of Equity Share Capital ( $K_e$ ) can be calculated as

$$K_e = \frac{D}{P_0} + g = \frac{25\% \text{ of } ₹ 4}{₹ 50} + 0.10 = \frac{₹ 1.00}{₹ 50} + 0.10 = 0.120 \text{ or } 12.00\%$$

Accordingly

Weighted Average Cost of Capital (WACC)

Source of capital	Amount (₹)	Weights	Cost of Capital (%)	WACC (%)
Equity shares	6,00,000	0.60	12.00	7.20
Debt	4,00,000	0.40	8.75	3.50
Total	10,00,000	1.00		<b>10.70</b>

(c) The possible outcomes of Project x and Project y are as follows

Estimates	Project X				Project Y			
	Estimated Annual Cash inflows (₹)	PVF @ 14% for 8 years	PV of Cash flow (₹)	NPV (₹)	Estimated Annual Cash inflows (₹)	PVF @ 14% for 8 years	PV of Cash flow (₹)	NPV (₹)
<b>Pessimistic</b>	26,000	4.639	1,20,614	<b>614</b>	12,000	4.639	55,668	<b>(-64,332)</b>
<b>Most likely</b>	28,000	4.639	1,29,892	<b>9,892</b>	28,000	4.639	1,29,892	<b>9,892</b>
<b>Optimistic</b>	36,000	4.639	2,41,228	<b>47,004</b>	52,000	4.639	2,41,228	<b>1,21,228</b>

In pessimistic situation project X will be better as it gives low but positive NPV whereas Project Y yield highly negative NPV under this situation. In most likely situation both the project will give same result. However, in optimistic situation Project Y will be better as it will gives very high NPV. So, project X is a risk less project as it gives positive NPV in all the situation whereas Y is a risky project as it will result into negative NPV in pessimistic situation and highly positive NPV in optimistic situation. So acceptability of project will largely depend on the risk taking capacity (Risk seeking/ Risk aversion) of the management.

(d) Earning Per share(E) =  $\frac{₹ 40 \text{ Lakhs}}{4,00,000} = ₹ 10$

Calculation of Market price per share by

62

## INTERMEDIATE (NEW) EXAMINATION: MAY 2019

$$(i) \text{ Walter's formula: Market Price (P) = } \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market Price of the share.

E = Earnings per share.

D = Dividend per share.

$K_e$  = Cost of equity/ rate of capitalization/ discount rate.

R = Internal rate of return/ return on investment

$$P = \frac{4 + \frac{0.20}{0.16}(10 - 4)}{0.16} = \frac{4 + 7.5}{0.16} = ₹ 71.88$$

- (ii) **Gordon's formula:** When the growth is incorporated in earnings and dividend, the present value of market price per share ( $P_0$ ) is determined as follows

$$\text{Gordon's theory: } P_0 = \frac{E(1 - b)}{k - br}$$

Where,

$P_0$  = Present market price per share.

E = Earnings per share

b = Retention ratio (i.e. % of earnings retained)

r = Internal rate of return (IRR)

Growth rate (g) = br

$$\text{Now } P_0 = \frac{10(1 - .60)}{.16 - (.60 \times .20)} = ₹ \frac{4}{.04} = ₹ 100$$

**Question 2**

RM Steels Limited requires ₹ 10,00,000 for construction of a new plant. It is considering three financial plans :

- (i) The company may issue 1,00,000 ordinary shares at ₹ 10 per share;
- (ii) The company may issue 50,000 ordinary shares at ₹ 10 per share and 5000 debentures of ₹ 100 denominations bearing a 8 per cent rate of interest; and
- (iii) The company may issue 50,000 ordinary shares at ₹ 10 per share and 5,000 preference shares at ₹ 100 per share bearing a 8 per cent rate of dividend.

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

63

If RM Steels Limited's earnings before interest and taxes are ₹ 20,000; ₹ 40,000; ₹ 80,000; ₹ 1,20,000 and ₹ 2,00,000, you are required to compute the earnings per share under each of the three financial plans ?

Which alternative would you recommend for RM Steels and why? Tax rate is 50%. (10 Marks)

## Answer

## (i) Computation of EPS under three-financial plans

## Plan I: Equity Financing

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Tax @ 50%	10,000	20,000	40,000	60,000	1,00,000
PAT	10,000	20,000	40,000	60,000	1,00,000
No. of equity shares	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
EPS	0.10	0.20	0.40	0.60	1

## Plan II: Debt – Equity Mix

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	40,000	40,000	40,000	40,000	40,000
EBT	(20,000)	0	40,000	80,000	1,60,000
Less: Tax @ 50%	10,000*	0	20,000	40,000	80,000
PAT	(10,000)	0	20,000	40,000	80,000
No. of equity shares	50,000	50,000	50,000	50,000	50,000
EPS	(₹ 0.20)	0	0.40	0.80	1.60

\* The Company can set off losses against the overall business profit or may carry forward it to next financial years.

## Plan III: Preference Shares – Equity Mix

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000

64

INTERMEDIATE (NEW) EXAMINATION: MAY 2019

Less: Tax @ 50%	10,000	20,000	40,000	60,000	1,00,000
PAT	10,000	20,000	40,000	60,000	1,00,000
Less: Pref. dividend	40,000*	40,000*	40,000	40,000	40,000
PAT after Pref. dividend.	(30,000)	(20,000)	0	20,000	60,000
No. of Equity shares	50,000	50,000	50,000	50,000	50,000
<b>EPS</b>	<b>(0.60)</b>	<b>(0.40)</b>	<b>0</b>	<b>0.40</b>	<b>1.20</b>

\* In case of cumulative preference shares, the company has to pay cumulative dividend to preference shareholders, when company earns sufficient profits.

- (ii) From the above EPS computations tables under the three financial plans we can see that when EBIT is ₹ 80,000 or more, Plan II: Debt-Equity mix is preferable over the Plan I and Plan III, as rate of EPS is more under this plan. On the other hand an EBIT of less than ₹ 80,000, Plan I: Equity Financing has higher EPS than Plan II and Plan III. Plan III Preference share Equity mix is not acceptable at any level of EBIT, as EPS under this plan is lower.

The choice of the financing plan will depend on the performance of the company and other macro economic conditions. If the company is expected to have higher operating profit Plan II: Debt – Equity Mix is preferable. Moreover, debt financing gives more benefit due to availability of tax shield.

**Question 3**

AT Limited is considering three projects A, B and C. The cash flows associated with the projects are given below:

Cash flows associated with the Three Projects (₹)

Project	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>
A	(10,000)	2,000	2,000	6,000	0
B	(2,000)	0	2,000	4,000	6,000
C	(10,000)	2,000	2,000	6,000	10,000

You are required to :

- Calculate the payback period of each of the three projects.
- If the cut-off period is two years, then which projects should be accepted?
- Projects with positive NPVs if the opportunity cost of capital is 10 percent.
- "Payback gives too much weight to cash flows that occur after the cut-off date". True or false?
- "If a firm used a single cut-off period for all projects, it is likely to accept too many short lived projects." True or false?

PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

65

P.V. Factor @ 10 %

Year	0	1	2	3	4	5
P.V.	1.000	0.909	0.826	0.751	0.683	0.621

(10 Marks)

Answer

(a) Payback Period of Projects

Projects	C <sub>0</sub> (₹)	C <sub>1</sub> (₹)	C <sub>2</sub> (₹)	C <sub>3</sub> (₹)	Payback
A	(10,000)	2000	2000	6,000	2,000+2,000+6,000 =10,000 i.e 3 years
B	(2,000)	0	2,000	NA	0+2,000 = 2,000 i.e 2 years
C	(10,000)	2000	2000	6,000	2,000+2,000+6,000 = 10,000 i.e 3 years

(b) If standard payback period is 2 years, Project B is the **only acceptable project**.

(c) Calculation of NPV

Year	PVF @ 10%	Project A		Project B		Project C	
		Cash Flows (₹)	PV of cash flows (₹)	Cash Flows (₹)	PV of cash flows (₹)	Cash Flows (₹)	PV of cash flows (₹)
0	1	(10,000)	(10,000)	(2,000)	(2,000)	(10,000)	(10,000)
1	0.909	2,000	1,818	0	0	2,000	1,818
2	0.826	2,000	1,652	2,000	1,652	2,000	1,652
3	0.751	6,000	4506	4,000	3004	6,000	4,506
4	0.683	0	0	6,000	4,098	10,000	6,830
NPV			(-2,024)		6,754		4,806

So, Projects with positive NPV are Project B and Project C

(d) **False.** Payback gives no weightage to cash flows after the cut-off date.

(e) **True.** The payback rule ignores all cash flows after the cutoff date, meaning that future years' cash inflows are not considered. Thus, payback is biased towards short-term projects.

Question 4

The capital structure of the Shiva Ltd. consists of equity share capital of ₹ 20,00,000 (Share of ₹ 100 per value) and ₹ 20,00,000 of 10% Debentures, sales increased by 20% from 2,00,000 units to 2,40,000 units, the selling price is ₹ 10 per unit; variable costs amount to ₹ 6 per unit and fixed expenses amount to ₹ 4,00,000. The income tax rate is assumed to be 50%.

66

INTERMEDIATE (NEW) EXAMINATION: MAY 2019

- (a) You are required to calculate the following:
- (i) The percentage increase in earnings per share;
  - (ii) Financial leverage at 2,00,000 units and 2,40,000 units.
  - (iii) Operating leverage at 2,00,000 units and 2,40,000 units.
- (b) Comment on the behaviour of operating and Financial leverages in relation to increase in production from 2,00,000 units to 2,40,000 units. (10 Marks)

Answer

(a)

Sales in units	2,00,000 (₹)	2,40,000 (₹)
Sales Value @ ₹ 10 Per Unit	20,00,000	24,00,000
Variable Cost @ ₹ 6 per unit	(12,00,000)	(14,40,000)
<b>Contribution</b>	8,00,000	9,60,000
Fixed expenses	(4,00,000)	(4,00,000)
<b>EBIT</b>	4,00,000	5,60,000
Debenture Interest	(2,00,000)	(2,00,000)
<b>EBT</b>	2,00,000	3,60,000
Tax @ 50%	(1,00,000)	(1,80,000)
Profit after tax (PAT)	1,00,000	1,80,000
No of Share	20,000	20,000
Earnings per share (EPS)	5	9
(i) The percentage Increase in EPS	$\frac{4}{5} \times 100 = 80\%$	
(ii) <b>Financial Leverage</b> = $\frac{\text{EBIT}}{\text{EBT}}$	$\frac{₹ 4,00,000}{₹ 2,00,000} = 2$	$\frac{₹ 5,60,000}{₹ 3,60,000} = 1.56$
(iii) <b>Operating leverage</b> = $\frac{\text{Contribution}}{\text{EBIT}}$	$\frac{₹ 8,00,000}{₹ 4,00,000} = 2$	$\frac{₹ 9,60,000}{₹ 5,60,000} = 1.71$

- (b) When production is increased from 2,00,000 units to 2,40,000 units both financial leverage and operating leverages reduced from 2 to 1.56 and 1.71 respectively. Reduction in financial leverage and operating leverages signifies reduction in business risk and financial risk.

PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

67

**Question 5**

*Bitra Limited manufactures used in the steel industry. The following information regarding the company is given for your consideration:*

- (i) *Expected level of production 9000 units per annum.*
- (ii) *Raw materials are expected to remain in store for an average of two months before issue to production.*
- (iii) *Work-in-progress (50 percent complete as to conversion cost) will approximate to 1/2 month's production.*
- (iv) *Finished goods remain in warehouse on an average for one month.*
- (v) *Credit allowed by suppliers is one month.*
- (vi) *Two month's credit is normally allowed to debtors.*
- (vii) *A minimum cash balance of ₹ 67,500 is expected to be maintained.*
- (viii) *Cash sales are 75 percent less than the credit sales.*
- (ix) *Safety margin of 20 percent to cover unforeseen contingencies.*
- (x) *The production pattern is assumed to be even during the year.*
- (xi) *The cost structure for Bitra Limited's product is as follows:*

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

*You are required to estimate the working capital requirement of Bitra limited. (10 Marks)*

**Answer**

**Statement showing Estimate of Working Capital Requirement**

	(Amount in ₹)	(Amount in ₹)
<b>A. Current Assets</b>		
(i) <b>Inventories:</b>		
- Raw material inventory $\left( \frac{9,000 \text{ units} \times ₹ 80}{12 \text{ months}} \times 2 \text{ month} \right)$		1,20,000

68

## INTERMEDIATE (NEW) EXAMINATION: MAY 2019

<b>- Work in Progress:</b>		
Raw material $\left( \frac{9,000 \text{ units} \times ₹ 80}{12 \text{ months}} \times 0.5 \text{ month} \right)$	30,000	
Wages $\left( \frac{9,000 \text{ units} \times ₹ 20}{12 \text{ months}} \times 0.5 \text{ month} \right) \times 50\%$	3,750	
Overheads $\left( \frac{9,000 \text{ units} \times ₹ 60}{12 \text{ months}} \times 0.5 \text{ month} \right) \times 50\%$	11,250	<b>45,000</b>
(Other than Depreciation)		
<b>Finished goods</b> (inventory held for 1 months) $\left( \frac{9,000 \text{ units} \times ₹ 160}{12 \text{ months}} \times 1 \text{ month} \right)$		<b>1,20,000</b>
(ii) <b>Debtors (for 2 months)</b> $\left( \frac{9,000 \text{ units} \times ₹ 160}{12 \text{ months}} \times 2 \text{ month} \right) \times 80\%$ or $\left( \frac{11,52,000}{12 \text{ months}} \times 2 \text{ month} \right)$		<b>1,92,000</b>
(iii) Cash balance expected		67,500
Total Current assets		<b>5,44,500</b>
<b>B. Current Liabilities</b>		
(i) Creditors for Raw material (1 month) $\left( \frac{9,000 \text{ units} \times ₹ 80}{12 \text{ months}} \times 1 \text{ month} \right)$		60,000
Total current liabilities		60,000
Net working capital (A – B)		4,84,500
Add: Safety margin of 20 percent		96,900
Working capital Requirement		<b>5,81,400</b>

**Working Notes:**

- If Credit sales is x then cash sales is x-75% of x i.e. x/4.  
Or  $x + 0.25x = ₹ 18,00,000$   
Or  $x = ₹ 14,40,000$



## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

69

So, credit Sales is ₹ 14,40,000

Hence, Cash cost of credit sales  $\left( \frac{₹ 14,40,000}{5} \times 4 \right) = ₹ 11,52,000$

2. It is assumed that safety margin of 20% is on net working capital.
3. No information is given regarding lag in payment of wages, hence ignored assuming it is paid regularly.
4. Debtors/Receivables is calculated based on total cost.

[If Debtors/Receivables is calculated based on sales, then debtors will be

$$\left( \frac{9,000 \text{ units} \times ₹ 200}{12 \text{ months}} \times 2 \text{ month} \right) \times 80\% \text{ or } \left( \frac{14,40,000}{12 \text{ months}} \times 2 \text{ month} \right) = ₹ 2,40,000$$

Then Total Current assets will be ₹ 5,92,500 and accordingly Net working capital and Working capital requirement will be ₹ 5,32,500 and ₹ 6,39,000 respectively].

**Question 6**

- (a) Explain the steps of Sensitivity Analysis. (4 Marks)
- (b) What is the process of Debt Securitisation ? (4 Marks)
- (c) Explain any two steps involved in Decision tree Analysis. (2 Marks)

OR

Give any two limitations of leasing. (2 Marks)

**Answer****(a) Steps involved in Sensitivity Analysis**

Sensitivity Analysis is conducted by following the steps as below:

1. Finding variables, which have an influence on the NPV (or IRR) of the project
2. Establishing mathematical relationship between the variables.
3. Analysis the effect of the change in each of the variables on the NPV (or IRR) of the project.

**(b) 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.

70

## INTERMEDIATE (NEW) EXAMINATION: MAY 2019

(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.

(c) **Steps involved in Decision Tree analysis:**

**Step 1- Define Investment:** Decision tree analysis can be applied to a variety of business decision-making scenarios.

**Step 2- Identification of Decision Alternatives:** It is very essential to clearly identify decision alternatives. For example, if a company is planning to introduce a new product, it may be local launch, national launch or international launch.

**Step 3- Drawing a Decision Tree:** After identifying decision alternatives, at the relevant data such as the projected cash flows, probability distribution expected present value etc. should be put in diagrammatic form called decision tree.

**Step 4- Evaluating the Alternatives:** After drawing out the decision the next step is the evaluation of alternatives.

Or

**Limitations of Leasing**

- (1) The lease rentals become payable soon after the acquisition of assets and no moratorium period is permissible as in case of term loans from financial institutions. The lease arrangement may, therefore, not be suitable for setting up of the new projects as it would entail cash outflows even before the project comes into operation.
- (2) The leased assets are purchased by the lessor who is the owner of equipment. The seller's warranties for satisfactory operation of the leased assets may sometimes not be available to lessee.
- (3) Lessor generally obtains credit facilities from banks etc. to purchase the leased equipment which are subject to hypothecation charge in favour of the bank. Default in payment by the lessor may sometimes result in seizure of assets by banks causing loss to the lessee.
- (4) Lease financing has a very high cost of interest as compared to interest charged on term loans by financial institutions/banks.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

**Question**

- (a) Following information has been gathered from the books of Tram Ltd. the equity shares of which is trading in the stock market at ₹ 14.

Particulars	Amount (₹)
Equity Share Capital (face value ₹ 10)	10,00,000
10% Preference Shares	2,00,000
Reserves	8,00,000
10% Debentures	6,00,000
Profit before Interest and Tax for the year	4,00,000
Interest	60,000
Profit after Tax for the year	2,40,000

Calculate the following:

- (i) Return on Capital Employed  
(ii) Earnings per share  
(iii) PE ratio
- (b) Door Ltd. is considering an investment of ₹ 4,00,000. This investment is expected to generate substantial cash inflows over the next five years. Unfortunately, the annual cash flows from this investment is uncertain, and the following profitability distribution has been established.

Annual Cash Flow (₹)	Probability
50,000	0.3
1,00,000	0.3
1,50,000	0.4

2

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

At the end of its 5 years life, the investment is expected to have a residual value of ₹ 40,000.

The cost of capital is 5%

- (i) Calculate NPV under the three different scenarios.
- (ii) Calculate Expected Net Present Value.
- (iii) Advise Door Ltd. on whether the investment is to be undertaken.

Year	1	2	3	4	5
DF @ 5%	0.952	0.907	0.864	0.823	0.784

- (c) Following figures and information were extracted from the company A Ltd.

Earnings of the company	₹ 10,00,000
Dividend paid	₹ 6,00,000
No. of shares outstanding	2,00,000
Price Earnings Ratio	10
Rate of return on investment	20%

You are required to calculate:

- (i) Current Market price of the share
  - (ii) Capitalisation rate of its risk class
  - (iii) What should be the optimum pay-out ratio?
  - (iv) What should be the market price per share at optimal pay-out ratio? (use Walter's Model)
- (d) A company has ₹ 1,00,000 available for investment and has identified the following four investments in which to invest.

Project	Investment (₹)	NPV (₹)
C	40,000	20,000
D	1,00,000	35,000
E	50,000	24,000
F	60,000	18,000

You are required to optimize the returns from a package of projects within the capital spending limit if-

- (i) The projects are independent of each other and are divisible.
- (ii) The projects are not divisible.

(4 x 5 = 20 Marks)

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 3

**Answer****(a) (i) Calculation of Return on capital employed (ROCE)**

$$\begin{aligned} \text{Capital employed} &= \text{Equity Shareholders' funds} + \text{Debenture} + \text{Preference shares} \\ &= ₹ (10,00,000 + 8,00,000 + 6,00,000 + 2,00,000) \\ &= ₹ 26,00,000 \end{aligned}$$

$$\begin{aligned} \text{Return on capital employed [ROCE-(Pre-tax)]} &= \frac{\text{PBIT}}{\text{Capital Employed}} \times 100 \\ &= \frac{₹ 4,00,000}{₹ 26,00,000} \times 100 \\ &= 15.38\% \text{ (approx.)} \end{aligned}$$

$$\begin{aligned} \text{Return on capital employed [ROCE-(Post-tax)]} &= \frac{\text{Profit after Tax}}{\text{Capital Employed}} \times 100 \\ &= \frac{₹ 2,40,000}{₹ 26,00,000} \times 100 \\ &= 9.23\% \text{ (approx.)} \end{aligned}$$

**(ii) Calculation of Earnings per share**

$$\begin{aligned} \text{Earnings per share} &= \frac{\text{Earnings available to equity shareholders}}{\text{No of equity shares}} \\ &= \frac{\text{Profit after tax-preference Dividend}}{\text{No of equity shares}} \\ &= \frac{₹ (2,40,000 - 20,000)}{₹ 1,00,000} \\ &= ₹ 2.20 \end{aligned}$$

**(iii) Calculation of PE ratio**

$$\begin{aligned} \text{PE} &= \frac{\text{Market Price per Share (MPS)}}{\text{Earning per Shares (EPS)}} \\ &= \frac{₹ 14}{₹ 2.20} = 6.364 \text{ (approx.)} \end{aligned}$$

4

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

(b) (i) Calculation of NPV under three different scenarios (Amount in ₹)

Particulars	1 <sup>st</sup> Scenario	2 <sup>nd</sup> Scenario	3 <sup>rd</sup> Scenario
Annual Cash Flow	50,000	1,00,000	1,50,000
PV of cash inflows (Annual Cash Flow × 4.33*)	2,16,500	4,33,000	6,49,500
PV of Residual Value (₹ 40,000 × 0.784)	31,360	31,360	31,360
Total PV of Cash Inflow	2,47,860	4,64,360	6,80,860
Initial investment	4,00,000	4,00,000	4,00,000
<b>NPV</b>	<b>(1,52,140)</b>	<b>64,360</b>	<b>2,80,860</b>

\* .952 + .907 + .864 + .823 + .784 = 4.33

(ii) Calculation of Expected Net present Value under three different scenarios

Particulars	1 <sup>st</sup> Scenario	2 <sup>nd</sup> Scenario	3 <sup>rd</sup> Scenario	Total (₹)
Annual Cash Flow	₹ 50,000	₹ 1,00,000	₹ 1,50,000	
Probability	0.3	0.3	0.4	
Expected Value	₹ 15,000	₹ 30,000	₹ 60,000	1,05,000
PV of Expected value (1,05,000 × 4.33)				4,54,650
PV of Residual Value (40,000 × 0.784)				31,360
Total PV of Cash Inflow				4,86,010
Initial investment				4,00,000
<b>Expected Net Present Value</b>				<b>86,010</b>

(iii) Since the expected net present value of the Investment is positive, the Investment should be undertaken.

(c) (i) Current Market price of shares (applying Walter's Model)

- The EPS of the firm is ₹ 5 (i.e., Rs 10,00,000 / 2,00,000).
- Rate of return on Investment (r) = 20%.
- The Price Earnings (P/E) Ratio is given as 10, so capitalization rate ( $K_e$ ), may be taken at the inverse of P/E Ratio. Therefore,  $K_e$  is 10% or .10 (i.e., 1/10).
- The firm is distributing total dividends of ₹ 6,00,000 among 2,00,000 shares, giving a dividend per share of ₹ 3.

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 5

The value of the share as per Walter's model may be found as follows:

Walter's model is given by-

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market price per share.

E = Earnings per share = ₹ 5

D = Dividend per share = ₹ 3

R = Return earned on investment = 20 %

$K_e$  = Cost of equity capital = 10% or .10

$$P = \frac{3 + \frac{0.20}{0.10}(5 - 3)}{0.10} = ₹ 70$$

Current Market Price of shares can also be calculated as follows:

$$\text{Price Earnings (P/E) Ratio} = \frac{\text{Market Price of Share}}{\text{Earnings per Shares}}$$

$$\text{Or, } 10 = \frac{\text{Market Price of Share}}{₹ 10,00,000 / 2,00,000}$$

$$\text{Or, } 10 = \frac{\text{Market Price of Share}}{₹ 5}$$

$$\text{Market Price of Share} = ₹ 50$$

(ii) **Capitalization rate** ( $K_e$ ) of its risk class is 10% or .10 (i.e., 1/10).

(iii) **Optimum dividend pay-out ratio**

According to Walter's model when the return on investment is more than the cost of equity capital (10%), the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is nil or 0 (zero).

(iv) **Market price per share at optimum dividend pay-out ratio**

At a pay-out ratio of zero, the market value of the company's share will be:

6

**INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019**

$$P = \frac{0 + \frac{0.20}{0.10}(5 - 0)}{0.10} = ₹ 100$$

(d) (i) **Optimizing returns when projects are independent and divisible.**

**Computation of NPVs per Re. 1 of Investment and Ranking of the Projects**

Project	Investment (₹)	NPV (₹)	NPV per Re. 1 invested (₹)	Ranking
C	40,000	20,000	0.50	1
D	1,00,000	35,000	0.35	3
E	50,000	24,000	0.48	2
F	60,000	18,000	0.30	4

**Building up of a Package of Projects based on their Rankings**

Project	Investment (₹)	NPV (₹)
C	40,000	20,000
E	50,000	24,000
D (1/10 <sup>th</sup> of Project)	10,000	3,500
<b>Total</b>	<b>1,00,000</b>	<b>47,500</b>

The company would be well advised to invest in Projects C, E and D (1/10<sup>th</sup>) and reject Project F to optimise return within the amount of ₹ 1,00,000 available for investment.

(ii) **Optimizing returns when projects are indivisible.**

Package of Project	Investment (₹)	Total NPV (₹)
C and E	90,000 (40,000 + 50,000)	44,000 (20,000 + 24,000)
C and F	1,00,000 (40,000 + 60,000)	38,000 (20,000 + 18,000)
Only D	1,00,000	35,000

The company would be well advised to invest in Projects C and E to optimise return within the amount of ₹ 1,00,000 available for investment.



## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

## Question 2

The Balance Sheet of Gitashree Ltd. is given below:

<b>Liabilities</b>		(₹)
Shareholders' fund		
Equity share capital of ₹10 each	₹1,80,000	
Retained earnings	₹60,000	2,40,000
Non-current liabilities 10% debt		2,40,000
Current liabilities		1,20,000
		<b>6,00,000</b>
<b>Assets</b>		
Fixed Assets		4,50,000
Current Assets		1,50,000
		<b>6,00,000</b>

The company's total asset turnover ratio is 4. Its fixed operating cost is ₹2,00,000 and its variable operating cost ratio is 60%. The income tax rate is 30%.

Calculate:

- (i) (a) Degree of Operating leverage.  
 (b) Degree of Financial leverage.  
 (c) Degree of Combined leverage.
- (ii) Find out EBIT if EPS is (a) ₹1 (b) ₹2 and (c) ₹0.

(10 Marks)

## Answer

## Working Notes:

$$\begin{aligned} \text{Total Assets} &= ₹6,00,000 \\ \text{Total Asset Turnover Ratio i.e.} &= \frac{\text{Total Sales}}{\text{Total Assets}} = 4 \\ \text{Hence, Total Sales} &= ₹6,00,000 \times 4 = ₹24,00,000 \end{aligned}$$

## Computation of Profits after Tax (PAT)

<b>Particulars</b>	(₹)
Sales	24,00,000
Less: Variable operating cost @ 60%	14,40,000
Contribution	9,60,000

## 8 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

Less: Fixed operating cost (other than Interest)	2,00,000
EBIT (Earning before interest and tax)	7,60,000
Less: Interest on debt (10% × 2,40,000)	24,000
EBT (Earning before tax)	7,36,000
Less: Tax 30%	2,20,800
EAT (Earning after tax)	5,15,200

## (i) (a) Degree of Operating Leverage

$$\text{Degree of Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{₹ 9,60,000}}{\text{₹ 7,60,000}} = 1.263 \text{ (approx.)}$$

## (b) Degree of Financial Leverage

$$\text{Degree of Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{₹ 9,60,000}}{\text{₹ 7,60,000}} = 1.033 \text{ (approx.)}$$

## (c) Degree of Combined Leverage

$$\begin{aligned} \text{Degree of Combined Leverage} &= \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{Contribution}}{\text{EBT}} \\ &= \frac{\text{₹ 9,60,000}}{\text{₹ 7,60,000}} = 1.304 \text{ (approx.)} \end{aligned}$$

Or

$$\begin{aligned} \text{Degree of Combined Leverage} &= \text{Degree of Operating Leverage} \times \text{Degree of Financial Leverage} \\ &= 1.263 \times 1.033 = 1.304 \text{ (approx.)} \end{aligned}$$

## (ii) (a) If EPS is Re. 1

$$\text{EPS} = \frac{(\text{EBIT} - \text{Interest})(1 - \text{tax})}{\text{No of equity shares}}$$

$$\text{Or, } 1 = \frac{(\text{EBIT} - \text{₹ 24,000})(1 - 0.30)}{18,000}$$

$$\text{Or, EBIT} = \text{₹ 49,714 (approx.)}$$

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE** **9**

(b) If EPS is ₹ 2

$$2 = \frac{(\text{EBIT} - ₹ 24,000) (1-0.30)}{18,000}$$

Or, EBIT = ₹ 75,429 (approx.)

(c) If EPS is ₹ 0

$$0 = \frac{(\text{EBIT} - ₹ 24,000) (1-0.30)}{18,000}$$

Or, EBIT = ₹ 24,000

Alternatively, if EPS is 0 (zero), EBIT will be equal to interest on debt i.e. ₹ 24,000.

**Question 3**

Slide Ltd. is preparing a cash flow forecast for the three months period from January to the end of March. The following sales volumes have been forecasted:

Months	December	January	February	March	April
Sales (units)	1,800	1,875	1,950	2,100	2,250

Selling price per unit is ₹ 600. Sales are all on one month credit. Production of goods for sale takes place one month before sales. Each unit produced requires two units of raw materials costing ₹ 150 per unit. No raw material inventory is held. Raw materials purchases are on one month credit. Variable overheads and wages equal to ₹ 100 per unit are incurred during production and paid in the month of production. The opening cash balance on 1st January is expected to be ₹ 35,000. A long term loan of ₹ 2,00,000 is expected to be received in the month of March. A machine costing ₹ 3,00,000 will be purchased in March.

- (a) Prepare a cash budget for the months of January, February and March and calculate the cash balance at the end of each month in the three months period.
- (b) Calculate the forecast current ratio at the end of the three months period. **(10 Marks)**

**Answer**

**Working Notes:**

(1) Calculation of Collection from Trade Receivables:

Particulars	December	January	February	March
Sales (units)	1,800	1,875	1,950	2,100
Sales (@ ₹ 600 per unit) / Trade Receivables (Debtors) (₹)	10,80,000	11,25,000	11,70,000	12,60,000

10

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

Collection from Trade Receivables (Debtors) (₹)		10,80,000	11,25,000	11,70,000
---	--	-----------	-----------	-----------

## (2) Calculation of Payment to Trade Payables:

Particulars	December	January	February	March
Output (units)	1,875	1,950	2,100	2,250
Raw Material (2 units per output) (units)	3,750	3,900	4,200	4,500
Raw Material (@ ₹ 150 per unit) / Trade Payables (Creditors) (₹)	5,62,500	5,85,000	6,30,000	6,75,000
Payment to Trade Payables (Creditors) (₹)		5,62,500	5,85,000	6,30,000

## (3) Calculation of Variable Overheads and Wages:

Particulars	January	February	March
Output (units)	1,950	2,100	2,250
Payment in the same month @ ₹ 100 per unit (₹)	1,95,000	2,10,000	2,25,000

## (a) Preparation of Cash Budget

Particulars	January (₹)	February (₹)	March (₹)
Opening Balance	35,000	3,57,500	6,87,500
<b>Receipts:</b>			
Collection from Trade Receivables (Debtors)	10,80,000	11,25,000	11,70,000
Receipt of Long-Term Loan			2,00,000
<b>Total (A)</b>	11,15,000	14,82,500	20,57,500
<b>Payments:</b>			
Trade Payables (Creditors) for Materials	5,62,500	5,85,000	6,30,000
Variable Overheads and Wages	1,95,000	2,10,000	2,25,000
Purchase of Machinery			3,00,000
<b>Total (B)</b>	7,57,500	7,95,000	11,55,000
Closing Balance (A – B)	<b>3,57,500</b>	<b>6,87,500</b>	<b>9,02,500</b>

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 11

## (b) Calculation of Current Ratio

Particulars	March (₹)
Output Inventory (i.e. units produced in March) [(2,250 units x 2 units of raw material per unit of output x ₹ 150 per unit of raw material) + 2,250 units x ₹ 100 for variable overheads and wages] or, [6,75,000 + 2,25,000] from Working Notes 2 and 3	9,00,000
Trade Receivables (Debtors)	12,60,000
Cash Balance	9,02,500
<b>Current Assets</b>	<b>30,62,500</b>
Trade Payables (Creditors)	6,75,000
<b>Current Liabilities</b>	<b>6,75,000</b>
<b>Current Ratio (Current Assets / Current Liabilities)</b>	<b>4.537 approx.</b>

## Question 4

Loft Ltd. is considering an investment in new technology that will reduce operating costs through increasing efficiency. The new technology will cost ₹ 5,00,000 and have a four year life at the end of which it will have a residual value of ₹ 50,000.

An annual license fee of ₹ 52,000 is payable to operate the machine. The purchase can be financed by 10% loan payable in equal installments at the end of each of four years. The depreciation is to be charged as per reducing balance method. The rate of depreciation is 25% per annum.

Alternatively, Loft Ltd. could lease the new technology. The Company would pay four annual lease rentals of ₹ 1,90,000 per year. The annual lease rentals include the cost of license fee. Tax rate is 30%. Compute the incremental cash flows under each option. What would be the appropriate rate at which these cash flows have to be discounted? Discount the incremental cash flows under each option and decide which option is better - buy or lease?

Year	1	2	3	4
DF @ 7%	0.935	0.873	0.816	0.763
DF @ 10%	0.909	0.826	0.751	0.683

(10 Marks)

## Answer

- (1) The buy or lease decision means computation of NPV arising from lease decision i.e. computation of valuation advantage of lease over buy. If the value is positive then we go for lease, otherwise we buy.

## 12 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

- (2) The valuation process involves – a) finding incremental cash flow of lease over buy, and then, b) discounting the incremental cash flow by net of tax interest rate of equivalent loan (to purchase the asset in question).

If we go for lease, there would be cash outflow in the form of net of tax lease rent from year 1 to 4. Net of tax lease rent per annum = ₹ 1,90,000 x (1-.30) = ₹ 1,33,000.

Again, if the equipment had been purchased there would have been tax saving of depreciation = Depreciation x tax rate. Here, the tax saving or tax shield is available for 4 years. But under lease the benefit accrues to lessor. For lessee it is a negative cash flow as advantage is not available to him under lease arrangement as lessor is considered the legal owner of the asset for claiming depreciation under Income tax law. The depreciation schedule and tax shield on depreciation are given in table 1.

Table 1

Year	Cost/ opening balance (₹)	Depreciation @ 25% (₹)	Closing balance (₹)	Tax shield (₹)
1	5,00,000	1,25,000	3,75,000	37,500
2	3,75,000	93,750	2,81,250	28,125
3	2,81,250	70,312.50	2,10,937.50	21,093.75
4	2,10,937.50	52,734.38	1,58,203.12	15,820.31

- (3) Further, if the equipment had been purchased there would have been tax saving of interest on loan = interest on loan x tax rate. Here, the tax saving or tax shield is available for 4 years. For lessee it is a negative cash flow as advantage is not available to him under lease arrangement.

The loan amount would have been repayable together with the interest at the rate of 10% in equal installment at the end of each year. The PVAF at the rate of 10% for 4 years is 3.169 (.909 + .826 + .751 + .683), the amount payable would have been-

$$\text{Annual Installment} = \frac{\text{₹ } 5,00,000}{3.169} = \text{₹ } 1,57,778 \text{ (approx.)}$$

The interest expense schedule and tax shield on interest expense are given in table 2.

Table 2

Year	Total Installment (₹)	Interest (₹)	Principal (₹)	Principal amount outstanding (₹)	Tax shield (₹)
1	1,57,778	50,000	1,07,778	3,92,222	15,000
2	1,57,778	39,222	1,18,556	2,73,666	11,766.6
3	1,57,778	27,367	1,30,411	1,43,255	8,210.1

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 13

4	1,57,778	14,523 (bal. fig.)	1,43,255	-----	4,356.9
---	----------	-----------------------	----------	-------	---------

- (4) After 4 years the equipment is sold for ₹ 50,000 which is a cash outflow due to lease over buy

$$\begin{aligned} \text{Loss on sale} &= ₹ (1,58,203.12 - 50,000) \\ &= ₹ 1,08,203.12 \end{aligned}$$

$$\text{Tax savings on loss} = 30\% \text{ of } ₹ 1,08,203.12 = ₹ 32,460.94$$

This further tax shield has to be accounted for in the year 4.

- (5) If the equipment is taken on lease, the cash outflow on a/c of lease rental, depreciation tax shield is given in table 3

Table 3

Year	Net of tax lease rental (₹)	Depreciation tax shield (₹) (from Table 1)	Interest tax shield (₹) (from Table 2)	Total (₹)
1	1,33,000	37,500	15,000	1,85,500
2	1,33,000	28,125	11,766.6	1,72,891.6
3	1,33,000	21,093.75	8,210.1	1,62,303.85
4	1,33,000	15,820.31	4,356.9	1,53,177.21

- (6) Net of tax interest rate =  $0.10 \times (1 - .30) = 0.07$

## Calculation of NPV for lease over buy option

(Amount in ₹)

Year	1	2	3	4
Loan Installment	1,57,778	1,57,778	1,57,778	1,57,778
License Fees (net of Taxes)	36,400	36,400	36,400	36,400
Amount from sale of Machine				(50,000)
Tax saving on loss on sale				(32,460.94)
Total Tax Shield on Lease Rent, Interest and Depreciation	(1,85,500)	(1,72,891.60)	(1,62,303.85)	(1,53,177.21)
Total Cash flow	8,678.00	21,286.40	31,874.15	(41,460.15)

14

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

Discounting Factor @7%	0.935	0.873	0.816	0.763
Discounted Cash Flow	8,113.93	18,583.03	26,009.31	(31,634.09)
<b>NPV [8,113.93 + 18,583.03 + 26,009.31 + (31,634.09)]</b>				<b>21,072.17</b>

Since, NPV or value of the lease is positive, the equipment should be taken on lease.

**Question 5**

A Company wants to raise additional finance of ₹ 5 crore in the next year. The company expects to retain ₹ 1 crore earning next year. Further details are as follows:

- The amount will be raised by equity and debt in the ratio of 3: 1.
- The additional issue of equity shares will result in price per share being fixed at ₹ 25.
- The debt capital raised by way of term loan will cost 10% for the first ₹ 75 lakh and 12% for the next ₹ 50 lakh.
- The net expected dividend on equity shares is ₹ 2.00 per share. The dividend is expected to grow at the rate of 5%.
- Income tax rate is 25%.

**You are required:**

- To determine the amount of equity and debt for raising additional finance.
- To determine the post-tax average cost of additional debt.
- To determine the cost of retained earnings and cost of equity.
- To compute the overall weighted average cost of additional finance after tax.

**(10 Marks)****Answer**

- (a) **Determination of the amount of equity and debt for raising additional finance:**

**Pattern of raising additional finance**

Equity	3/4 of ₹ 5 Crore	= ₹ 3.75 Crore
Debt	1/4 of ₹ 5 Crore	= ₹ 1.25 Crore

**The capital structure after raising additional finance:**

Particulars	(₹ In crore)
<b>Shareholders' Funds</b>	
Equity Capital	(3.75 – 1.00)
Retained earnings	1.00



**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE** 15

Debt (Interest at 10% p.a.)	0.75
(Interest at 12% p.a.)      (1.25-0.75)	0.50
<b>Total Funds</b>	<b>5.00</b>

**(b) Determination of post-tax average cost of additional debt**

$$K_d = I(1 - t)$$

Where,

I = Interest Rate

t = Corporate tax-rate

$$\text{On ₹ 75,00,000} = 10\% (1 - 0.25) = 7.5\% \text{ or } 0.075$$

$$\text{On ₹ 50,00,000} = 12\% (1 - 0.25) = 9\% \text{ or } 0.09$$

**Average Cost of Debt**

$$= \frac{(\text{₹ } 75,00,000 \times 0.075) + (\text{₹ } 50,00,000 \times 0.09)}{1,25,00,000} \times 100$$

$$= \frac{\text{₹ } 5,62,500 + \text{₹ } 4,50,000}{1,25,00,000} \times 100 = 8.10\%$$

**(c) Determination of cost of retained earnings and cost of equity (Applying Dividend growth model):**

$$K_e = \frac{D_1}{P_0} + g$$

Where,

$K_e$  = Cost of equity

$D_1 = D_0(1 + g)$

$D_0$  = Dividend paid (i.e = ₹ 2)

g = Growth rate

$P_0$  = Current market price per share

$$\text{Then, } K_e = \frac{\text{Rs. } 2(1.05)}{\text{Rs. } 25} + 0.05 = \frac{\text{Rs. } 2.1}{\text{Rs. } 25} + 0.05 = 0.084 + 0.05 = 0.134 = 13.4\%$$

Cost of retained earnings equals to cost of Equity i.e. 13.4%

## 16 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2019

(d) Computation of overall weighted average after tax cost of additional finance

Particular	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	3,75,00,000	3/4	13.4%	10.05
Debt	1,25,00,000	1/4	8.1%	2.025
WACC	5,00,00,000			12.075

**Question 6**

- (a) Briefly explain the three finance function decisions. **(3 Marks)**
- (b) Explain the steps while using the equivalent annualized criterion. **(3 Marks)**
- (c) Explain the significance of Cost of Capital. **(4 Marks)**

**OR**

Briefly describe any four sources of short-term finance. **(4 Marks)**

**Answer**

- (a) The finance functions are divided into long term and short term functions/decisions:

**Long term Finance Function Decisions**

- (i) **Investment decisions (I):** These decisions relate to the selection of assets in which funds will be invested by a firm. Funds procured from different sources have to be invested in various kinds of assets. Long term funds are used in a project for various fixed assets and also for current assets.
- (ii) **Financing decisions (F):** These decisions relate to acquiring the optimum finance to meet financial objectives and seeing that fixed and working capital are effectively managed. The financial manager needs to possess a good knowledge of the sources of available funds and their respective costs and needs to ensure that the company has a sound capital structure, i.e. a proper balance between equity capital and debt.
- (iii) **Dividend decisions (D):** These decisions relate to the determination as to how much and how frequently cash can be paid out of the profits of an organisation as income for its owners/shareholders. The owner of any profit-making organization looks for reward for his investment in two ways, the growth of the capital invested and the cash paid out as income; for a sole trader this income would be termed as drawings and for a limited liability company the term is *dividends*.

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE** 17

**Short- term Finance Decisions/Function**

**Working capital Management (WCM):** Generally short term decision is reduced to management of current asset and current liability (i.e., working capital Management).

- (b) **Equivalent Annualized Criterion:** This method involves the following steps-
- (i) Compute NPV using the WACC or discounting rate.
  - (ii) Compute Present Value Annuity Factor (PVAF) of discounting factor used above for the period of each project.
  - (iii) Divide NPV computed under step (i) by PVAF as computed under step (ii) and compare the values.
- (c) **Significance of the Cost of Capital:** The cost of capital is important to arrive at correct amount and helps the management or an investor to take an appropriate decision. The correct cost of capital helps in the following decision making:
- (i) **Evaluation of investment options:** The estimated benefits (future cashflows) from available investment opportunities (business or project) are converted into the present value of benefits by discounting them with the relevant cost of capital. Here it is pertinent to mention that every investment option may have different cost of capital hence it is very important to use the cost of capital which is relevant to the options available. Here Internal Rate of Return (IRR) is treated as cost of capital for evaluation of two options (projects).
  - (ii) **Performance Appraisal:** Cost of capital is used to appraise the performance of a particular project or business. The performance of a project or business is compared against the cost of capital which is known here as cut-off rate or hurdle rate.
  - (iii) **Designing of optimum credit policy:** While appraising the credit period to be allowed to the customers, the cost of allowing credit period is compared against the benefit/ profit earned by providing credit to customer of segment of customers. Here cost of capital is used to arrive at the present value of cost and benefits received.

**OR**

**Sources of Short Term Finance:** There are various sources available to meet short-term needs of finance. The different sources are discussed below-

- (i) **Trade Credit:** It represents credit granted by suppliers of goods, etc., as an incident of sale. The usual duration of such credit is 15 to 90 days. It generates automatically in the course of business and is common to almost all business operations. It can be in the form of an 'open account' or 'bills payable'.
- (ii) **Accrued Expenses and Deferred Income:** Accrued expenses represent liabilities which a company has to pay for the services which it has already received like

wages, taxes, interest and dividends. Such expenses arise out of the day-to-day activities of the company and hence represent a spontaneous source of finance.

**Deferred Income:** These are the amounts received by a company in lieu of goods and services to be provided in the future. Since these receipts increases a company's liquidity, they are also considered to be an important sources of short-term finance.

- (iii) **Advances from Customers:** Manufacturers and contractors engaged in producing or constructing costly goods involving considerable length of manufacturing or construction time usually demand advance money from their customers at the time of accepting their orders for executing their contracts or supplying the goods. This is a cost free source of finance and really useful.
- (iv) **Commercial Paper:** A Commercial Paper is an unsecured money market instrument issued in the form of a promissory note. The Reserve Bank of India introduced the commercial paper scheme in the year 1989 with a view to enabling highly rated corporate borrowers to diversify their sources of short-term borrowings and to provide an additional instrument to investors.
- (v) **Treasury Bills:** Treasury bills are a class of Central Government Securities. Treasury bills, commonly referred to as T-Bills are issued by Government of India to meet short term borrowing requirements with maturities ranging between 14 to 364 days.
- (vi) **Certificates of Deposit (CD):** A certificate of deposit (CD) is basically a savings certificate with a fixed maturity date of not less than 15 days up to a maximum of one year.
- (vii) **Bank Advances:** Banks receive deposits from public for different periods at varying rates of interest. These funds are invested and lent in such a manner that when required, they may be called back. Lending results in gross revenues out of which costs, such as interest on deposits, administrative costs, etc., are met and a reasonable profit is made. A bank's lending policy is not merely profit motivated but has to also keep in mind the socio- economic development of the country. Some of the facilities provided by banks are Short Term Loans, Overdraft, Cash Credits, Advances against goods, Bills Purchased/Discounted.
- (viii) **Financing of Export Trade by Banks:** Exports play an important role in accelerating the economic growth of developing countries like India. Of the several factors influencing export growth, credit is a very important factor which enables exporters in efficiently executing their export orders. The commercial banks provide short-term export finance mainly by way of pre and post-shipment credit. Export finance is granted in Rupees as well as in foreign currency.
- (ix) **Inter Corporate Deposits:** The companies can borrow funds for a short period say 6 months from other companies which have surplus liquidity. The rate of interest on

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 19**

inter corporate deposits varies depending upon the amount involved and time period.

- (x) **Certificate of Deposit (CD):** The certificate of deposit is a document of title similar to a time deposit receipt issued by a bank except that there is no prescribed interest rate on such funds.

The main advantage of CD is that banker is not required to encash the deposit before maturity period and the investor is assured of liquidity because he can sell the CD in secondary market.

- (xi) **Public Deposits:** Public deposits are very important source of short-term and medium term finances particularly due to credit squeeze by the Reserve Bank of India. A company can accept public deposits subject to the stipulations of Reserve Bank of India from time to time maximum up to 35 per cent of its paid up capital and reserves, from the public and shareholders. These deposits may be accepted for a period of six months to three years. Public deposits are unsecured loans; they should not be used for acquiring fixed assets since they are to be repaid within a period of 3 years. These are mainly used to finance working capital requirements.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

**Question 1**

(a) Following information relates to RM Co. Ltd.

	(₹)
Total Assets employed	10,00,000
Direct Cost	5,50,000
Other Operating Cost	90,000

Goods are sold to the customers at 150% of direct costs.

50% of the assets being financed by borrowed capital at an interest cost of 8% per annum.

Tax rate is 30%.

You are required to calculate :

- (i) Net profit margin
- (ii) Return on Assets
- (iii) Asset turnover
- (iv) Return on owners' equity

**(5 Marks)**

(b) CK Ltd. is planning to buy a new machine. Details of which are as follows:

Cost of the Machine at the commencement	₹ 2,50,000
Economic Life of the Machine	8 year
Residual Value	Nil
Annual Production Capacity of the Machine	1,00,000 units
Estimated Selling Price per unit	₹ 6
Estimated Variable Cost per unit	₹ 3

**2 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020**

Estimated Annual Fixed Cost (Excluding depreciation)	₹ 1,00,000
Advertisement Expenses in 1 <sup>st</sup> year in addition of annual fixed cost	₹ 20,000
Maintenance Expenses in 5 <sup>th</sup> year in addition of annual fixed cost	₹ 30,000
Cost of Capital Ignore Tax.	12%

Analyse the above mentioned proposal using the Net Present Value Method and advice.

P.V. factor @ 12% are as under:

Year	1	2	3	4	5	6	7	8
PV Factor	0.893	0.797	0.712	0.636	0.567	0.507	0.452	0.404

**(5 Marks)**

(c) The following figures are extracted from the annual report of RJ Ltd.:

Net Profit	₹ 50 Lakhs
Outstanding 13% preference shares	₹ 200 Lakhs
No. of Equity Shares	6 Lakhs
Return on Investment	25%
Cost of Capital ( $K_e$ )	15%

You are required to compute the approximate dividend pay-out ratio by keeping the share price at ₹ 40 by using Walter's Model.

**(5 Marks)**

(d) TT Ltd. issued 20,000, 10% convertible debenture of ₹ 100 each with a maturity period of 5 years. At maturity the debenture holders will have the option to convert debentures into equity shares of the company in ratio of 1:5 (5 shares for each debenture). The current market price of the equity share is ₹ 20 each and historically the growth rate of the share is 4% per annum. Assuming tax rate is 25%. Compute the cost of 10% convertible debenture using Approximation Method and Internal Rate of Return Method.

PV Factor are as under:

Year	1	2	3	4	5
PV Factor @ 10%	0.909	0.826	0.751	0.683	0.621
PV Factor @ 15%	0.870	0.756	0.658	0.572	0.497

**(5 Marks)**

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

3

## Answer

## (a) Computation of net profit:

Particulars	(₹)
Sales (150% of ₹ 5,50,000)	8,25,000
Direct Costs	5,50,000
Gross profit	2,75,000
Other Operating Costs	90,000
Operating profit (EBIT)	1,85,000
Interest charges (8% of ₹ 5,00,000)	40,000
Profit before taxes (EBT)	1,45,000
Taxes (@ 30%)	43,500
<b>Net profit after taxes (EAT)</b>	<b>1,01,500</b>

$$(i) \text{ Net profit margin (After tax)} = \frac{\text{Profit after taxes}}{\text{Sales}} = \frac{₹ 1,01,500}{₹ 8,25,000} = 0.12303 \text{ or } 12.303\%$$

$$\text{Net profit margin (Before tax)} = \frac{\text{Profit before taxes}}{\text{Sales}} = \frac{₹ 1,45,000}{₹ 8,25,000} = 0.17576 \text{ or } 17.576\%$$

$$(ii) \text{ Return on assets} = \frac{\text{EBIT} (1 - T)}{\text{Total Assets}} = \frac{₹ 1,85,000 (1 - 0.3)}{₹ 10,00,000} = 0.1295 \text{ or } 12.95\%$$

$$(iii) \text{ Asset turnover} = \frac{\text{Sales}}{\text{Assets}} = \frac{₹ 8,25,000}{₹ 10,00,000} = 0.825 \text{ times}$$

$$(iv) \text{ Return on owner's equity} = \frac{\text{Profit after taxes}}{\text{Owners equity}} = \frac{₹ 1,01,500}{50\% \times ₹ 10,00,000} = 0.203 \text{ or } 20.3\%$$

## (b) Calculation of Net Cash flows

$$\text{Contribution} = (₹ 6 - ₹ 3) \times 1,00,000 \text{ units} = ₹ 3,00,000$$

$$\text{Fixed costs (excluding depreciation)} = ₹ 1,00,000$$

Year	Capital (₹)	Contribution (₹)	Fixed costs (₹)	Advertisement/Maintenance expenses (₹)	Net cash flow (₹)
0	(2,50,000)				(2,50,000)
1		3,00,000	(1,00,000)	(20,000)	1,80,000
2		3,00,000	(1,00,000)		2,00,000
3		3,00,000	(1,00,000)		2,00,000



4

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020

4		3,00,000	(1,00,000)		2,00,000
5		3,00,000	(1,00,000)	(30,000)	1,70,000
6		3,00,000	(1,00,000)		2,00,000
7		3,00,000	(1,00,000)		2,00,000
8		3,00,000	(1,00,000)		2,00,000

## Calculation of Net Present Value

Year	Net cash flow (₹)	12% discount factor	Present value (₹)
0	(2,50,000)	1.000	(2,50,000)
1	1,80,000	0.893	1,60,740
2	2,00,000	0.797	1,59,400
3	2,00,000	0.712	1,42,400
4	2,00,000	0.636	1,27,200
5	1,70,000	0.567	96,390
6	2,00,000	0.507	1,01,400
7	2,00,000	0.452	90,400
8	2,00,000	0.404	80,800
			7,08,730

**Advise:** CK Ltd. should buy the new machine, as the net present value of the proposal is positive i.e ₹ 7,08,730.

(c)

Particulars	₹ in lakhs
Net Profit	50
Less: Preference dividend (₹ 200,00,000 x 13%)	26
Earning for equity shareholders	24
Therefore, earning per share = ₹ 24 lakh / 6 lakh shares = ₹ 4	

Let, the dividend per share be D to get share price of ₹ 40

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

$$₹ 40 = \frac{D + \frac{0.25}{0.15}(₹ 4 - D)}{0.15}$$

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

5

$$6 = \frac{0.15D + 1 - 0.25D}{0.15}$$

$$0.1D = 1 - 0.9$$

$$D = ₹ 1$$

$$D/P \text{ ratio} = \frac{DPS}{EPS} \times 100 = \frac{₹ 1}{₹ 4} \times 100 = 25\%$$

So, the required dividend pay-out ratio will be = 25%

**(d) Determination of Redemption value:**

Higher of-

(i) The cash value of debentures = ₹100

(ii) Value of equity shares = 5 shares × ₹ 20 (1+0.04)<sup>5</sup>  
= 5 shares × ₹ 24.333  
= ₹121.665 rounded to ₹121.67

₹121.67 will be taken as redemption value as it is higher than the cash option and attractive to the investors.

**Calculation of Cost of 10% Convertible debenture**

**(i) Using Approximation Method:**

$$K_d = \frac{I(1-t) + \frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}} = \frac{10(1-0.25) + \frac{(121.67-100)}{5}}{\frac{(121.67+100)}{2}} = \frac{7.5 + 4.334}{110.835} = 10.676\%$$

**(ii) Using Internal Rate of Return Method**

Year	Cash flows (₹)	Discount factor @ 10%	Present Value	Discount factor @ 15%	Present Value (₹)
0	100	1.000	(100.00)	1.000	(100.00)
1 to 5	7.5	3.790	28.425	3.353	25.148
5	121.67	0.621	75.557	0.497	60.470
NPV			<b>+3.982</b>		<b>-14.382</b>

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H} (H - L) = 10\% + \frac{3.982}{3.982 - (-14.382)} (15\% - 10\%) = 0.11084 \text{ or } 11.084\% \text{ (approx.)}$$

## 6 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020

## Question 2

PK Ltd., a manufacturing company, provides the following information:

	(₹)
Sales	1,08,00,000
Raw Material Consumed	27,00,000
Labour Paid	21,60,000
Manufacturing Overhead (Including Depreciation for the year ₹ 3,60,000)	32,40,000
Administrative & Selling Overhead	10,80,000

Additional Information:

- Receivables are allowed 3 months' credit.
- Raw Material Supplier extends 3 months' credit.
- Lag in payment of Labour is 1 month.
- Manufacturing Overhead are paid one month in arrear.
- Administrative & Selling Overhead is paid 1 month advance.
- Inventory holding period of Raw Material & Finished Goods are of 3 months.
- Work-in-Progress is Nil.
- PK Ltd. sells goods at Cost plus 33⅓%.
- Cash Balance ₹ 3,00,000.
- Safety Margin 10%.

You are required to compute the Working Capital Requirements of PK Ltd. on Cash Cost basis.

(10 Marks)

## Answer

## Statement showing the requirements of Working Capital (Cash Cost basis)

Particulars	(₹)	(₹)
<b>A. Current Assets:</b>		
Inventory:		
Stock of Raw material (₹ 27,00,000 × 3/12)	6,75,000	
Stock of Finished goods (₹ 77,40,000 × 3/12)	19,35,000	
Receivables (₹ 88,20,000 × 3/12)	22,05,000	
Administrative and Selling Overhead (₹ 10,80,000 × 1/12)	90,000	
Cash in Hand	3,00,000	

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

<b>Gross Working Capital</b>	52,05,000	<b>52,05,000</b>
<b>B. Current Liabilities:</b>		
Payables for Raw materials* ( $\text{₹ } 27,00,000 \times 3/12$ )	6,75,000	
Outstanding Expenses:		
Wages Expenses ( $\text{₹ } 21,60,000 \times 1/12$ )	1,80,000	
Manufacturing Overhead ( $\text{₹ } 28,80,000 \times 1/12$ )	2,40,000	
Total Current Liabilities	10,95,000	10,95,000
<b>Net Working Capital (A-B)</b>		<b>41,10,000</b>
Add: Safety margin @ 10%		4,11,000
<b>Total Working Capital requirements</b>		<b>45,21,000</b>

**Working Notes:**

(i)

<b>(A) Computation of Annual Cash Cost of Production</b>	<b>(₹)</b>
Raw Material consumed	27,00,000
Wages (Labour paid)	21,60,000
Manufacturing overhead ( $\text{₹ } 32,40,000 - \text{₹ } 3,60,000$ )	28,80,000
Total cash cost of production	77,40,000
<b>(B) Computation of Annual Cash Cost of Sales</b>	<b>(₹)</b>
Cash cost of production as in (A) above	77,40,000
Administrative & Selling overhead	10,80,000
Total cash cost of sales	88,20,000

\*Purchase of Raw material can also be calculated by adjusting Closing Stock and Opening Stock (assumed nil). In that case Purchase will be Raw material consumed +Closing Stock-Opening Stock i.e  $\text{₹ } 27,00,000 + \text{₹ } 6,75,000 - \text{Nil} = \text{₹ } 33,75,000$ . Accordingly, Total Working Capital requirements ( $\text{₹ } 43,35,375$ ) can be calculated.

**Question 3**

J Ltd. is considering three financing plans. The-key information is as follows:

- (a) Total investment to be raised  $\text{₹ } 4,00,000$ .  
 (b) Plans showing the Financing Proportion:

Plans	Equity	Debt	Preference Shares
X	100%	-	-
Y	50%	50%	-
Z	50%	-	50%

**8 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020**

- (c) Cost of Debt 10%  
Cost of preference shares 10%
- (d) Tax Rate 50%
- (e) Equity shares of the face value of ₹10 each will be issued at a premium of ₹10 per share.
- (f) Expected EBIT is ₹1,00,000.

You are required to compute the following for each plan :

- (i) Earnings per share (EPS)  
(ii) Financial break even point  
(iii) Indifference Point between the plans and indicate if any of the plans dominate. (10 Marks)

**Answer****(i) Computation of Earnings per Share (EPS)**

Plans	X (₹)	Y (₹)	Z (₹)
Earnings before interest & tax (EBIT)	1,00,000	1,00,000	1,00,000
Less: Interest charges (10% of ₹ 2,00,000)	--	(20,000)	--
Earnings before tax (EBT)	1,00,000	80,000	1,00,000
Less: Tax @ 50%	(50,000)	(40,000)	(50,000)
Earnings after tax (EAT)	50,000	40,000	50,000
Less: Preference share dividend (10% of ₹2,00,000)	--	--	(20,000)
Earnings available for equity shareholders (A)	50,000	40,000	30,000
No. of equity shares (B) Plan X = ₹ 4,00,000 / ₹ 20 Plan Y = ₹ 2,00,000 / ₹ 20 Plan Z = ₹ 2,00,000 / ₹ 20	20,000	10,000	10,000
<b>E.P.S (A ÷ B)</b>	<b>2.5</b>	<b>4</b>	<b>3</b>

**(ii) Computation of Financial Break-even Points**

Financial Break-even point = Interest + Preference dividend / (1 - tax rate)

Proposal 'X' = 0

Proposal 'Y' = ₹ 20,000 (Interest charges)

Proposal 'Z' = Earnings required for payment of preference share dividend  
= ₹ 20,000 ÷ (1 - 0.5 Tax Rate) = ₹ 40,000

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

9

## (iii) Computation of Indifference Point between the plans

Combination of Proposals

(a) Indifference point where EBIT of proposal "X" and proposal 'Y' is equal

$$\frac{(\text{EBIT})(1-0.5)}{20,000 \text{ shares}} = \frac{(\text{EBIT} - ₹ 20,000)(1-0.5)}{10,000 \text{ shares}}$$

$$0.5 \text{ EBIT} = \text{EBIT} - ₹ 20,000$$

$$\text{EBIT} = ₹ 40,000$$

(b) Indifference point where EBIT of proposal 'X' and proposal 'Z' is equal:

$$\frac{(\text{EBIT})(1-0.5)}{20,000 \text{ shares}} = \frac{\text{EBIT}(1-0.5) - ₹ 20,000}{10,000 \text{ shares}}$$

$$0.5 \text{ EBIT} = \text{EBIT} - ₹ 40,000$$

$$0.5 \text{ EBIT} = ₹ 40,000$$

$$\text{EBIT} = \frac{₹ 40,000}{0.5} = ₹ 80,000$$

(c) Indifference point where EBIT of proposal 'Y' and proposal 'Z' are equal

$$\frac{(\text{EBIT} - ₹ 20,000)(1-0.5)}{10,000 \text{ shares}} = \frac{\text{EBIT}(1-0.5) - ₹ 20,000}{10,000 \text{ shares}}$$

$$0.5 \text{ EBIT} - ₹ 10,000 = 0.5 \text{ EBIT} - ₹ 20,000$$

There is no indifference point between proposal 'Y' and proposal 'Z'

**Analysis:** It can be seen that financial proposal 'Y' dominates proposal 'Z', since the financial break-even-point of the former is only ₹ 20,000 but in case of latter, it is ₹ 40,000. EPS of plan 'Y' is also higher.

**Question 4**

A Ltd. is considering two mutually exclusive projects X and Y.

You have been given below the Net Cash flow probability distribution of each project:

Project-X		Project-Y	
Net Cash Flow (₹)	Probability	Net Cash Flow (₹)	Probability
50,000	0.30	1,30,000	0.20
60,000	0.30	1,10,000	0.30
70,000	0.40	90,000	0.50

## 10 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020

- (i) Compute the following :
- Expected Net Cash Flow of each project.
  - Variance of each project.
  - Standard Deviation of each project.
  - Coefficient of Variation of each project.
- (ii) Identify which project do you recommend ? Give reason. (10 Marks)

**Answer**

- (i) (a) Calculation of Expected Net Cash Flow (ENCF) of Project X and Project Y

Project X			Project Y		
Net Cash Flow (₹)	Probability	Expected Net Cash Flow (₹)	Net Cash Flow (₹)	Probability	Expected Net Cash Flow (₹)
50,000	0.30	15,000	1,30,000	0.20	26,000
60,000	0.30	18,000	1,10,000	0.30	33,000
70,000	0.40	28,000	90,000	0.50	45,000
<b>ENCF</b>		<b>61,000</b>			<b>1,04,000</b>

- (b) Variance of Projects

**Project X**

$$\begin{aligned} \text{Variance } (\sigma^2) &= (50,000 - 61,000)^2 \times (0.3) + (60,000 - 61,000)^2 \times (0.3) + (70,000 - 61,000)^2 \times (0.4) \\ &= 3,63,00,000 + 3,00,000 + 3,24,00,000 = \mathbf{6,90,00,000} \end{aligned}$$

**Project Y**

$$\begin{aligned} \text{Variance } (\sigma^2) &= (1,30,000 - 1,04,000)^2 \times (0.2) + (1,10,000 - 1,04,000)^2 \times (0.3) + (90,000 - 1,04,000)^2 \times (0.5) \\ &= 13,52,00,000 + 1,08,00,000 + 9,80,00,000 = \mathbf{24,40,00,000} \end{aligned}$$

- (c) Standard Deviation of Projects

**Project X**

$$\text{Standard Deviation } (\sigma) = \sqrt{\text{Variance}(\sigma^2)} = \sqrt{6,90,00,000} = \mathbf{8,306.624}$$

**Project Y**

$$\text{Standard Deviation } (\sigma) = \sqrt{\text{Variance}(\sigma^2)} = \sqrt{24,40,00,000} = \mathbf{15,620.499}$$

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 11

## (d) Coefficient of Variation of Projects

Projects	Coefficient of variation ( $\frac{\text{Standard Deviation}}{\text{Expected Net Cash Flow}}$ )	Risk	Expected Net Cash Flow
X	$\frac{8,306.24}{61,000} = 0.136$ or 13.60%	Less	Less
Y	$\frac{15,620.499}{1,04,000} = 0.150$ or 15.00%	More	More

- (ii) In project X risk per rupee of cash flow is 0.136 (approx.) while in project Y it is 0.15 (approx.). Therefore, Project X is better than Project Y.

**Question 5**

The following data is available for Stone Ltd. :

	(₹)
Sales	5,00,000
(-) Variable cost @ 40%	<u>2,00,000</u>
Contribution	3,00,000
(-) Fixed cost	<u>2,00,000</u>
EBIT	1,00,000
(-) Interest	<u>25,000</u>
Profit before tax	<u>75,000</u>

Using the concept of leverage, find out

- The percentage change in taxable income if EBIT increases by 10%.
- The percentage change in EBIT if sales increases by 10%.
- The percentage change in taxable income if sales increases by 10%.

Also verify the results in each of the above case.

**(10 Marks)**

**Answer**

$$(i) \text{ Degree of Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{₹ } 1,00,000}{\text{₹ } 75,000} = 1.333 \text{ times}$$

So, If EBIT increases by 10% then Taxable Income (EBT) will be increased by  $1.333 \times 10 = 13.33\%$  (approx.)



12

## INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020

**Verification**

Particulars	Amount (₹)
New EBIT after 10% increase (₹ 1,00,000 + 10%)	1,10,000
Less: Interest	25,000
Earnings before Tax after change (EBT)	85,000

Increase in Earnings before Tax = ₹ 85,000 - ₹ 75,000 = ₹ 10,000

So, percentage change in Taxable Income (EBT) =  $\frac{₹ 10,000}{₹ 75,000} \times 100 = 13.333\%$ , hence verified

(ii) Degree of Operating Leverage =  $\frac{\text{Contribution}}{\text{EBIT}} = \frac{₹ 3,00,000}{₹ 1,00,000} = 3 \text{ times}$

So, if sale is increased by 10% then EBIT will be increased by  $3 \times 10 = 30\%$

**Verification**

Particulars	Amount (₹)
New Sales after 10% increase (₹ 5,00,000 + 10%)	5,50,000
Less: Variable cost (40% of ₹ 5,50,000)	2,20,000
Contribution	3,30,000
Less: Fixed costs	2,00,000
Earnings before interest and tax after change (EBIT)	1,30,000

Increase in Earnings before interest and tax (EBIT) = ₹ 1,30,000 - ₹ 1,00,000 = ₹ 30,000

So, percentage change in EBIT =  $\frac{₹ 30,000}{₹ 1,00,000} \times 100 = 30\%$ , hence verified.

(iii) Degree of Combined Leverage =  $\frac{\text{Contribution}}{\text{EBT}} = \frac{₹ 3,00,000}{₹ 75,000} = 4 \text{ times}$

So, if sale is increased by 10% then Taxable Income (EBT) will be increased by  $4 \times 10 = 40\%$

**Verification**

Particulars	Amount (₹)
New Sales after 10% increase (₹ 5,00,000 + 10%)	5,50,000
Less: Variable cost (40% of ₹ 5,50,000)	2,20,000
Contribution	3,30,000

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 13

Less: Fixed costs	2,00,000
Earnings before interest and tax (EBIT)	1,30,000
Less: Interest	25,000
Earnings before tax after change (EBT)	1,05,000

Increase in Earnings before tax (EBT) = ₹ 1,05,000 - ₹ 75,000 = ₹ 30,000

So, percentage change in Taxable Income (EBT) =  $\frac{₹ 30,000}{₹ 75,000} \times 100 = 40\%$ , hence verified

**Question 6**

- (a) List out the role of Chief Financial Officer in today's World. (4 Marks)
- (b) Explain in brief the methods of Venture Capital Financing. (4 Marks)
- (c) Distinguish between Unsystematic Risk & Systematic Risk. (2 Marks)

OR

What is Risk Adjusted Discount Rate ? (2 Marks)

**Answer**

- (a) **Role of Chief Financial Officer (CFO) in Today's World:** Today, the role of chief financial officer, or CFO, is no longer confined to accounting, financial reporting and risk management. It's about being a strategic business partner of the chief executive officer, or CEO. Some of the role of a CFO in today's world are as follows-

- Budgeting
- Forecasting
- Managing M&As
- Profitability analysis (for example, by customer or product)
- Pricing analysis
- Decisions about outsourcing
- Overseeing the IT function.
- Overseeing the HR function.
- Strategic planning (sometimes overseeing this function).
- Regulatory compliance.
- Risk management

## 14 INTERMEDIATE (NEW) EXAMINATION: NOVEMBER, 2020

- (b) Methods of Venture Capital Financing: Some common methods of venture capital financing are as follows-
- (i) **Equity financing:** The venture capital undertakings generally require funds for a longer period but may not be able to provide returns to the investors during the initial stages. Therefore, the venture capital finance is generally provided by way of equity share capital. The equity contribution of venture capital firm does not exceed 49% of the total equity capital of venture capital undertakings so that the effective control and ownership remains with the entrepreneur.
  - (ii) **Conditional loan:** A conditional loan is repayable in the form of a royalty after the venture is able to generate sales. No interest is paid on such loans. In India venture capital financiers charge royalty ranging between 2 and 15 per cent; actual rate depends on other factors of the venture such as gestation period, cash flow patterns, risk and other factors of the enterprise. Some Venture capital financiers give a choice to the enterprise of paying a high rate of interest (which could be well above 20 per cent) instead of royalty on sales once it becomes commercially sound.
  - (iii) **Income note:** It is a hybrid security which combines the features of both conventional loan and conditional loan. The entrepreneur has to pay both interest and royalty on sales but at substantially low rates. IDBI's VCF provides funding equal to 80 – 87.50% of the projects cost for commercial application of indigenous technology.
  - (iv) **Participating debenture:** Such security carries charges in three phases — in the start-up phase no interest is charged, next stage a low rate of interest is charged up to a particular level of operation, after that, a high rate of interest is required to be paid.
- (c) (i) **Unsystematic Risk:** This is also called company specific risk as the risk is related with the company's performance. This type of risk can be reduced or eliminated by diversification of the securities portfolio. This is also known as diversifiable risk.
- (ii) **Systematic Risk:** It is the macro-economic or market specific risk under which a company operates. This type of risk cannot be eliminated by the diversification hence, it is non-diversifiable. The examples are inflation, Government policy, interest rate etc.

**OR**

**Risk Adjusted Discount Rate:** A risk adjusted discount rate is a sum of risk-free rate and risk premium. The Risk Premium depends on the perception of risk by the investor of a particular investment and risk aversion of the Investor.

So, Risk adjusted discount rate = Risk free rate + Risk premium.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

**Question 1**

(a) From the following information, complete the Balance Sheet given below:

- (i) Equity Share Capital : ₹ 2,00,000  
 (ii) Total debt to owner's equity : 0.75  
 (iii) Total Assets turnover : 2 times  
 (iv) Inventory turnover : 8 times  
 (v) Fixed Assets to owner's equity : 0.60  
 (vi) Current debt to total debt : 0.40

Balance Sheet of XYZ Co. as on March 31, 2020

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity Shares Capital	2,00,000	Fixed Assets	?
Long term Debt	?	Current Assets:	
Current Debt	?	Inventory	?
		Cash	?

(5 Marks)

(b) The following information is taken from ABC Ltd.

- Net Profit for the year : ₹ 30,00,000  
 12% Preference share capital : ₹ 1,00,00,000  
 Equity share capital (Share of ₹ 10 each) : ₹ 60,00,000  
 Internal rate of return on investment : 22%  
 Cost of Equity Capital : 18%  
 Retention Ratio : 75%

**2 INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021**

Calculate the market price of the share using:

- (1) Gordon's Model
- (2) Walter's Model

**(5 Marks)**

(c) A project requires an initial outlay of ₹ 3,00,000.

The company uses certainty equivalent method approach to evaluate the project. The risk free rate is 7%.

Following information is available:

Year	CFAT (Cash Flow After Tax) ₹	CE (Certainty Equivalent Coefficient)
1.	1,00,000	0.90
2.	1,50,000	0.80
3.	1,15,000	0.60
4.	1,00,000	0.55
5.	50,000	0.50

PV Factor at 7%

Year	1	2	3	4	5
PV Factor	0.935	0.873	0.816	0.763	0.713

Evaluate the above. Is investment in the project beneficial?

**(5 Marks)**

(d) The following information is provided by MNP Ltd. for the year ending 31<sup>st</sup> March, 2020:

Raw Material Storage period	45 days
Work-in-Progress conversion period	20 days
Finished Goods storage period	25 days
Debt Collection period	30 days
Creditors payment period	60 days
Annual Operating Cost	₹ 25,00,000

(Including Depreciation of ₹ 2,50,000)

Assume 360 days in a year.

You are required to calculate:

- (i) Operating Cycle period
- (ii) Number of Operating Cycle in a year.
- (iii) Amount of working capital required for the company on a cost basis.

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 3**

- (iv) *The company is a market leader in its product and it has no competitor in the market. Based on a market survey it is planning to discontinue sales on credit and deliver products based on pre-payments in order to reduce its working capital requirement substantially. You are required to compute the reduction in working capital requirement in such a scenario. (5 Marks)*

**Answer****(a) Balance Sheet of XYZ Co. as on March 31, 2020**

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity Share Capital	2,00,000	Fixed Assets	1,20,000
Long-term Debt	90,000	<b>Current Assets:</b>	
Current Debt	60,000	Inventory	87,500
		Cash (balancing figure)	1,42,500
	<b>3,50,000</b>		<b>3,50,000</b>

**Working Notes**

- Total Debt =  $0.75 \times \text{Equity Share Capital} = 0.75 \times ₹ 2,00,000 = ₹ 1,50,000$   
Further, Current Debt to Total Debt = 0.40.  
So, Current Debt =  $0.40 \times ₹ 1,50,000 = ₹ 60,000$   
Long term Debt =  $₹ 1,50,000 - ₹ 60,000 = ₹ 90,000$
- Fixed Assets =  $0.60 \times \text{Equity Share Capital} = 0.60 \times ₹ 2,00,000 = ₹ 1,20,000$
- Total Assets to Turnover = 2 times; Inventory Turnover = 8 times  
Hence, Inventory / Total Assets =  $2/8 = 1/4$   
Further, Total Assets =  $₹ 2,00,000 + ₹ 1,50,000 = ₹ 3,50,000$   
Therefore, Inventory =  $₹ 3,50,000/4 = ₹ 87,500$   
Cash in Hand = Total Assets – Fixed Assets – Inventory  
 $= ₹ 3,50,000 - ₹ 1,20,000 - ₹ 87,500 = ₹ 1,42,500$

**(b) Market price per share by-****(1) Gordon's Model:**

$$\text{Present market price per share } (P_0)^* = \frac{D_0(1+g)}{K_e - g}$$

**OR**

4

## INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021

$$\text{Present market price per share (P}_0\text{)} = \frac{D_1}{K_e - g}$$

Where,

P<sub>0</sub> = Present market price per share.

g = Growth rate (br) = 0.75 X 0.22 = 0.165

b = Retention ratio (i.e., % of earnings retained)

r = Internal rate of return (IRR)

D<sub>0</sub> = E x (1 - b) = 3 X (1 - 0.75) = 0.75

E = Earnings per share

$$P_0 = \frac{0.75 (1 + 0.165)}{0.18 - 0.165} = \frac{0.874}{0.015} = ₹ 58.27 \text{ approx.}$$

\*Alternatively, P<sub>0</sub> can be calculated as  $\frac{E(1 - b)}{k - br} = ₹ 50.$

## (2) Walter's Model:

$$P = \frac{D + \frac{r}{K_e} (E - D)}{K_e}$$

$$= \frac{0.75 + \frac{0.22}{0.18} (3 - 0.75)}{0.18} = ₹ 19.44$$

## Workings:

## 1. Calculation of Earnings per share

Particulars	Amount (₹)
Net Profit for the year	30,00,000
Less: Preference dividend (12% of ₹ 1,00,00,000)	(12,00,000)
Earnings for equity shareholders	18,00,000
No. of equity shares (₹ 60,00,000/₹10)	6,00,000
Therefore, Earnings per share ( $\frac{\text{Earning for equity shareholders}}{\text{No. of equity shares}}$ )	₹ 18,00,000/6,00,000 = ₹ 3.00

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

5

## 2. Calculation of Dividend per share

Particulars	
Earnings per share	₹ 3
Retention Ratio (b)	75%
Dividend pay-out ratio (1-b)	25%
Dividend per share (Earnings per share x Dividend pay-out ratio)	₹ 3 x 0.25 = ₹ 0.75

## (c) Statement Showing the Net Present Value of Project

Year end	CFAT (₹) (a)	C.E. (b)	Adjusted Cash flow (₹) (c) = (a) × (b)	Present value factor @ 7% (d)	Total Present value (₹) (e) = (c) × (d)
1	1,00,000	0.90	90,000	0.935	84,150
2	1,50,000	0.80	1,20,000	0.873	1,04,760
3	1,15,000	0.60	69,000	0.816	56,304
4	1,00,000	0.55	55,000	0.763	41,965
5	50,000	0.50	25,000	0.713	17,825
PV of Cash Inflow					3,05,004
Less: Initial Investment					(3,00,000)
<b>Net Present Value</b>					<b>5,004</b>

Since the NPV of the project is positive, it is beneficial to invest in the project.

## (d) (i) Calculation of Operating Cycle Period:

$$\begin{aligned}\text{Operating Cycle Period} &= R + W + F + D - C \\ &= 45 + 20 + 25 + 30 - 60 = 60 \text{ days}\end{aligned}$$

## (ii) Number of Operating Cycle in a Year

$$= \frac{360}{\text{Operating cycle period}} = \frac{360}{60} = 6$$

## (iii) Amount of Working Capital Required

$$\begin{aligned}&= \frac{\text{Annual operating cost}}{\text{Number of operating cycl}} = \frac{\text{₹ } 25,00,000 - \text{₹ } 2,50,000}{6} \\ &= \frac{\text{₹ } 22,50,000}{6} = \text{₹ } 3,75,000\end{aligned}$$



6

## INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021

**(iv) Reduction in Working Capital**

$$\begin{aligned}\text{Operating Cycle Period} &= R + W + F - C \\ &= 45 + 20 + 25 - 60 = \mathbf{30 \text{ days}}\end{aligned}$$

$$\text{Amount of Working Capital Required} = \frac{\text{₹ } 22,50,000}{360} \times 30 = \text{₹ } 1,87,500$$

$$\text{Reduction in Working Capital} = \text{₹ } 3,75,000 - \text{₹ } 1,87,500 = \mathbf{\text{₹ } 1,87,500}$$

**Note:** If we use Total Cost basis, then amount of Working Capital required will be ₹ 4,16,666.67 (approx.) and Reduction in Working Capital will be ₹ 2,08,333.33 (approx.)

**Question 2**

The information related to XYZ Company Ltd. for the year ended 31<sup>st</sup> March, 2020 are as follows:

Equity Share Capital of ₹ 100 each	₹ 50 Lakhs
12% Bonds of ₹ 1000 each	₹ 30 Lakhs
Sales	₹ 84 Lakhs
Fixed Cost (Excluding Interest)	₹ 7.5 Lakhs
Financial Leverage	1.39
Profit-Volume Ratio	25%
Market Price per Equity Share	₹ 200
Income Tax Rate Applicable	30%

You are required to compute the following:

- (i) Operating Leverage
- (ii) Combined Leverage
- (iii) Earning per share
- (iv) Earning Yield

**(10 Marks)****Answer****Workings:**

$$1. \text{ Profit Volume Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{So, } 25 = \frac{\text{Contribution}}{\text{₹ } 84,00,000} \times 100$$

$$\text{Contribution} = \frac{\text{₹ } 84,00,000 \times 25}{100} = \text{₹ } 21,00,000$$

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

$$2. \text{ Financial leverage} = \frac{\text{EBIT}}{\text{EBT}}$$

$$\text{Or, } 1.39 = \frac{\text{₹ } 13,50,000 \text{ (as calculated above)}}{\text{EBT}}$$

$$\text{EBT} = \text{₹ } 9,71,223$$

## 3. Income Statement

Particulars	(₹)
Sales	84,00,000
Less: Variable Cost (Sales - Contribution)	(63,00,000)
Contribution	21,00,000
Less: Fixed Cost	(7,50,000)
EBIT	13,50,000
Less: Interest (EBIT - EBT)	(3,78,777)
EBT	9,71,223
Less: Tax @ 30%	(2,91,367)
Profit after Tax (PAT)	<b>6,79,856</b>

$$(i) \text{ Operating Leverage} = \frac{\text{Contribution}}{\text{Earnings before interest and tax (EBIT)}}$$

$$= \frac{\text{₹ } 21,00,000}{\text{₹ } 13,50,000} = 1.556 \text{ (approx.)}$$

$$(ii) \text{ Combined Leverage} = \text{Operating Leverage} \times \text{Financial Leverage}$$

$$= 1.556 \times 1.39 = 2.163 \text{ (approx.)}$$

$$\text{Or, } \frac{\text{Contribution}}{\text{EBT}} = \frac{\text{₹ } 21,00,000}{\text{₹ } 9,71,223} = 2.162 \text{ (approx.)}$$

## (iii) Earnings per Share (EPS)

$$\text{EPS} = \frac{\text{PAT}}{\text{No. of shares}} = \frac{\text{₹ } 6,79,856}{50,000} = \text{₹ } 13.597$$

## (iv) Earning Yield

$$= \frac{\text{EPS}}{\text{Market Price}} \times 100 = \frac{\text{₹ } 13.597}{\text{₹ } 200} \times 100 = 6.80\% \text{ (approx.)}$$

8

**INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021**

**Note:** The question has been solved considering Financial Leverage given in the question as the base for calculating total interest expense including the interest of 12% Bonds of ₹ 30 Lakhs. The question can also be solved in other alternative ways.

**Question 3**

*A Limited and B Limited are identical except for capital structures. A Ltd. has 60 per cent debt and 40 per cent equity, whereas B Ltd. has 20 per cent debt and 80 per cent equity. (All percentages are in market-value terms.) The borrowing rate for both companies is 8 per cent in a no-tax world, and capital markets are assumed to be perfect.*

- (a) (i) *If X, owns 3 per cent of the equity shares of A Ltd., determine his return if the Company has net operating income of ₹ 4,50,000 and the overall capitalization rate of the company, ( $K_o$ ) is 18 per cent.*
- (ii) *Calculate the implied required rate of return on equity of A Ltd.*
- (b) *B Ltd. has the same net operating income as A Ltd.*
  - (i) *Calculate the implied required equity return of B Ltd.*
  - (ii) *Analyse why does it differ from that of A Ltd.*

**(10 Marks)**

**Answer**

(a) Value of A Ltd. =  $\frac{NOI}{K_o} = \frac{₹ 4,50,000}{18\%} = ₹ 25,00,000$

**(i) Return on Shares of X on A Ltd.**

Particulars	Amount (₹)
Value of the company	25,00,000
Market value of debt (60% x ₹ 25,00,000)	15,00,000
Market value of shares (40% x ₹ 25,00,000)	<b>10,00,000</b>
Particulars	Amount (₹)
Net operating income	4,50,000
Interest on debt (8% x ₹ 15,00,000)	1,20,000
Earnings available to shareholders	<b>3,30,000</b>
Return on 3% shares (3% x ₹ 3,30,000)	<b>9,900</b>

(ii) Implied required rate of return on equity of A Ltd. =  $\frac{₹ 3,30,000}{₹ 10,00,000} = 33\%$

**(b) (i) Calculation of Implied rate of return of B Ltd.**

Particulars	Amount (₹)
Total value of company	25,00,000

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

9

Market value of debt (20% × ₹ 25,00,000)	5,00,000
Market value of equity (80% × ₹ 25,00,000)	20,00,000
<b>Particulars</b>	<b>Amount (₹)</b>
Net operating income	4,50,000
Interest on debt (8% × ₹ 5,00,000)	40,000
Earnings available to shareholders	4,10,000

$$\text{Implied required rate of return on equity} = \frac{\text{₹ } 4,10,000}{\text{₹ } 20,00,000} = 20.5\%$$

- (ii) Implied required rate of return on equity of B Ltd. is lower than that of A Ltd. because B Ltd. uses less debt in its capital structure. As the equity capitalisation is a linear function of the debt-to-equity ratio when we use the net operating income approach, the decline in required equity return offsets exactly the disadvantage of not employing so much in the way of “cheaper” debt funds.

**Question 4**

The Capital structure of PQR Ltd. is as follows:

	₹
10% Debenture	3,00,000
12% Preference Shares	2,50,000
Equity Share (face value ₹ 10 per share)	5,00,000
	10,50,000

Additional Information:

- (i) ₹ 100 per debenture redeemable at par has 2% flotation cost & 10 years of maturity. The market price per debenture is ₹ 110.
- (ii) ₹ 100 per preference share redeemable at par has 3% flotation cost & 10 years of maturity. The market price per preference share is ₹ 108.
- (iii) Equity share has ₹ 4 flotation cost and market price per share of ₹ 25. The next year expected dividend is ₹ 2 per share with annual growth of 5%. The firm has a practice of paying all earnings in the form of dividends.
- (iv) Corporate Income Tax rate is 30%.

Required:

Calculate Weighted Average Cost of Capital (WACC) using market value weights. (10 Marks)

10 INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021

**Answer**

**Workings:**

$$1. \text{ Cost of Equity } (K_e) = \frac{D_1}{P_0 - F} + g = \frac{\text{₹ } 2}{\text{₹ } 25 - \text{₹ } 4} + 0.05 = 0.145 \text{ (approx.)}$$

$$2. \text{ Cost of Debt } (K_d) = \frac{I(1-t) + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

$$= \frac{10(1-0.3) + \frac{(100-98)}{10}}{\frac{(100+98)}{2}} = \frac{7+0.2}{99} = 0.073 \text{ (approx.)}$$

$$3. \text{ Cost of Preference Shares } (K_p) = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

$$= \frac{12 + \frac{(100-97)}{10}}{\frac{(100+97)}{2}} = \frac{12+0.3}{98.5} = 0.125 \text{ (approx.)}$$

**Calculation of WACC using market value weights**

Source of capital	Market Value	Weights	After tax cost of capital	WACC (K <sub>o</sub> )
	(₹)	(a)	(b)	(c) = (a) × (b)
10% Debentures (₹ 110 × 3,000)	3,30,000	0.178	0.073	0.013
12% Preference shares (₹ 108 × 2,500)	2,70,000	0.146	0.125	0.018
Equity shares (₹ 25 × 50,000)	12,50,000	0.676	0.145	0.098
	18,50,000	1.00		<b>0.129</b>

WACC (K<sub>o</sub>) = **0.129 or 12.9%** (approx.)

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 11

**Question 5**

A company wants to buy a machine, and two different models namely A and B are available. Following further particulars are available:

Particulars	Machine-A	Machine-B
Original Cost (₹)	8,00,000	6,00,000
Estimated Life in years	4	4
Salvage Value (₹)	0	0

The company provides depreciation under Straight Line Method. Income tax rate applicable is 30%.

The present value of ₹ 1 at 12% discounting factor and net profit before depreciation and tax are as under:

Year	Net Profit Before Depreciation and tax		PV Factor
	Machine-A ₹	Machine-B ₹	
1.	2,30,000	1,75,000	0.893
2.	2,40,000	2,60,000	0.797
3.	2,20,000	3,20,000	0.712
4.	5,60,000	1,50,000	0.636

Calculate:

1. NPV (Net Present Value)
2. Discounted pay-back period
3. PI (Profitability Index)

Suggest: Purchase of which machine is more beneficial under Discounted pay-back period method, NPV method and PI method. **(10 Marks)**

**Answer**

**Workings:**

(i) **Calculation of Annual Depreciation**

$$\text{Depreciation on Machine - A} = \frac{\text{₹ } 8,00,000}{4} = \text{₹ } 2,00,000$$

$$\text{Depreciation on Machine - B} = \frac{\text{₹ } 6,00,000}{4} = \text{₹ } 1,50,000$$

12

## INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021

## (ii) Calculation of Annual Cash Inflows

Particulars	Machine-A (₹)			
	1	2	3	4
Net Profit before Depreciation and Tax	2,30,000	2,40,000	2,20,000	5,60,000
Less: Depreciation	2,00,000	2,00,000	2,00,000	2,00,000
Profit before Tax	30,000	40,000	20,000	3,60,000
Less: Tax @ 30%	9,000	12,000	6,000	1,08,000
Profit after Tax	21,000	28,000	14,000	2,52,000
Add: Depreciation	2,00,000	2,00,000	2,00,000	2,00,000
<b>Annual Cash Inflows</b>	<b>2,21,000</b>	<b>2,28,000</b>	<b>2,14,000</b>	<b>4,52,000</b>

Particulars	Machine-B (₹)			
	1	2	3	4
Net Profit before Depreciation and Tax	1,75,000	2,60,000	3,20,000	1,50,000
Less: Depreciation	1,50,000	1,50,000	1,50,000	1,50,000
Profit before Tax	25,000	1,10,000	1,70,000	0
Less: Tax @ 30%	7,500	33,000	51,000	0
Profit after Tax	17,500	77,000	1,19,000	0
Add: Depreciation	1,50,000	1,50,000	1,50,000	1,50,000
<b>Annual Cash Inflows</b>	<b>1,67,500</b>	<b>2,27,000</b>	<b>2,69,000</b>	<b>1,50,000</b>

## (iii) Calculation of PV of Cash Flows

Year	Machine - A				Machine - B		
	PV of Re 1 @ 12%	Cash flow (₹)	PV (₹)	Cumulative PV (₹)	Cash flow (₹)	PV (₹)	Cumulative PV (₹)
1	0.893	2,21,000	1,97,353	1,97,353	1,67,500	1,49,578	1,49,578
2	0.797	2,28,000	1,81,716	3,79,069	2,27,000	1,80,919	3,30,497
3	0.712	2,14,000	1,52,368	5,31,437	2,69,000	1,91,528	5,22,025
4	0.636	4,52,000	2,87,472	8,18,909	1,50,000	95,400	6,17,425

## 1. NPV (Net Present Value)

## Machine - A

$$NPV = ₹ 8,18,909 - ₹ 8,00,000 = ₹ 18,909$$

## PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 13

**Machine – B**

$$\text{NPV} = ₹ 6,17,425 - ₹ 6,00,000 = ₹ 17,425$$

**2. Discounted Payback Period****Machine – A**

$$\begin{aligned} \text{Discounted Payback Period} &= 3 + \frac{₹ 8,00,000 - ₹ 5,31,437}{₹ 2,87,472} \\ &= 3 + 0.934 \\ &= 3.934 \text{ years or 3 years 11.21 months} \end{aligned}$$

**Machine – B**

$$\begin{aligned} \text{Discounted Payback Period} &= 3 + \frac{₹ 6,00,000 - ₹ 5,22,025}{₹ 95,400} \\ &= 3 + 0.817 \\ &= 3.817 \text{ years or 3 years 9.80 months} \end{aligned}$$

**3. PI (Profitability Index)****Machine – A**

$$\text{Profitability Index} = \frac{₹ 8,18,909}{₹ 8,00,000} = 1.024$$

**Machine – B**

$$\text{Profitability Index} = \frac{₹ 6,17,425}{₹ 6,00,000} = 1.029$$

**Suggestion:**

Method	Machine - A	Machine - B	Suggested Machine
Net Present Value	₹ 18,909	₹ 17,425	<b>Machine A</b>
Discounted Payback Period	3.934 years	3.817 years	<b>Machine B</b>
Profitability Index	1.024	1.029	<b>Machine B</b>

**Question 6**

- (a) State four tasks involved to demonstrate the importance of good Financial Management. **(4 Marks)**
- (b) Explain Electronic Cash Management System. **(4 Marks)**
- (c) Define Internal Rate of Return (IRR) **(2 Marks)**



## 14 INTERMEDIATE (NEW) EXAMINATION: JANUARY, 2021

OR

Explain in brief the following bonds:

- (i) *Callable Bonds*
- (ii) *Puttable Bonds*

**Answer**

- (a) **The best way to demonstrate the importance of good financial management is to describe some of the tasks that it involves:**
- **Taking care** not to over-invest in fixed assets
  - **Balancing** cash-outflow with cash-inflows
  - **Ensuring** that there is a sufficient level of short-term working capital
  - **Setting** sales revenue targets that will deliver growth
  - **Increasing** gross profit by setting the correct pricing for products or services
  - **Controlling** the level of general and administrative expenses by finding more cost-efficient ways of running the day-to-day business operations, and
  - **Tax planning** that will minimize the taxes a business has to pay.
- (b) **Electronic Cash Management System:** Most of the cash management systems now-a-days are electronically based, since 'speed' is the essence of any cash management system. Electronically, transfer of data as well as funds play a key role in any cash management system. Various elements in the process of cash management are linked through a satellite. Various places that are interlinked may be the place where the instrument is collected, the place where cash is to be transferred in company's account, the place where the payment is to be transferred etc.
- (c) **Internal rate of return:** Internal rate of return for an investment proposal is the discount rate that equates the present value of the expected cash inflows with the initial cash outflow.

OR

- (i) **Callable bonds:** A callable bond has a call option which gives the issuer the **right to redeem the bond before maturity** at a predetermined price known as the call price (Generally at a premium).
- (ii) **Puttable bonds:** Puttable bonds give the investor a put option (i.e. the **right to sell** the bond) back to the company before maturity.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

**Question 1**

- (a) Current annual sale of SKD Ltd. is ₹ 360 lakhs. It's directors are of the opinion that company's current expenditure on receivables management is too high and with a view to reduce the expenditure they are considering following two new alternate credit policies:

	Policy X	Policy Y
Average collection period	1.5 months	1 month
% of default	2%	1%
Annual collection expenditure	₹ 12 lakh	₹ 20 lakh

Selling price per unit of product is ₹ 150. Total cost per unit is ₹ 120.

Current credit terms are 2 months and percentage of default is 3%.

Current annual collection expenditure is ₹ 8 lakh. Required rate of return on investment of SKD Ltd. is 20%. Determine which credit policy SKD Ltd. should follow. **(5 Marks)**

- (b) The details about two companies R Ltd. and S Ltd. having same operating risk are given below:

Particulars	R Ltd.	S Ltd.
Profit before interest and tax	₹ 10 lakhs	₹ 10 lakhs
Equity share capital ₹ 10 each	₹ 17 lakhs	₹ 50 lakhs
Long term borrowings @ 10%	₹ 33 lakhs	-
Cost of Equity ( $K_e$ )	18%	15%

You are required to:

- Calculate the value of equity of both the companies on the basis of M.M. Approach without tax.
- Calculate the Total Value of both the companies on the basis of M.M. Approach without tax. **(5 Marks)**

2

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

- (c) K.P. Ltd. is investing ₹ 50 lakhs in a project. The life of the project is 4 years. Risk free rate of return is 6% and risk premium is 6%, other information is as under:

Sales of 1st year	₹ 50 lakhs
Sales of 2nd year	₹ 60 lakhs
Sales of 3rd year	₹ 70 lakhs
Sales of 4th year	₹ 80 lakhs
P/V Ratio (same in all the years)	50%
Fixed Cost (Excluding Depreciation) of 1st year	₹ 10 lakhs
Fixed Cost (Excluding Depreciation) of 2nd year	₹ 12 lakhs
Fixed Cost (Excluding Depreciation) of 3rd year	₹ 14 lakhs
Fixed Cost (Excluding Depreciation) of 4th year	₹ 16 lakhs

Ignoring interest and taxes,

You are required to calculate NPV of given project on the basis of Risk Adjusted Discount Rate.

Discount factor @ 6% and 12% are as under:

Year	1	2	3	4
Discount Factor @ 6%	0.943	0.890	0.840	0.792
Discount Factor @ 12%	0.893	0.797	0.712	0.636

**(5 Marks)**

- (d) The following information relates to LMN Ltd.

Earning of the company	₹ 30,00,000
Dividend pay-out ratio	60%
No. of shares outstanding	5,00,000
Rate of return on investment	15%
Equity capitalized rate	13%

Required:

- (i) Determine what would be the market value per share as per Walter's model.
- (ii) Compute optimum dividend pay-out ratio according to Walter's model and the market value of company's share at that pay-out ratio.

**(5 Marks)**

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

3

## Answer

## (a) Statement showing the Evaluation of Credit policies (Total Approach)

Particulars		Present Policy (2 Months)	Proposed Policy X (1.5 Months)	Proposed Policy Y (1 Month)
		₹ in lakhs	₹ in lakhs	₹ in lakhs
<b>A.</b>	<b>Expected Profit:</b>			
	(a) Credit Sales*	360	360	360
	(b) Total Cost other than Bad Debts and collection expenditure (360/150 x 120)	288	288	288
	(c) Bad Debts	10.8 (360 x 0.03)	7.2 (360 x 0.02)	3.6 (360 x 0.01)
	(d) Collection expenditure	8	12	20
	(e) Expected Profit [(a) – (b) – (c) – (d)]	53.2	52.8	48.4
<b>B.</b>	<b>Opportunity Cost of Investments in Receivables (Working Note)</b>	9.6	7.2	4.8
<b>C.</b>	<b>Net Benefits (A – B)</b>	43.6	45.6	43.6

**Recommendation:** The Proposed Policy X should be followed since the net benefits under this policy are higher as compared to other policies.

**\*Note:** It is assumed that all sales are on credit.

**Working Note:****Calculation of Opportunity Cost of Average Investments**

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection period}}{12} \times \frac{\text{Rate of Return}}{100}$$

$$\text{Present Policy} = ₹ 288 \text{ lakhs} \times \frac{2}{12} \times \frac{20}{100} = ₹ 9.6 \text{ lakhs}$$

$$\text{Policy X} = ₹ 288 \text{ lakhs} \times \frac{1.5}{12} \times \frac{20}{100} = ₹ 7.2 \text{ lakhs}$$

$$\text{Policy Y} = ₹ 288 \text{ lakhs} \times \frac{1}{12} \times \frac{20}{100} = ₹ 4.8 \text{ lakhs}$$

4

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

Alternatively

## Statement showing the Evaluation of Credit policies (Incremental Approach)

Particulars		Present Policy (2 Months)	Proposed Policy X (1.5 Months)	Proposed Policy Y (1 Month)
		₹ in lakhs	₹ in lakhs	₹ in lakhs
	(a) Credit Sales*	360	360	360
	(b) Cost of sales (360/150 x 120)	288	288	288
	(c) Receivables (Refer Working Note)	48	36	24
	(d) Reduction in receivables from present policy	-	12	24
<b>(A)</b>	<b>Savings in Opportunity Cost of Investment in Receivables (@ 20%)</b>	-	<b>2.4</b>	<b>4.8</b>
	(e) Bad Debts	10.8 (360 x 0.03)	7.2 (360 x 0.02)	3.6 (360 x 0.01)
<b>(B)</b>	<b>Reduction in bad debts from present policy</b>	-	<b>3.6</b>	<b>7.2</b>
	(f) Collection expenditure	8	12	20
<b>(C)</b>	<b>Increase in Collection expenditure from Present policy</b>	-	<b>4</b>	<b>12</b>
<b>(D)</b>	<b>Net Benefits (A +B-C)</b>		<b>2</b>	<b>0</b>

**Recommendation:** The Proposed Policy X should be followed since the net benefits under this policy are higher as compared to other policies.

**\*Note:** It is assumed that all sales are on credit.

**Working Note:****Calculation of Investment in Receivables**

$$= \text{Total Cost} \times \frac{\text{Collection period}}{12}$$

$$\text{Present Policy} = ₹ 288 \text{ lakhs} \times \frac{2}{12} = ₹ 48 \text{ lakhs}$$

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

5

$$\text{Policy X} = ₹ 288 \text{ lakhs} \times \frac{1.5}{12} = ₹ 36 \text{ lakhs}$$

$$\text{Policy Y} = ₹ 288 \text{ lakhs} \times \frac{1}{12} = ₹ 24 \text{ lakhs}$$

## (b) (1) Computation of value of equity on the basis of MM approach without tax

Particulars	R Ltd. (₹ in lakhs)	S Ltd. (₹ in lakhs)
Profit before interest and taxes	10	10
Less: Interest on debt (10% × ₹ 33,00,000)	3.3	-
Earnings available to Equity shareholders	6.7	10
$K_e$	18%	15%
<b>Value of Equity</b> (Earnings available to Equity shareholders/ $K_e$ )	<b>37.222</b>	<b>66.667</b>

## (2) Computation of total value on the basis of MM approach without tax

Particulars	R Ltd. (₹ in lakhs)	S Ltd. (₹ in lakhs)
Value of Equity (S) (as calculated above)	37.222	66.667
Debt (D)	33	-
<b>Value of Firm (V) = S + D</b>	<b>70.222</b>	<b>66.667</b>

## (c) Calculation of Cash Flow

Year	Sales (₹ in Lakhs) (A)	P/V ratio (B)	Contribution (₹ in Lakhs) (C) = (A x B)	Fixed Cost (₹ in Lakhs) (D)	Cash Flows (₹ in lakhs) (E) = (C - D)
1	50	50%	25	10	15
2	60	50%	30	12	18
3	70	50%	35	14	21
4	80	50%	40	16	24

When risk-free rate is 6% and the risk premium expected is 6%, then risk adjusted discount rate would be 6% + 6% = 12%.

## Calculation of NPV using Risk Adjusted Discount Rate (@ 12%)

Year	Cash flows (₹ in Lakhs)	Discounting Factor @ 12%	Present Value of Cash Flows (₹ in lakhs)
1	15	0.893	13.395
2	18	0.797	14.346

6 INTERMEDIATE (NEW) EXAMINATION: JULY 2021

3	21	0.712	14.952
4	24	0.636	15.264
Total of present value of Cash flow			57.957
Less: Initial Investment			50.000
<b>Net Present value (NPV)</b>			<b>7.957</b>

(d) (i) Calculation of market value per share as per Walter's model

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market price per share.

E = Earnings per share = ₹ 30,00,000/5,00,000 = ₹ 6

D = Dividend per share = ₹ 6 x 0.60 = ₹ 3.6

r = Return earned on investment = 15%

K<sub>e</sub> = Cost of equity capital = 13%

$$P = \frac{3.6 + \frac{0.15}{0.13}(6 - 3.6)}{0.13} = ₹ 49$$

(ii) According to Walter's model, when the return on investment (r) is more than the cost of equity capital (K<sub>e</sub>), the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is nil.

So, at a pay-out ratio of zero, the market value of the company's share will be:

$$P = \frac{0 + \frac{0.15}{0.13}(6 - 0)}{0.13} = ₹ 53.254$$

**Question 2**

Following are the information of TT Ltd.:

Particulars	
Earnings per share	₹ 10
Dividend per share	₹ 6
Expected growth rate in Dividend	6%
Current market price per share	₹ 120

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

Tax Rate	30%
Requirement of Additional Finance	₹ 30 lakhs
Debt Equity Ratio (For additional finance)	2:1
Cost of Debt	
0-5,00,000	10%
5,00,001 - 10,00,000	9%
Above 10,00,000	8%

Assuming that there is no Reserve and Surplus available in TT Ltd.

You are required to:

- Find the pattern of finance for additional requirement
- Calculate post tax average cost of additional debt
- Calculate cost of equity
- Calculate the overall weighted average after tax cost of additional finance. **(10 Marks)**

**Answer****(a) Pattern of raising additional finance**

Equity	1/3 of ₹ 30,00,000	= ₹ 10,00,000
Debt	2/3 of ₹ 30,00,000	= ₹ 20,00,000

The capital structure after raising additional finance:

Particulars	(₹)
<b>Shareholder's Funds</b>	
Equity Capital	10,00,000
Debt (Interest at 10% p.a.)	5,00,000
(Interest at 9% p.a.)	5,00,000
(Interest at 8% p.a.) (20,00,000-10,00,000)	10,00,000
<b>Total Funds</b>	<b>30,00,000</b>

**(b) Determination of post-tax average cost of additional debt**

$$K_d = I(1 - t)$$

Where,

I = Interest Rate

t = Corporate tax-rate



8

**INTERMEDIATE (NEW) EXAMINATION: JULY 2021**

On First ₹ 5,00,000 = 10% (1 – 0.3) = 7% or 0.07

On Next ₹ 5,00,000 = 9% (1 – 0.3) = 6.3% or 0.063

On Next ₹ 10,00,000 = 8% (1 – 0.3) = 5.6% or 0.056

Average Cost of Debt

$$= \frac{(\text{₹ } 5,00,000 \times 0.07) + (\text{₹ } 5,00,000 \times 0.063) + (\text{₹ } 10,00,000 \times 0.056)}{\text{₹ } 20,00,000} \times 100 = \mathbf{6.125\%}$$

(c) **Determination of cost of equity applying Dividend growth model:**

$$K_e = \frac{D_1}{P_0} + g$$

Where,

$K_e$  = Cost of equity

$D_1$  =  $D_0(1 + g)$

$D_0$  = Dividend paid

$g$  = Growth rate = 6%

$P_0$  = Current market price per share = ₹ 120

$$K_e = \frac{\text{₹ } 6(1 + 0.06)}{\text{₹ } 120} + 0.06 = \frac{\text{₹ } 6.36}{\text{₹ } 120} + 0.06 = \mathbf{0.113 \text{ or } 11.3\%}$$

(d) **Computation of overall weighted average after tax cost of additional finance**

Particulars	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity	10,00,000	1/3	11.3%	3.767
Debt	20,00,000	2/3	6.125%	4.083
WACC	30,00,000			7.85

(Note: In the above solution different interest rate have been considered for different slab of Debt)

**Alternative Solution**

(a) Pattern of raising additional finance

Equity            1/3 of ₹ 30,00,000        = ₹ 10,00,000

Debt              2/3 of ₹ 30,00,000        = ₹ 20,00,000

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

9

The capital structure after raising additional finance:

Particulars	(₹)
<b>Shareholders' Funds</b>	
Equity Capital	10,00,000
Debt (Interest at 8% p.a.)	20,00,000
<b>Total Funds</b>	<b>30,00,000</b>

(b) Determination of post-tax average cost of additional debt

$$K_d = I (1 - t)$$

Where,

I = Interest Rate

t = Corporate tax-rate

$$K_d = 8\% (1 - 0.3) = 5.6\%$$

(c) Determination of cost of equity applying Dividend growth model:

$$K_e = \frac{D_1}{P_0} + g$$

Where,

$K_e$  = Cost of equity

$$D_1 = D_0 (1 + g)$$

$D_0$  = Dividend paid

g = Growth rate = 6%

$P_0$  = Current market price per share = ₹ 120

$$\text{Then, } K_e = \frac{₹ 6(1 + 0.06)}{₹ 120} + 0.06 = \frac{₹ 6.36}{₹ 120} + 0.06 = 0.113 \text{ or } 11.3\%$$

(d) Computation of overall weighted average after tax cost of additional finance

Particulars	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity	10,00,000	1/3	11.3%	3.767
Debt	20,00,000	2/3	5.6%	3.733
WACC	30,00,000			<b>7.50</b>

(Note: In the above solution single interest rate have been considered for Debt)

10

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

**Question 3**

Masco Limited has furnished the following ratios and information relating to the year ended 31st March 2021:

Sales	₹ 75,00,000
Return on net worth	25%
Rate of income tax	50%
Share capital to reserves	6:4
Current ratio	2.5
Net profit to sales (After Income Tax)	6.50%
Inventory turnover (based on cost of goods sold)	12
Cost of goods sold	₹ 22,50,000
Interest on debentures	₹ 75,000
Receivables (includes debtors ₹ 1,25,000)	₹ 2,00,000
Payables	₹ 2,50,000
Bank Overdraft	₹ 1,50,000

You are required to:

- Calculate the operating expenses for the year ended 31st March, 2021.
- Prepare a balance sheet as on 31st March in the following format:

Liabilities	₹	Assets	₹
Share Capital		Fixed Assets	
Reserves and Surplus		Current Assets	
15% Debentures		Stock	
Payables		Receivables	
Bank Term Loan		Cash	

(10 Marks)

**Answer**

- Calculation of Operating Expenses for the year ended 31st March, 2021**

Particulars		(₹)
Net Profit [@ 6.5% of Sales]		4,87,500
Add: Income Tax (@ 50%)		4,87,500
Profit Before Tax (PBT)		9,75,000

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

11

Add: Debenture Interest		75,000
Profit before interest and tax (PBIT)		10,50,000
Sales		75,00,000
Less: Cost of goods sold	22,50,000	
PBIT	10,50,000	33,00,000
Operating Expenses		42,00,000

(b) Balance Sheet as on 31<sup>st</sup> March, 2021

Liabilities	₹	Assets	₹
Share Capital	11,70,000	Fixed Assets	18,50,000
Reserve and Surplus	7,80,000	Current Assets	
15% Debentures	5,00,000	Stock	1,87,500
Payables	2,50,000	Receivables	2,00,000
Bank Overdraft(or Bank Term Loan)	1,50,000	Cash	6,12,500
	28,50,000		28,50,000

**Working Notes:**

## (i) Calculation of Share Capital and Reserves

The return on net worth is 25%. Therefore, the profit after tax of ₹ 4,87,500 should be equivalent to 25% of the net worth.

$$\text{Net worth} \times \frac{25}{100} = ₹ 4,87,500$$

$$\therefore \text{Net worth} = \frac{₹ 4,87,500 \times 100}{25} = ₹ 19,50,000$$

The ratio of share capital to reserves is 6:4

$$\text{Share Capital} = 19,50,000 \times \frac{6}{10} = ₹ 11,70,000$$

$$\text{Reserves} = 19,50,000 \times \frac{4}{10} = ₹ 7,80,000$$

## (ii) Calculation of Debentures

Interest on Debentures @ 15% (as given in the balance sheet format) = ₹ 75,000

$$\therefore \text{Debentures} = \frac{75,000 \times 100}{15} = ₹ 5,00,000$$

12

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

## (iii) Calculation of Current Assets

Current Ratio = 2.5

Payables = ₹ 2,50,000

Bank overdraft = ₹ 1,50,000

Total Current Liabilities = ₹ 2,50,000 + ₹ 1,50,000 = ₹ 4,00,000

∴ Current Assets = 2.5 x Current Liabilities = 2.5 × 4,00,000 = ₹ 10,00,000

## (iv) Calculation of Fixed Assets

Particulars	₹
Share capital	11,70,000
Reserves	7,80,000
Debentures	5,00,000
Payables	2,50,000
Bank Overdraft	1,50,000
Total Liabilities	28,50,000
Less: Current Assets	10,00,000
Fixed Assets	18,50,000

## (v) Calculation of Composition of Current Assets

Inventory Turnover = 12

$$\frac{\text{Cost of goods sold}}{\text{Closing stock}} = 12$$

$$\text{Closing stock} = \frac{₹ 22,50,000}{12} = \text{Closing stock} = ₹ 1,87,500$$

Particulars	₹
Stock	1,87,500
Receivables	2,00,000
Cash (balancing figure)	6,12,500
Total Current Assets	10,00,000

**Question 4**

An existing company has a machine which has been in operation for two years, its estimated remaining useful life is 4 years with no residual value in the end. Its current market value is ₹ 3 lakhs. The management is considering a proposal to purchase an improved model of a machine gives increase output. The details are as under:

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

13

Particulars	Existing Machine	New Machine
Purchase Price	₹ 6,00,000	₹ 10,00,000
Estimated Life	6 years	4 years
Residual Value	0	0
Annual Operating days	300	300
Operating hours per day	6	6
Selling price per unit	₹ 10	₹ 10
Material cost per unit	₹ 2	₹ 2
Output per hour in units	20	40
Labour cost per hour	₹ 20	₹ 30
Fixed overhead per annum excluding depreciation	₹ 1,00,000	₹ 60,000
Working Capital	₹ 1,00,000	₹ 2,00,000
Income-tax rate	30%	30%

Assuming that - cost of capital is 10% and the company uses written down value of depreciation @ 20% and it has several machines in 20% block.

Advice the management on the Replacement of Machine as per the NPV method.

The discounting factors table given below:

Discounting Factors	Year 1	Year 2	Year 3	Year 4
10%	0.909	0.826	0.751	0.683

(10 Marks)

**Answer****(i) Calculation of Net Initial Cash Outflows:**

Particulars	₹
Purchase Price of new machine	10,00,000
Add: Net Working Capital	1,00,000
Less: Sale proceeds of existing machine	3,00,000
Net initial cash outflows	8,00,000

**(ii) Calculation of annual Profit Before Tax and depreciation**

Particulars	Existing machine	New Machine	Differential
(1)	(2)	(3)	(4) = (3) – (2)
Annual output	36,000 units	72,000 units	36,000 units

14

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

	₹	₹	₹
(A) Sales revenue @ ₹ 10 per unit	<u>3,60,000</u>	<u>7,20,000</u>	<u>3,60,000</u>
(B) Cost of Operation			
Material @ ₹ 2 per unit	72,000	1,44,000	72,000
Labour			
Old = 1,800 × ₹ 20	36,000		
New = 1,800 × ₹ 30		54,000	18,000
Fixed overhead excluding depreciation	1,00,000	60,000	(40,000)
Total Cost (B)	2,08,000	2,58,000	50,000
<b>Profit Before Tax and depreciation (PBT) (A – B)</b>	<b>1,52,000</b>	<b>4,62,000</b>	<b>3,10,000</b>

## (iii) Calculation of Net Present value on replacement of machine

Year	PBTD	Depreciation @ 20% WDV	PBT	Tax @ 30%	PAT	Net cash flow	PVF @ 10%	PV
(1)	(2)	(3)	(4 = 2-3)	(5)	(6 = 4-5)	(7 = 6 + 3)	(8)	(9 = 7 x 8)
1	3,10,000	1,40,000	1,70,000	51,000	1,19,000	2,59,000	0.909	2,35,431.000
2	3,10,000	1,12,000	1,98,000	59,400	1,38,600	2,50,600	0.826	2,06,995.600
3	3,10,000	89,600	2,20,400	66,120	1,54,280	2,43,880	0.751	1,83,153.880
4	3,10,000	71,680	2,38,320	71,496	1,66,824	2,38,504	0.683	1,62,898.232
								<b>7,88,478.712</b>
<b>Add:</b> Release of net working capital at year end 4 (1,00,000 x 0.683)								68,300.000
<b>Less:</b> Initial Cash Outflow								8,00,000.000
<b>NPV</b>								<b>56,778.712</b>

**Advice:** Since the incremental NPV is positive, existing machine should be replaced.

**Working Notes:****1. Calculation of Annual Output**

Annual output = (Annual operating days x Operating hours per day) x output per hour

Existing machine = (300 x 6) x 20 = 1,800 x 20 = 36,000 units

New machine = (300 x 6) x 40 = 1,800 x 40 = 72,000 units

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

15

## 2. Base for incremental depreciation

Particulars	₹
<b>WDV of Existing Machine</b>	
Purchase price of existing machine	6,00,000
Less: Depreciation for year 1	1,20,000
Depreciation for Year 2	<u>96,000</u>
<b>WDV of Existing Machine (i)</b>	<b>3,84,000</b>
<b>Depreciation base of New Machine</b>	
Purchase price of new machine	10,00,000
Add: WDV of existing machine	3,84,000
Less: Sales value of existing machine	3,00,000
<b>Depreciation base of New Machine (ii)</b>	<b>10,84,000</b>
<b>Base for incremental depreciation [(ii) – (i)]</b>	<b>7,00,000</b>

(Note: The above solution have been done based on incremental approach)

Alternatively, solution can be done based on Total Approach as below:

## (i) Calculation of depreciation:

Existing Machine						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Opening balance	6,00,000	4,80,000	3,84,000	3,07,200	2,45,760	1,96,608.00
Less: Depreciation @ 20%	1,20,000	96,000	76,800	61,440	49,152	39,321.60
WDV	4,80,000	3,84,000	3,07,200	2,45,760	1,96,608	1,57,286.40

New Machine				
	Year 1	Year 2	Year 3	Year 4
Opening balance	10,84,000*	8,67,200	6,93,760	5,55,008.00
Less: Depreciation @ 20%	2,16,800	1,73,440	1,38,752	1,11,001.60
WDV	8,67,200	6,93,760	5,55,008	4,44,006.40

\* As the company has several machines in 20% block, the value of Existing Machine from the block calculated as below shall be added to the new machine of ₹ 10,00,000:



16

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

WDV of existing machine at the beginning of the year ₹ 3,84,000

Less: Sale Value of Machine ₹ 3,00,000WDV of existing machine in the block ₹ 84,000

Therefore, opening balance for depreciation of block = ₹ 10,00,000 + ₹ 84,000  
= ₹ 10,84,000

## (ii) Calculation of annual cash inflows from operation:

Particulars	EXISTING MACHINE			
	Year 3	Year 4	Year 5	Year 6
Annual output (300 operating days x 6 operating hours x 20 output per hour)	36,000 units	36,000 units	36,000 units	36,000 units
	₹	₹	₹	₹
(A) Sales revenue @ ₹ 10 per unit	3,60,000.00	3,60,000.00	3,60,000.00	3,60,000.00
(B) Less: Cost of Operation				
Material @ ₹ 2 per unit	72,000.00	72,000.00	72,000.00	72,000.00
Labour @ ₹ 20 per hour for (300 x 6) hours	36,000.00	36,000.00	36,000.00	36,000.00
Fixed overhead	1,00,000.00	1,00,000.00	1,00,000.00	1,00,000.00
Depreciation	76,800.00	61,440.00	49,152.00	39,321.60
<b>Total Cost (B)</b>	<b>2,84,800.00</b>	<b>2,69,440.00</b>	<b>2,57,152.00</b>	<b>2,47,321.60</b>
Profit Before Tax (A – B)	75,200.00	90,560.00	1,02,848.00	1,12,678.40
Less: Tax @ 30%	22,560.00	27,168.00	30,854.40	33,803.52
<b>Profit After Tax</b>	<b>52,640.00</b>	<b>63,392.00</b>	<b>71,993.60</b>	<b>78,874.88</b>
Add: Depreciation	76,800.00	61,440.00	49,152.00	39,321.60
Add: Release of Working Capital				1,00,000.00
<b>Annual Cash Inflows</b>	<b>1,29,440.00</b>	<b>1,24,832.00</b>	<b>1,21,145.60</b>	<b>2,18,196.48</b>

Particulars	NEW MACHINE			
	Year 1	Year 2	Year 3	Year 4
Annual output (300 operating days x 6 operating hours x 40 output per hour)	72,000 units	72,000 units	72,000 units	72,000 units
	₹	₹	₹	₹
(A) Sales revenue @ ₹ 10 per unit	7,20,000.00	7,20,000.00	7,20,000.00	7,20,000.00

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

17

(B) Less: Cost of Operation				
Material @ ₹ 2 per unit	1,44,000.00	1,44,000.00	1,44,000.00	1,44,000.00
Labour @ ₹ 30 per hour for (300 x 6) hours	54,000.00	54,000.00	54,000.00	54,000.00
Fixed overhead	60,000.00	60,000.00	60,000.00	60,000.00
Depreciation	2,16,800.00	1,73,440.00	1,38,752.00	1,11,001.60
<b>Total Cost (B)</b>	<b>4,74,800.00</b>	<b>4,31,440.00</b>	<b>3,96,752.00</b>	<b>3,69,001.60</b>
Profit Before Tax (A – B)	2,45,200.00	2,88,560.00	3,23,248.00	3,50,998.40
Less: Tax @ 30%	73,560.00	86,568.00	96,974.40	1,05,299.52
<b>Profit After Tax</b>	<b>1,71,640.00</b>	<b>2,01,992.00</b>	<b>2,26,273.60</b>	<b>2,45,698.88</b>
Add: Depreciation	2,16,800.00	1,73,440.00	1,38,752.00	1,11,001.60
Add: Release of Working Capital				2,00,000.00
<b>Annual Cash Inflows</b>	<b>3,88,440.00</b>	<b>3,75,432.00</b>	<b>3,65,025.60</b>	<b>5,56,700.48</b>

## (iii) Calculation of Incremental Annual Cash Flow:

Particulars	Year 1 (₹)	Year 2 (₹)	Year 3 (₹)	Year 4 (₹)
Existing Machine (A)	1,29,440.00	1,24,832.00	1,21,145.60	2,18,196.48
New Machine (B)	3,88,440.00	3,75,432.00	3,65,025.60	5,56,700.48
<b>Incremental Annual Cash Flow (B – A)</b>	<b>2,59,000.00</b>	<b>2,50,600.00</b>	<b>2,43,880.00</b>	<b>3,38,504.00</b>

## (iv) Calculation of Net Present Value on replacement of machine:

Year	Incremental Annual Cash Flow (₹) (A)	Discounting factor @ 10% (B)	Present Value of Incremental Annual Cash Flow (₹) (A x B)
1	2,59,000.00	0.909	2,35,431.000
2	2,50,600.00	0.826	2,06,995.600
3	2,43,880.00	0.751	1,83,153.880
4	3,38,504.00	0.683	2,31,198.232
<b>Total Incremental Inflows</b>			<b>8,56,778.712</b>
Less: Net Initial Cash Outflows (Working note)			8,00,000.000
<b>Incremental NPV</b>			<b>56,778.712</b>

**Advice:** Since the incremental NPV is positive, existing machine should be replaced.

18

## INTERMEDIATE (NEW) EXAMINATION: JULY 2021

**Working Note:****Calculation of Net Initial Cash Outflows:**

Particulars	₹
Cost of new machine	10,00,000
Less: Sale proceeds of existing machine	3,00,000
Add: incremental working capital required (₹ 2,00,000 – ₹ 1,00,000)	1,00,000
<b>Net initial cash outflows</b>	<b>8,00,000</b>

**Question 5**

A company had the following balance sheet as on 31<sup>st</sup> March, 2021:

Liabilities	₹ in Crores	Assets	₹ in Crores
Equity Share Capital (75 lakhs Shares of ₹ 10 each)	7.50	Building	12.50
Reserves and Surplus	1.50	Machinery	6.25
15% Debentures	15.00	Current Assets	
Current Liabilities	6.00	Stock	3.00
		Debtors	3.25
		Bank Balance	5.00
	30.00		30.00

The additional information given is as under:

Fixed cost per annum (excluding interest)	₹ 6 crores
Variable operating cost ratio	60%
Total assets turnover ratio	2.5
Income-tax rate	40%

Calculate the following and comment:

- Earnings per share
- Operating Leverage
- Financial Leverage
- Combined Leverage

**(10 Marks)****Answer**

Total Assets	= ₹ 30 crores
Total Asset Turnover Ratio	= 2.5
Hence, Total Sales	= 30 × 2.5 = ₹ 75 crores

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

19

Computation of Profit after Tax (PAT)

Particulars	(₹ in crores)
Sales	75.00
Less: Variable Operating Cost @ 60%	45.00
Contribution	30.00
Less: Fixed Cost (other than Interest)	6.00
EBIT/PBIT	24.00
Less: Interest on Debentures (15% × 15)	2.25
EBT/PBT	21.75
Less: Tax @ 40%	8.70
EAT/ PAT	13.05

**(i) Earnings per Share**

$$\text{EPS} = \frac{\text{PAT}}{\text{Number of Equity Shares}} = \frac{13.05}{0.75} = ₹ 17.40$$

It indicates the amount the company earns per share. Investors use this as a guide while valuing the share and making investment decisions. It is also an indicator used in comparing firms within an industry or industry segment.

**(ii) Operating Leverage**

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{30}{24} = 1.25$$

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

**(iii) Financial Leverage**

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{PBT}} = \frac{24}{21.75} = 1.103$$

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

**(iv) Combined Leverage**

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{PBT}} = \frac{30}{21.75} = 1.379$$

## 20 INTERMEDIATE (NEW) EXAMINATION: JULY 2021

Or,  
 = Operating Leverage × Financial Leverage  
 =  $1.25 \times 1.103 = 1.379$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales. The leverages operating, financial and combined are used as measurement of risk.

**Question 6**

- (a) *Explain in brief the forms of Post Shipment Finance.* (4 Marks)  
 (b) *Describe the salient features of FORFAITING.* (4 Marks)  
 (c) *List out the steps to be followed by the manager to measure and maximize the Shareholder's Wealth* (2 Marks)

OR

*Explain the limitations of Average Rate of Return.* (2 Marks)

**Answer**

- (a) **Post-shipment Finance:** It takes the following forms:
- Purchase/discounting of documentary export bills:** Finance is provided to exporters by purchasing export bills drawn payable at sight or by discounting usance export bills covering confirmed sales and backed by documents including documents of the title of goods such as bill of lading, post parcel receipts, or air consignment notes.
  - E.C.G.C. Guarantee:** Post-shipment finance, given to an exporter by a bank through purchase, negotiation or discount of an export bill against an order, qualifies for post-shipment export credit guarantee. It is necessary, however, that exporters should obtain a shipment or contracts risk policy of E.C.G.C. Banks insist on the exporters to take a contracts shipments (comprehensive risks) policy covering both political and commercial risks. The Corporation, on acceptance of the policy, will fix credit limits for individual exporters and the Corporation's liability will be limited to the extent of the limit so fixed for the exporter concerned irrespective of the amount of the policy.
  - Advance against export bills sent for collection:** Finance is provided by banks to exporters by way of advance against export bills forwarded through them for collection, taking into account the creditworthiness of the party, nature of goods exported, usance, standing of drawee, etc.
  - Advance against duty draw backs, cash subsidy, etc.:** To finance export losses sustained by exporters, bank advance against duty draw-back, cash subsidy, etc., receivable by them against export performance. Such advances are of clean nature; hence necessary precaution should be exercised.

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

21

**(b) The Salient features of forfaiting are:**

- It motivates exporters to **explore new geographies** as payment is assured.
- An overseas buyer (importer) can import goods and services on **deferred payment terms**.
- The exporter enjoys **reduced transaction costs and complexities** of international trade transactions.
- The exporter gets to **compete in the international market** and can continue to put his working capital to good use to scale up operations.
- While importers avail of forfaiting facility from international financial institutions in order to **finance their imports at competitive rates**.

**(c) For measuring and maximising shareholders' wealth, manager should follow:**

Cash Flow approach not Accounting Profit

Cost benefit analysis

Application of time value of money.

*Or*

**Limitations of Average Rate of Return**

- The accounting rate of return technique, like the payback period technique, **ignores the time value of money** and considers the value of all cash flows to be equal.
- The technique uses accounting numbers that are dependent on the organization's **choice of accounting procedures**, and different accounting procedures, e.g., depreciation methods, can lead to substantially different amounts for an investment's net income and book values.
- The method **uses net income rather than cash flows**; while net income is a useful measure of profitability, the net cash flow is a better measure of an investment's performance.
- Furthermore, inclusion of only the book value of the invested asset **ignores** the fact that a project can require **commitments of working capital** and other outlays that are not included in the book value of the project.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

**Question 1**

- (a) A factoring firm has offered a company to buy its accounts receivables.

The relevant information is given below:

- (i) The current average collection period for the company's debt is 80 days and  $\frac{1}{2}\%$  of debtors default. The factor has agreed to pay over money due to the company after 60 days and it will suffer all the losses of bad debts also.
- (ii) Factor will charge commission @2%.
- (iii) The company spends ₹1,00,000 p.a. on administration of debtor.  
These are avoidable cost.
- (iv) Annual credit sales are ₹ 90 lakhs. Total variable costs is 80% of sales. The company's cost of borrowing is 15% per annum. Assume 365 days in a year.

Should the company enter into agreement with factoring firm?

**(5 Marks)**

- (b) Book value of capital structure of B Ltd. is as follows:

Sources	Amount
12%, 6,000 Debentures @ ₹100 each	₹ 6,00,000
Retained earnings	₹ 4,50,000
4,500 Equity shares @ ₹ 100 each	<u>₹ 4,50,000</u>
	<b>₹ 15,00,000</b>

Currently, the market value of debenture is ₹ 110 per debenture and equity share is ₹ 180 per share. The expected rate of return to equity shareholder is 24% p.a. Company is paying tax @ 30%.

Calculate WACC on the basis of market value weights.

**(5 Marks)**

**2 INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021**

(c) X Ltd. is a multinational company. Current market price per share is ₹ 2,185. During the F.Y. 2020-21, the company paid ₹ 140 as dividend per share. The company is expected to grow @ 12% p.a. for next four years, then 5% p.a. for an indefinite period. Expected rate of return of shareholders is 18% p.a.

- (i) Find out intrinsic value per share.
- (ii) State whether shares are overpriced or underpriced.

Year	1	2	3	4	5
Discounting Factor @ 18%	0.847	0.718	0.608	0.515	0.436

**(5 Marks)**

(d) A garment trader is preparing cash forecast for first three months of calendar year 2021. His estimated sales for the forecasted periods are as below:

	January (₹'000)	February (₹'000)	March (₹'000)
Total sales	600	600	800

- (i) The trader sells directly to public against cash payments and to other entities on credit. Credit sales are expected to be four times the value of direct sales to public. He expects 15% customers to pay in the month in which credit sales are made, 25% to pay in the next month and 58% to pay in the next to next month. The outstanding balance is expected to be written off.
- (ii) Purchases of goods are made in the month prior to sales and it amounts to 90% of sales and are made on credit. Payments of these occur in the month after the purchase. No inventories of goods are held.
- (iii) Cash balance as on 1<sup>st</sup> January, 2021 is ₹ 50,000.
- (iv) Actual sales for the last two months of calendar year 2020 are as below:

	November (₹'000)	December (₹'000)
Total sales	640	880

You are required to prepare a monthly cash, budget for the three months from January to March, 2021. **(5 Marks)**

**Answer**

(a)

	Particulars	(₹)
<b>A.</b>	<b>Annual Savings (Benefit) on taking Factoring Service</b>	
	Cost of credit administration saved	1,00,000
	Bad debts avoided (₹ 90 lakh x ½%)	<b>45,000</b>



## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

3

	Interest saved due to reduction in average collection period [ $\text{₹ } 90 \text{ lakh} \times 0.80 \times 0.15 \times (80 \text{ days} - 60 \text{ days})/365 \text{ days}$ ]	59,178
	<b>Total</b>	<b>2,04,178</b>
<b>B.</b>	<b>Annual Cost of Factoring to the Firm:</b>	
	Factoring Commission [ $\text{₹ } 90 \text{ lakh} \times 2\%$ ]	1,80,000
	<b>Total</b>	<b>1,80,000</b>
<b>C.</b>	<b>Net Annual Benefit of Factoring to the Firm (A – B)</b>	<b>24,178</b>

**Advice:** Since savings to the firm exceeds the cost to the firm on account of factoring, therefore, the company should enter into agreement with the factoring firm.

## (b) Calculation of Cost of Capital of debentures ignoring market value:

Cost of Debentures ( $K_d$ ) =  $12(1 - .30) = 8.40\%$

## Computation of Weighted Average Cost of Capital based on Market Value Weights

Source of Capital	Market Value (₹)	Weights to Total Capital	After tax Cost of capital (%)	WACC (%)
Debentures (6,000 nos. × ₹ 110)	6,60,000	0.45(approx.)	8.40	3.78
Equity Shares (4,500 nos. × ₹ 180)	8,10,000	0.55(approx.)	24.00	13.20
	14,70,000	1.00		16.98

**Note:** Cost of Debenture and Cost of equity considered as given without considering market value. Cost of sources of capital can be computed based on the Market price and accordingly Weighted Average Cost of Capital can be calculated as below:

## Calculation of Cost of Capital for each source of capital considering market value of capital:

(1) Cost of Equity share capital:

$$K_e = \frac{\text{Earnings}}{\text{Market Price per share}} = \frac{24\% \times \text{₹ } 100}{\text{₹ } 180} = 13.333\%$$

(2) Cost of Debentures ( $K_d$ ) =  $\frac{I(1-t)}{NP} = \frac{\text{₹ } 12(1-0.3)}{\text{₹ } 110} = 7.636\%$

4

INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

Computation of Weighted Average Cost of Capital based on Market Value Weights

Source of Capital	Market Value (₹)	Weights to Total Capital	After tax Cost of capital (%)	WACC (%)
Debentures (6,000 nos. × ₹ 110)	6,60,000	0.45(approx.)	7.636	3.44 (approx.)
Equity Shares (4,500 nos. × ₹ 180)	8,10,000	0.55(approx.)	13.333	7.33 (approx.)
	14,70,000	1.00		10.77 (approx.)

(c) As per Dividend discount model, the price of share is calculated as follows:

$$P = \frac{D_1}{(1+K_e)^1} + \frac{D_2}{(1+K_e)^2} + \frac{D_3}{(1+K_e)^3} + \frac{D_4}{(1+K_e)^4} + \frac{D_4(1+g)}{(K_e-g)} \times \frac{1}{(1+K_e)^4}$$

Where,

P = Price per share

$K_e$  = Required rate of return on equity

g = Growth rate

$$P = \frac{₹ 140 \times 1.12}{(1 + 0.18)^1} + \frac{₹ 156.80 \times 1.12}{(1 + 0.18)^2} + \frac{₹ 175.62 \times 1.12}{(1 + 0.18)^3} + \frac{₹ 196.69 \times 1.12}{(1 + 0.18)^4} + \frac{₹ 220.29 (1 + 0.05)}{(0.18 - 0.05)} \times \frac{1}{(1 + 0.18)^4}$$

$$P = 132.81 + 126.10 + 119.59 + 113.45 + 916.34 = ₹ 1,408.29$$

Intrinsic value of share is ₹ 1,408.29 as compared to latest market price of ₹2,185. Market price of share is over-priced by ₹ 776.71.

(d) Working Notes:

(1) Calculation of cash and credit sales (₹ in thousands)

	Nov.	Dec.	Jan.	Feb.	Mar.
Total Sales	640	880	600	600	800
Cash Sales (1/5 <sup>th</sup> of total sales)	128	176	120	120	160
Credit Sales (4/5 <sup>th</sup> of total sales)	512	704	480	480	640

(2) Calculation of Credit Sales Receipts (₹ in thousands)

Month	Nov.	Dec.	Jan.	Feb.	Mar.
Forecast Credit sales (Working note 1)	512.00	704.00	480.00	480.00	640.00

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

5

Receipts:					
15% in the month of sales			72.00	72.00	96.00
25% in next month			176.00	120.00	120.00
58% in next to next month			296.96	408.32	278.40
<b>Total</b>			544.96	600.32	494.40

## Cash Budget

(₹ in thousands)

	Nov.	Dec.	Jan.	Feb.	Mar.
Opening Balance (A)			50.00	174.96	355.28
Sales	640.00	880.00	600.00	600.00	800.00
<b>Receipts:</b>					
Cash Collection (Working note 1)			120.00	120.00	160.00
Credit Collections (Working note 2)			544.96	600.32	494.40
<b>Total (B)</b>			664.96	720.32	654.40
Purchases (90% of sales in the month prior to sales)		540	540	720	
<b>Payments:</b>					
Payment for purchases (next month)			540	540	720
<b>Total (C)</b>			540	540	720
Closing balance(D) = (A + B – C)			174.96	355.28	289.68

## Question 2

Following are the data in respect of ABC Industries for the year ended 31<sup>st</sup> March, 2021:

Debt to Total assets ratio	:	0.40
Long-term debts to equity ratio	:	30%
Gross profit margin on sales	:	20%
Accounts receivables period	:	36 days
Quick ratio	:	0.9
Inventory holding period	:	55 days
Cost of goods sold	:	₹ 64,00,000

Liabilities	₹	Assets	₹
Equity Share Capital	20,00,000	Fixed assets	
Reserves & surplus		Inventories	

## 6 INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

Long-term debts		Accounts receivable	
Accounts payable		Cash	
Total	50,00,000	Total	

Required:

Complete the Balance Sheet of ABC Industries as on 31<sup>st</sup> March, 2021. All calculations should be in nearest Rupee. Assume 360 days in a year. **(10 Marks)**

**Answer**

**Working Notes:**

(1) Total liability = Total Assets = ₹ 50,00,000

Debt to Total Asset Ratio = 0.40

$$\frac{\text{Debt}}{\text{Total Assets}} = 0.40$$

$$\text{Or, } \frac{\text{Debt}}{50,00,000} = 0.40$$

**So, Debt = ₹ 20,00,000**

(2) Total Liabilities = ₹ 50,00,000

Equity share Capital + Reserves + Debt = ₹ 50,00,000

So, Reserves = ₹ 50,00,000 - ₹ 20,00,000 - ₹ 20,00,000

**So, Reserves & Surplus = ₹ 10,00,000**

(3)  $\frac{\text{Long term Debt}}{\text{Equity Shareholders' Fund}} = 30\%^*$

$$\frac{\text{Long term Debt}}{(20,00,000+10,00,000)} = 30\%$$

**Long Term Debt = ₹ 9,00,000**

(4) So, Accounts Payable = ₹ 20,00,000 - ₹ 9,00,000

**Accounts Payable = ₹ 11,00,000**

(5) Gross Profit to sales = 20%

Cost of Goods Sold = 80% of Sales = ₹ 64,00,000

$$\text{Sales} = \frac{100}{80} \times 64,00,000 = \text{₹ } 80,00,000$$

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

- (6) Inventory Turnover  $= \frac{360}{55}$
- $$\frac{\text{COGS}}{\text{Closing inventory}} = \frac{360}{55}$$
- $$\frac{64,00,000}{\text{Closing inventory}} = \frac{360}{55}$$
- Closing inventory = ₹ 9,77,778**
- (7) Accounts Receivable period = 36 days
- $$\frac{\text{Accounts Receivable}}{\text{Credit sales}} \times 360 = 36$$
- $$\text{Accounts Receivable} = \frac{36}{360} \times \text{credit sales}$$
- $$= \frac{36}{360} \times 80,00,000 \text{ (assumed all sales are on credit)}$$
- Accounts Receivable = ₹ 8,00,000**
- (8) Quick Ratio = 0.9
- $$\frac{\text{Quick Assets}}{\text{Current liabilities}} = 0.9$$
- $$\frac{\text{Cash} + \text{Debtors}}{11,00,000} = 0.9$$
- $$\text{Cash} + 8,00,000 = ₹ 9,90,000$$
- Cash = ₹ 1,90,000**
- (9) Fixed Assets = Total Assets - Current Assets = 50,00,000 - (9,77,778 + 8,00,000 + 1,90,000)  
= **30,32,222**

Balance Sheet of ABC Industries as on 31<sup>st</sup> March 2021

Liabilities	(₹)	Assets	(₹)
Share Capital	20,00,000	Fixed Assets	<b>30,32,222</b>
Reserved surplus	<b>10,00,000</b>	Current Assets:	
Long Term Debt	<b>9,00,000</b>	Inventory	<b>9,77,778</b>
Accounts Payable	<b>11,00,000</b>	Accounts Receivables	<b>8,00,000</b>
		Cash	<b>1,90,000</b>
<b>Total</b>	<b>50,00,000</b>	<b>Total</b>	<b>50,00,000</b>

(\*Note: Equity shareholders' fund represent equity in 'Long term debts to equity ratio'. The question can be solved assuming only share capital as 'equity')

8

## INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

**Question 3**

Earnings before interest and tax of a company are ₹ 4,50,000. Currently the company has 80,000 Equity shares of ₹ 10 each, retained earnings of ₹ 12,00,000. It pays annual interest of ₹ 1,20,000 on 12% Debentures. The company proposes to take up an expansion scheme for which it needs additional fund of ₹ 6,00,000. It is anticipated that after expansion, the company will be able to achieve the same return on investment as at present.

It can raise fund either through debts at rate of 12% p.a. or by issuing Equity shares at par. Tax rate is 40%.

Required:

Compute the earning per share if:

- (i) The additional funds were raised through debts.
- (ii) The additional funds were raised by issue of Equity shares.

Advise whether the company should go for expansion plan and which sources of finance should be preferred. **(10 Marks)**

**Answer****Working Notes:**

- (1) **Capital employed before expansion plan:**

	(₹)
Equity shares (₹ 10 × 80,000 shares)	8,00,000
Debentures {(₹ 1,20,000/12) × 100}	10,00,000
Retained earnings	12,00,000
<b>Total capital employed</b>	<b>30,00,000</b>

- (2) **Earnings before interest and tax (EBIT) = 4,50,000**

- (3) **Return on Capital Employed (ROCE):**

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital employed}} \times 100 = \frac{₹ 4,50,000}{₹ 30,00,000} \times 100 = 15\%$$

- (4) **Earnings before interest and tax (EBIT) after expansion scheme:**

After expansion, capital employed = ₹ 30,00,000 + ₹ 6,00,000 = ₹ 36,00,000

**Desired EBIT** = 15% × ₹ 36,00,000 = ₹ 5,40,000

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

9

(i) &amp; (ii) Computation of Earnings Per Share (EPS) under the following options:

	Present situation	Expansion scheme Additional funds raised as	
		Debt (i)	Equity (ii)
	(₹)	(₹)	(₹)
Earnings before Interest and Tax (EBIT)	4,50,000	5,40,000	5,40,000
Less: Interest - Old Debt	1,20,000	1,20,000	1,20,000
- New Debt	--	<b>72,000</b> (₹ 6,00,000 × 12%)	--
Earnings before Tax (EBT)	3,30,000	3,48,000	4,20,000
Less: Tax (40% of EBT)	1,32,000	1,39,200	1,68,000
PAT/EAT	1,98,000	<b>2,08,800</b>	<b>2,52,000</b>
No. of shares outstanding	80,000	80,000	1,40,000
Earnings per Share (EPS)	2.475 $\left(\frac{₹ 1,98,000}{80,000}\right)$	<b>2.610</b> $\left(\frac{₹ 2,08,800}{80,000}\right)$	<b>1.800</b> $\left(\frac{₹ 2,52,000}{1,40,000}\right)$

**Advise to the Company:** When the expansion scheme is financed by additional debt, the EPS is higher. Hence, the company **should finance the expansion scheme by raising debt.**

**Question 4**

Stand Ltd. is contemplating replacement of one of its machines which has become outdated and inefficient. Its financial manager has prepared a report outlining two possible replacement machines. The details of each machine are as follows:

	<b>Machine 1</b>	<b>Machine 2</b>
Initial investment	₹ 12,00,000	₹ 16,00,000
Estimated useful life	3 years	5 years
Residual value	₹ 1,20,000	₹ 1,00,000
Contribution per annum	₹ 11,60,000	₹ 12,00,000
Fixed maintenance costs per annum	₹ 40,000	₹ 80,000
Other fixed operating costs per annum	₹ 7,20,000	₹ 6,10,000

The maintenance costs are payable annually in advance. All other cash flows apart from the initial investment assumed to occur at the end of each year. Depreciation has been calculated

10

## INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

by straight line method and has been included in other fixed operating costs. The expected cost of capital for this project is assumed as 12% p.a.

Required:

- (i) Which machine is more beneficial, using Annualized Equivalent Approach? Ignore tax.  
(ii) Calculate the sensitivity of your recommendation in part (i) to changes in the contribution generated by machine 1.

Year	1	2	3	4	5	6
$PVIF_{0.12,t}$	0.893	0.797	0.712	0.636	0.567	0.507
$PVIFA_{0.12,t}$	0.893	1.690	2.402	3.038	3.605	4.112

(10 Marks)

Answer

## (i) Calculation of Net Cash flows

## Machine 1

Other fixed operating costs (excluding depreciation) =  $7,20,000 - [(12,00,000 - 1,20,000)/3]$   
= ₹ 3,60,000

Year	Initial Investment (₹)	Contribution (₹)	Fixed maintenance costs (₹)	Other fixed operating costs (excluding depreciation) (₹)	Residual Value (₹)	Net cash flow (₹)
0	(12,00,000)		(40,000)			(12,40,000)
1		11,60,000	(40,000)	(3,60,000)		7,60,000
2		11,60,000	(40,000)	(3,60,000)		7,60,000
3		11,60,000		(3,60,000)	1,20,000	9,20,000

## Machine 2

Other fixed operating costs (excluding depreciation) =  $6,10,000 - [(16,00,000 - 1,00,000)/5]$   
= ₹ 3,10,000

Year	Initial Investment (₹)	Contribution (₹)	Fixed maintenance costs (₹)	Other fixed operating costs (excluding depreciation) (₹)	Residual Value (₹)	Net cash flow (₹)
0	(16,00,000)		(80,000)			(16,80,000)



## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

11

1		12,00,000	(80,000)	(3,10,000)		8,10,000
2		12,00,000	(80,000)	(3,10,000)		8,10,000
3		12,00,000	(80,000)	(3,10,000)		8,10,000
4		12,00,000	(80,000)	(3,10,000)		8,10,000
5		12,00,000		(3,10,000)	1,00,000	9,90,000

## Calculation of Net Present Value

Year	12% discount factor	Machine 1		Machine 2	
		Net cash flow (₹)	Present value (₹)	Net cash flow (₹)	Present value (₹)
0	1.000	(12,40,000)	(12,40,000)	(16,80,000)	(16,80,000)
1	0.893	7,60,000	6,78,680	8,10,000	7,23,330
2	0.797	7,60,000	6,05,720	8,10,000	6,45,570
3	0.712	9,20,000	6,55,040	8,10,000	5,76,720
4	0.636			8,10,000	5,15,160
5	0.567			9,90,000	5,61,330
NPV @ 12%			6,99,440		13,42,110
PVAF @ 12%			2.402		3.605
Equivalent Annualized Criterion			2,91,190.674		3,72,291.262

**Recommendation: Machine 2 is more beneficial using Equivalent Annualized Criterion.**

- (ii) **Calculation of sensitivity of recommendation in part (i) to changes in the contribution generated by machine 1**

Difference in Equivalent Annualized Criterion of Machines required for changing the recommendation in part (i) = 3,72,291.262 - 2,91,190.674 = ₹ 81,100.588

$$\therefore \text{Sensitivity relating to contribution} = \frac{₹ 81,100.588}{₹ 11,60,000.00} \times 100 = 6.991 \text{ or } 7\% \text{ yearly}$$

**Alternatively,**

The annualized equivalent cash flow for machine 1 is lower by ₹ (3,72,291.262 - 2,91,190.674) = ₹ 81,100.588 than for machine 2. Therefore, it would need to increase contribution for **complete 3 years** before the decision would be to invest in this machine.

$$\text{Sensitivity w.r.t contribution} = 81,100.588 / (11,60,000 \times 2.402) \times 100 = 2.911\%$$

12 INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

**Question 5**

Information of A Ltd. is given below:

- Earnings after tax: 5% on sales
- Income tax rate: 50%
- Degree of Operating Leverage: 4 times
- 10% Debenture in capital structure: ₹ 3 lakhs
- Variable costs: ₹ 6 lakhs

Required:

(i) From the given data complete following statement:

Sales	XXXX
Less: Variable costs	₹ 6,00,000
Contribution	XXXX
Less: Fixed costs	XXXX
EBIT	XXXX
Less: Interest expenses	XXXX
EBT	XXXX
Less: Income tax	XXXX
EAT	XXXX

- (ii) Calculate Financial Leverage and Combined Leverage.  
 (iii) Calculate the percentage change in earning per share, if sales increased by 5%.

**(10 Marks)**

**Answer**

(i) **Working Notes**

Earning after tax (EAT) is 5% of sales

Income tax is 50%

So, EBT is 10% of Sales

Since Interest Expenses is ₹ 30,000

EBIT = 10% of Sales + ₹30,000 ..... (Equation i)

Now Degree of operating leverage = 4

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

13

So,  $\frac{\text{Contribution}}{\text{EBIT}} = 4$

Or, Contribution = 4 EBIT

Or, Sales – Variable Cost = 4 EBIT

Or, Sales – ₹ 6,00,000 = 4 EBIT ..... (Equation ii)

Replacing the value of EBIT of equation (i) in Equation (ii)

We get, Sales – ₹ 6,00,000 = 4 (10% of Sales + ₹ 30,000)

Or, Sales – ₹ 6,00,000 = 40% of Sales + ₹ 1,20,000

Or, 60% of Sales = ₹ 7,20,000

**So, Sales =  $\frac{₹ 7,20,000}{60\%} = ₹ 12,00,000$**

Contribution = Sales – Variable Cost = ₹ 12,00,000 – ₹ 6,00,000 = ₹ 6,00,000

**EBIT =  $\frac{₹ 6,00,000}{4} = ₹ 1,50,000$**

Fixed Cost = Contribution – EBIT = ₹ 6,00,000 – ₹ 1,50,000 = ₹ 4,50,000

**EBT = EBIT – Interest = ₹ 1,50,000 – ₹ 30,000 = ₹ 1,20,000**

EAT = 50% of ₹ 1,20,000 = ₹ 60,000

**Income Statement**

Particulars	(₹)
<b>Sales</b>	<b>12,00,000</b>
Less: Variable cost	6,00,000
Contribution	6,00,000
Less: Fixed cost	4,50,000
<b>EBIT</b>	<b>1,50,000</b>
Less: Interest	30,000
<b>EBT</b>	<b>1,20,000</b>
Less: Tax (50%)	60,000
EAT	60,000

## 14 INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

$$(ii) \text{ Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{1,50,000}{1,20,000} = \mathbf{1.25 \text{ times}}$$

$$\begin{aligned} \text{Combined Leverage} &= \text{Operating Leverage} \times \text{Financial Leverage} \\ &= 4 \times 1.25 = \mathbf{5 \text{ times}} \end{aligned}$$

Or,

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

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} = \frac{\text{₹ } 6,00,000}{\text{₹ } 1,20,000} = \mathbf{5 \text{ times}}$$

(iii) Percentage Change in Earnings per share

$$\text{Combined Leverage} = \frac{\% \text{ Change in EPS}}{\% \text{ change in Sales}} = 5 = \frac{\% \text{ change in EPS}}{5\%}$$

$$\therefore \% \text{ Change in EPS} = \mathbf{25\%}$$

Hence, if sales increased by 5 %, EPS will be increased by 25 %.

**Question 6**

- (a) Write short notes on Bridge Finance and Clean Packing Credit. (4 Marks)
- (b) Distinguish between Scenario Analysis & Sensitivity Analysis. (4 Marks)
- (c) Explain in brief the phases of the evolution of financial management. (2 Marks)

OR

Adjustment of risk is required in capital budgeting decision, give reasons for it. (2 Marks)

**Answer**

- (a) **Bridge Finance:** Bridge finance refers to loans taken by a company normally from commercial banks for a short period because of pending disbursement of loans sanctioned by financial institutions. Though it is of short-term nature but since it is an important step in the facilitation of long-term loan, therefore it is being discussed along with the long term sources of funds. Normally, it takes time for financial institutions to disburse loans to companies. However, once the loans are approved by the term lending institutions, companies, in order not to lose further time in starting their projects, arrange short term loans from commercial banks. The bridge loans are repaid/ adjusted out of the term loans as and when disbursed by the concerned institutions. Bridge loans are normally secured by hypothecating movable assets, personal guarantees and demand promissory notes. Generally, the rate of interest on bridge finance is higher as compared with that on term loans.

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

15

**Clean packing credit:** This is an advance made available to an exporter only on production of a firm export order or a letter of credit without exercising any charge or control over raw material or finished goods. **It is a clean type of export advance.** Each proposal is weighed according to particular requirements of the trade and credit worthiness of the exporter. A suitable margin has to be maintained. Also, Export Credit Guarantee Corporation (ECGC) cover should be obtained by the bank.

**(b) Scenario Analysis Vs Sensitivity Analysis**

**Sensitivity analysis** calculates the impact of the **change of a single input variable on the outcome of the project** viz., NPV or IRR. The sensitivity analysis thus enables to identify that single critical variable which can impact the outcome in a huge way and the range of outcomes of the project given the change in the input variable.

**Scenario analysis, on the other hand,** is based on a scenario. The scenario may be recession or a boom wherein depending on the scenario, **all input variables change.** Scenario Analysis calculates the outcome of the project considering this scenario where the variables have changed simultaneously. Similarly, the outcome of the project would also be considered for the normal and recessionary situation. The variability in the outcome under the three different scenarios would help the management to assess the risk a project carries. Higher deviation in the outcome can be assessed as higher risk and lower to medium deviation can be assessed accordingly.

Scenario analysis is far more complex than sensitivity analysis because in scenario analysis all inputs are changed simultaneously, considering the situation in hand while in sensitivity analysis, only one input is changed, and others are kept constant.

**(c) Evolution of Financial Management:** Financial management evolved gradually over the past 50 years. The evolution of financial management is divided into three phases. Financial Management evolved as a separate field of study at the beginning of the century.

The three stages of its evolution are:

**The Traditional Phase:** During this phase, financial management was considered necessary only during occasional events such as takeovers, mergers, expansion, liquidation, etc. Also, when taking financial decisions in the organisation, the needs of outsiders (investment bankers, people who lend money to the business and other such people) to the business was kept in mind.

**The Transitional Phase:** During this phase, the day-to-day problems that financial managers faced were given importance. The general problems related to funds analysis, planning and control were given more attention in this phase.

16

## INTERMEDIATE (NEW) EXAMINATION: DECEMBER, 2021

**The Modern Phase:** Modern phase is still going on. The scope of financial management has greatly increased now. It is important to carry out financial analysis for a company. This analysis helps in decision making. During this phase, many theories have been developed regarding efficient markets, capital budgeting, option pricing, valuation models and also in several other important fields in financial management. Here, financial management is viewed as a supportive and facilitative function, not only for top management but for all levels of management.

OR

**Reasons for adjustment of Risk in Capital Budgeting decisions are as follows:**

1. There is an opportunity cost involved while investing in a project for the level of risk. Adjustment of risk is necessary to help make the decision as to **whether the returns out of the project are proportionate with the risks borne** and whether it is **worth investing** in the project over the other investment options available.
2. Risk adjustment is required to know the **real value of cash Inflows**. **Higher risk** will lead to **higher risk premium** and also the **expectation of higher return**.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

**Question 1**

(a) Following information and ratios are given for W Limited for the year ended 31<sup>st</sup> March, 2022:

Equity Share Capital of ₹ 10 each	₹ 10 lakhs
Reserves & Surplus to Shareholders' Fund	0.50
Sales / Shareholders' Fund	1.50
Current Ratio	2.50
Debtors Turnover Ratio	6.00
Stock Velocity	2 Months
Gross Profit Ratio	20%
Net Working Capital Turnover Ratio	2.50

You are required to calculate:

- (i) Shareholders' Fund
- (ii) Stock
- (iii) Debtors
- (iv) Current liabilities
- (v) Cash Balance.

(5 Marks)

(b) Balance sheet of X Ltd for the year ended 31<sup>st</sup> March, 2022 is given below:

(₹ in lakhs)

Liabilities	Amount	Assets	Amount
Equity Shares ₹ 10 each	200	Fixed Assets	500
Retained earnings	200	Raw materials	150
11% Debentures	300	W.I.P	100
Public deposits (Short-Term)	100	Finished goods	50

2

INTERMEDIATE EXAMINATION: MAY 2022

Trade Creditors	80	Debtors	125
Bills Payable	100	Cash/Bank	55
	<b>980</b>		<b>980</b>

Calculate the amount of maximum permissible bank finance under three methods as per Tandon Committee lending norms.

The total core current assets are assumed to be ₹ 30 lakhs. **(5 Marks)**

- (c) A company requires 36,000 units of a product per year at cost of ₹ 100 per unit. Ordering cost per order is ₹ 250 and the carrying cost is 4.5% per year of the inventory cost. Normal lead time is 25 days and safety stock is NIL.

Assume 360 working days in a year.

- (i) Calculate the Reorder Inventory Level.
- (ii) Calculate the Economic Order Quantity (EOQ).
- (iii) If the supplier offers 1% quantity discount for purchase in lots of 9,000 units or more, should the company accept the proposal? **(5 Marks)**

- (d) P Ltd. is considering a project with the following details:

Initial Project Cost	₹ 1,00,000			
Annual Cash Inflow (₹)	1	2	3	4
	30,000	40,000	50,000	60,000
Project Life (Years)	4			
Cost of Capital	10%			

- (i) MEASURE the sensitivity of the project to change in initial project cost and Annual cash inflows (considering each factor at a time) such that NPV become zero.
- (ii) IDENTIFY which of the two factors; the project is most sensitive to affect the acceptability of the project?

Year	1	2	3	4	5
PVIF <sub>0.10, t</sub>	0.909	0.826	0.751	0.683	0.621

**(5 Marks)**

**Answer**

- (a) (i) Calculation of Shareholders' Fund:

$$\frac{\text{Reserve \& Surplus}}{\text{Shareholders' Funds}} = 0.5$$



## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

3

$$\frac{\text{Reserve \& Surplus}}{\text{Equity Share Capital + Reserve \& Surplus}} = 0.5$$

$$\frac{\text{Reserve \& Surplus}}{10,00,000 + \text{Reserve \& Surplus}} = 0.5$$

$$\text{Reserve \& Surplus} = 5,00,000 + 0.5 \text{ Reserve \& Surplus}$$

$$0.5 \text{ Reserve \& Surplus} = 5,00,000$$

$$\text{Reserve \& Surplus} = 10,00,000$$

$$\text{Shareholders' funds} = 10,00,000 + 10,00,000$$

$$\text{Shareholders' funds} = ₹ 20,00,000$$

(ii) Calculation of Value of Stock:

$$\frac{\text{Sales}}{\text{Shareholders' Funds}} = 1.5$$

$$\text{Sales} = 1.5 \times 20,00,000$$

$$\text{Sales} = 30,00,000$$

$$\text{Gross Profit} = 30,00,000 \times 20\% = 6,00,000$$

$$\begin{aligned} \text{Cost of Goods Sold} &= 30,00,000 - 6,00,000 \\ &= ₹ 24,00,000 \end{aligned}$$

$$\text{Stock velocity} = 2 \text{ months}$$

$$\frac{\text{Average Stock}}{\text{Cost of Goods Sold}} \times 12 = 2$$

$$\frac{\text{Average Stock}}{24,00,000} \times 12 = 2$$

$$\text{Average Stock} = 24,00,000 \times \frac{2}{12}$$

$$\text{Average stock} = ₹ 4,00,000$$

(iii) Calculation of Debtors:

$$\text{Debtors Turnover Ratio} = 6$$

$$\therefore \frac{\text{Sales}}{\text{Average Debtor}} = 6$$

4

INTERMEDIATE EXAMINATION: MAY 2022

$$\therefore \frac{30,00,000}{\text{Average Debtor}} = 6$$

**Average Debtors = ₹ 5,00,000**

(iv) Calculation of Current Liabilities:

Net Working Capital Turnover ratio = 2.5

$$\frac{\text{Sales}}{\text{Current Assets} - \text{Current Liabilities}} = 2.5$$

$$\frac{30,00,000}{\text{Current Assets} - \text{Current Liabilities}} = 2.5$$

Current Assets – Current Liabilities = 12,00,000 ..... (1)

Current Ratio = 2.5

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2.5$$

Current Assets = 2.5 Current Liabilities .....(2)

From (1) & (2),

2.5 Current Liabilities – Current Liabilities = 12,00,000

1.5 Current Liabilities = 12,00,000

**Current Liabilities = ₹ 8,00,000**

(v) Calculation of Cash Balance:

Current Assets = 2.5 Current Liabilities

Current Assets = 2.5 (8,00,000)	= 20,00,000
(-) Debtors	(5,00,000)
(-) Stock	(4,00,000)
<b>Cash Balance</b>	<b>₹ 11,00,000</b>

(b) Current Assets = 150 + 100 + 50 + 125 + 55 = ₹ 480 Lakhs

Current Liabilities = 100 + 80 + 100 = ₹ 280 Lakhs

Maximum Permissible Banks Finance under Tandon Committee Norms:

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

5

**Method I**

$$\begin{aligned} \text{Maximum Permissible Bank Finance} &= 75\% \text{ of (Current Assets – Current Liabilities)} \\ &= 75\% \text{ of (480 - 280)} \\ &= \text{₹ 150 Lakhs} \end{aligned}$$

**Method II**

$$\begin{aligned} \text{Maximum Permissible Bank Finance} &= 75\% \text{ of Current Assets – Current Liabilities} \\ &= 75\% \text{ of } 480 - 280 \\ &= \text{₹ 80 Lakhs} \end{aligned}$$

**Method III**

$$\begin{aligned} \text{Maximum Permissible Bank Finance} &= 75\% \text{ of (Current Assets – Core Current} \\ &\quad \text{Assets) – Current Liabilities} \\ &= 75\% \text{ of (480 - 30) – 280} \\ &= \text{₹ 57.5 Lakhs} \end{aligned}$$

$$\begin{aligned} \text{(c) Annual Consumption} &= 36,000 \text{ (A)} \\ \text{Ordering Cost} &= \text{₹ 250 per order (O)} \\ \text{Carrying Cost} &= \frac{4.5}{100} \times 100 \\ &= \text{₹ 4.5 (C)} \\ \text{Lead Time} &= 25 \text{ days} \\ \text{(i) Reorder Level} &= \text{Lead Time} \times \text{Daily Consumption} \\ &= 25 \times \frac{36,000}{360} \\ &= \text{2,500 units} \\ \text{(ii) Economic Order Quantity (EOQ)} &= \sqrt{\frac{2AO}{C}} \\ &= \sqrt{\frac{2 \times 36,000 \times 250}{4.5}} \\ &= \text{2,000 units} \end{aligned}$$

6

## INTERMEDIATE EXAMINATION: MAY 2022

## (iii) Evaluation of Profitability of Quantity Discount Offer:

## (a) When EOQ is ordered

		(₹)
Purchase Cost	(36,000 units × ₹ 100)	36,00,000
Ordering Cost	[(36,000 units/2,000 units) × ₹ 250]	4,500
Carrying Cost	(2,000 units × ½ × ₹ 4.5)	4,500
<b>Total Cost</b>		<b>36,09,000</b>

## (b) When Quantity Discount is accepted

		(₹)
Purchase Cost	(36,000 units × ₹ 99*)	35,64,000
Ordering Cost	[(36,000 units/9,000 units) × ₹ 250]	1,000
Carrying Cost	(9,000 units × ½ × ₹ 99 × 4.5%)	20,048
<b>Total Cost</b>		<b>35,85,048</b>

\*Unit Cost = ₹100

Less: Quantity Discount @ 1% = ₹ 1

Purchase Cost = ₹ 99

**Advise** – The total cost of inventory is lower if Quantity Discount is accepted. Hence, the company is advised to accept the proposal.

## (d) Computation of Net Present Value (NPV):

Year	PVF @ 10%	Original Cash Flows (₹)	PV (₹)	PV (₹)
0	1	(1,00,000)		(1,00,000)
1	0.909	30,000	27,270	
2	0.826	40,000	33,040	
3	0.751	50,000	37,550	
4	0.683	60,000	40,980	1,38,840
<b>NPV</b>				<b>38,840</b>

## Determination of the most Sensitive factor:

## (i) Sensitivity Analysis w.r.t. Initial Project cost (such that NPV becomes zero):

NPV of the project would be zero when the initial project cost is increased by ₹ 38,840.

$$\therefore \text{Percentage change in Initial project cost} = \frac{\text{₹ } 38,840}{\text{₹ } 1,00,000} \times 100 = 38.84\%$$

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE** **7**

**(ii) Sensitivity Analysis w.r.t. Annual Cash inflows (such that NPV becomes zero):**

NPV of the project would be zero when the Annual cash inflows is decreased by ₹ 38,840.

$$\therefore \text{Percentage change in the Annual cash inflows} = \frac{\text{₹ } 38,840}{\text{₹ } 1,38,840} \times 100 = 27.97\%$$

**Conclusion:** Annual cash inflows factor is the most sensitive as only a change beyond 27.97% in savings makes the project unacceptable.

**Question 2**

Details of a company for the year ended 31<sup>st</sup> March, 2022 are given below:

Sales	₹ 86 lakhs
Profit Volume (P/V) Ratio	35%
Fixed Cost excluding interest expenses	₹ 10 lakhs
10% Debt	₹ 55 lakhs
Equity Share Capital of ₹ 10 each	₹ 75 lakhs
Income Tax Rate	40%

Required:

- (i) Determine company's Return on Capital Employed (Pre-tax) and EPS.
- (ii) Does the company have a favourable financial leverage?
- (iii) Calculate operating and combined leverages of the company.
- (iv) Calculate percentage change in EBIT, if sales increases by 10%.
- (v) At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero? **(10 Marks)**

**Answer**

**Income Statement**

Particulars	Amount (₹)
Sales	86,00,000
Less: Variable cost (65% of 86,00,000)	55,90,000
Contribution (35% of 86,00,000)	30,10,000
Less: Fixed costs	10,00,000
Earnings before interest and tax (EBIT)	20,10,000
Less: Interest on debt (@ 10% on ₹ 55 lakhs)	5,50,000

8

## INTERMEDIATE EXAMINATION: MAY 2022

Earnings before tax (EBT)	14,60,000
Tax (40%)	5,84,000
PAT	8,76,000

$$(i) \text{ ROCE (Pre-tax)} = \frac{\text{EBIT}}{\text{Capital employed}} \times 100 = \frac{\text{EBIT}}{\text{Equity} + \text{Debt}} \times 100$$

$$\frac{\text{₹ } 20,10,000}{\text{₹ } (75,00,000 + 55,00,000)} \times 100 = 15.46\%$$

EPS (PAT/No. of equity shares) 1.168 or ₹ 1.17

(ii) ROCE is 15.46% and Interest on debt is 10%. Hence, it has a **favourable financial leverage.**

(iii) Calculation of Operating, Financial and Combined leverages:

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{₹ } 30,10,000}{\text{₹ } 20,10,000} = 1.497 \text{ (approx.)}$$

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{₹ } 20,10,000}{\text{₹ } 14,60,000} = 1.377 \text{ (approx.)}$$

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} = \frac{\text{₹ } 30,10,000}{\text{₹ } 14,60,000} = 2.062 \text{ (approx.)}$$

$$\text{Or, } = \text{Operating Leverage} \times \text{Financial Leverage} = 1.497 \times 1.377 = 2.06 \text{ (approx.)}$$

(iv) Operating leverage is 1.497. So, if sales are increased by 10%.

**EBIT will be increased by  $1.497 \times 10\%$  i.e. 14.97% (approx.)**

(v) Since the combined Leverage is 2.062, sales have to drop by  $100/2.062$  i.e. 48.50% to bring EBT to Zero.

$$\begin{aligned} \text{Accordingly, New Sales} &= \text{₹ } 86,00,000 \times (1 - 0.4850) \\ &= \text{₹ } 86,00,000 \times 0.515 \\ &= \text{₹ } 44,29,000 \text{ (approx.)} \end{aligned}$$

**Hence, at ₹ 44,29,000 sales level, EBT of the firm will be equal to Zero.**

**Question 3**

Alpha Limited is a manufacturer of computers. It wants to introduce artificial intelligence while making computers. The estimated annual saving from introduction of the artificial intelligence (AI) is as follows:

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

**9**

- reduction of five employees with annual salaries of ₹ 3,00,000 each
- reduction of ₹ 3,00,000 in production delays caused by inventory problem
- reduction in lost sales ₹ 2,50,000 and
- Gain due to timely billing ₹ 2,00,000

The purchase price of the system for installation of artificial intelligence is ₹ 20,00,000 and installation cost is ₹ 1,00,000. 80% of the purchase price will be paid in the year of purchase and remaining will be paid in next year.

The estimated life of the system is 5 years and it will be depreciated on a straight-line basis.

However, the operation of the new system requires two computer specialists with annual salaries of ₹ 5,00,000 per person.

In addition to above, annual maintenance and operating cost for five years are as below:

(Amount in ₹)

Year	1	2	3	4	5
Maintenance & Operating Cost	2,00,000	1,80,000	1,60,000	1,40,000	1,20,000

Maintenance and operating cost are payable in advance.

The company's tax rate is 30% and its required rate of return is 15%.

Year	1	2	3	4	5
PVIF $_{0.10, t}$	0.909	0.826	0.751	0.683	0.621
PVIF $_{0.12, t}$	0.893	0.797	0.712	0.636	0.567
PVIF $_{0.15, t}$	0.870	0.756	0.658	0.572	0.497

Evaluate the project by using Net Present Value and Profitability Index.

**(10 Marks)**

**Answer**

Computation of Annual Cash Flow after Tax						
Particulars	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Savings in Salaries		15,00,000	15,00,000	15,00,000	15,00,000	15,00,000
Reduction in Production Delays		3,00,000	3,00,000	3,00,000	3,00,000	3,00,000
Reduction in Lost Sales		2,50,000	2,50,000	2,50,000	2,50,000	2,50,000
Gain due to Timely Billing		2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Salary to Computer Specialist		(10,00,000)	(10,00,000)	(10,00,000)	(10,00,000)	(10,00,000)

10

## INTERMEDIATE EXAMINATION: MAY 2022

Maintenance and Operating Cost (payable in advance)		(2,00,000)	(1,80,000)	(1,60,000)	(1,40,000)	(1,20,000)
Depreciation (21 lakhs/5)		(4,20,000)	(4,20,000)	(4,20,000)	(4,20,000)	(4,20,000)
<b>Gain Before Tax</b>		6,30,000	6,50,000	6,70,000	6,90,000	7,10,000
Less: Tax (30%)		1,89,000	1,95,000	2,01,000	2,07,000	2,13,000
Gain After Tax		4,41,000	4,55,000	4,69,000	4,83,000	4,97,000
Add: Depreciation		4,20,000	4,20,000	4,20,000	4,20,000	4,20,000
Add: Maintenance and Operating Cost (payable in advance)		2,00,000	1,80,000	1,60,000	1,40,000	1,20,000
Less: Maintenance and Operating Cost (payable in advance)	(2,00,000)	(1,80,000)	(1,60,000)	(1,40,000)	(1,20,000)	-
<b>Net CFAT</b>	(2,00,000)	8,81,000	8,95,000	9,09,000	9,23,000	10,37,000

**Note:** Annual cash flows can also be calculated Considering tax shield on depreciation & maintenance and operating cost. There will be no change in the final cash flows after tax.

Computation of NPV				
Particulars	Year	Cash Flows (₹)	PVF	PV (₹)
Initial Investment (80% of 20 Lacs)	0	16,00,000	1	16,00,000
Installation Expenses	0	1,00,000	1	1,00,000
Instalment of Purchase Price	1	4,00,000	0.870	3,48,000
<b>PV of Outflows (A)</b>				<b>20,48,000</b>
CFAT	0	(2,00,000)	1	(2,00,000)
CFAT	1	8,81,000	0.870	7,66,470
CFAT	2	8,95,000	0.756	6,76,620
CFAT	3	9,09,000	0.658	5,98,122
CFAT	4	9,23,000	0.572	5,27,956
CFAT	5	10,37,000	0.497	5,15,389
<b>PV of Inflows (B)</b>				<b>28,84,557</b>
<b>NPV (B-A)</b>				<b>8,36,557</b>
<b>Profitability Index (B/A)</b>				<b>1.408 or 1.41</b>



**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE** 11

**Evaluation:** Since the NPV is positive (i.e. ₹ 8,36,557) and Profitability Index is also greater than 1 (i.e. 1.41), Alpha Ltd. may introduce artificial intelligence (AI) while making computers.

**Question 4**

The particulars relating to Raj Ltd. for the year ended 31<sup>st</sup> March, 2022 are given as follows:

Output (units at normal capacity)	1,00,000
Selling price per unit	₹ 40
Variable cost per unit	₹ 20
Fixed cost	₹ 10,00,000

The capital structure of the company as on 31<sup>st</sup> March, 2022 is as follows:

Particulars	Amount in ₹
Equity share capital (1,00,000 shares of ₹ 10 each)	10,00,000
Reserves and surplus	5,00,000
Current liabilities	5,00,000
<b>Total</b>	<b>20,00,000</b>

Raj Ltd. has decided to undertake an expansion project to use the market potential that will involve ₹ 20 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 15%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion program are planned:

	(Amount in ₹)	
Alternative	Debt	Equity Shares
1	5,00,000	Balance
2	10,00,000	Balance
3	14,00,000	Balance

Current market price per share is ₹ 200.

Slab wise interest rate for fund borrowed is as follows:

Fund limit	Applicable interest rate
Up-to ₹ 5,00,000	10%
Over ₹ 5,00,000 and up-to ₹ 10,00,000	15%
Over ₹ 10,00,000	20%

12

## INTERMEDIATE EXAMINATION: MAY 2022

Find out which of the above-mentioned alternatives would you recommend for Raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%? **(10 Marks)**

**Answer**

Alternative 1 = Raising Debt of ₹ 5 lakh + Equity of ₹ 15 lakh

Alternative 2 = Raising Debt of ₹ 10 lakh + Equity of ₹ 10 lakh

Alternative 3 = Raising Debt of ₹ 14 lakh + Equity of ₹ 6 lakh

**Calculation of Earnings per share (EPS)**

Particulars	FINANCIAL ALTERNATIVES		
	Alternative 1	Alternative 2	Alternative 3
	(₹)	(₹)	(₹)
Expected EBIT [W. N. (a)]	19,50,000	19,50,000	19,50,000
Less: Interest [W. N. (b)]	(50,000)	(1,25,000)	(2,05,000)
<b>Earnings before taxes (EBT)</b>	<b>19,00,000</b>	<b>18,25,000</b>	<b>17,45,000</b>
Less: Taxes @ 40%	7,60,000	7,30,000	6,98,000
<b>Earnings after taxes (EAT)</b>	<b>11,40,000</b>	<b>10,95,000</b>	<b>10,47,000</b>
Number of shares [W. N. (d)]	1,07,500	1,05,000	1,03,000
<b>Earnings per share (EPS)</b>	<b>10.60</b>	<b>10.43</b>	<b>10.17</b>

**Conclusion:** Alternative 1 (i.e. Raising Debt of ₹ 5 lakh and Equity of ₹ 15 lakh) is recommended which maximises the earnings per share.

**Working Notes (W.N.):****(a) Calculation of Earnings before Interest and Tax (EBIT)**

Particulars		
Output (1,00,000 + 50%)	(A)	1,50,000
Selling price per unit		₹ 40
Less: Variable cost per unit (₹ 20 – 15%)		₹ 17
Contribution per unit	(B)	₹ 23
<b>Total contribution</b>	<b>(A x B)</b>	<b>₹ 34,50,000</b>
Less: Fixed Cost (₹ 10,00,000 + ₹ 5,00,000)		₹ 15,00,000
<b>EBIT</b>		<b>₹ 19,50,000</b>

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

13

## (b) Calculation of interest on Debt

Alternative		(₹)	Total (₹)
1	(₹ 5,00,000 x 10%)		50,000
2	(₹ 5,00,000 x 10%)	50,000	1,25,000
	(₹ 5,00,000 x 15%)	75,000	
3	(₹ 5,00,000 x 10%)	50,000	2,05,000
	(₹ 5,00,000 x 15%)	75,000	
	(₹ 4,00,000 x 20%)	80,000	

## (c) Number of equity shares to be issued

$$\text{Alternative 1} = \frac{\text{₹ } (20,00,000 - 5,00,000)}{\text{₹ } 200 \text{ (Market price of share)}} = \frac{\text{₹ } 15,00,000}{\text{₹ } 200} = 7,500 \text{ shares}$$

$$\text{Alternative 2} = \frac{\text{₹ } (20,00,000 - 10,00,000)}{\text{₹ } 200 \text{ (Market price of share)}} = \frac{\text{₹ } 10,00,000}{\text{₹ } 200} = 5,000 \text{ shares}$$

$$\text{Alternative 3} = \frac{\text{₹ } (20,00,000 - 14,00,000)}{\text{₹ } 200 \text{ (Market price of share)}} = \frac{\text{₹ } 6,00,000}{\text{₹ } 200} = 3,000 \text{ shares}$$

## (d) Calculation of total equity shares after expansion program

	Alternative 1	Alternative 2	Alternative 3
Existing no. of shares	1,00,000	1,00,000	1,00,000
Add: issued under expansion program	7,500	5,000	3,000
<b>Total no. of equity shares</b>	<b>1,07,500</b>	<b>1,05,000</b>	<b>1,03,000</b>

## Question 5

A company issues:

- 15% convertible debentures of ₹ 100 each at par with a maturity period of 6 years. On maturity, each debenture will be converted into 2 equity shares of the company. The risk-free rate of return is 10%, market risk premium is 18% and beta of the company is 1.25. The company has paid dividend of ₹ 12.76 per share. Five year ago, it paid dividend of ₹ 10 per share. Flotation cost is 5% of issue amount.
- 5% preference shares of ₹ 100 each at premium of 10%. These shares are redeemable after 10 years at par. Flotation cost is 6% of issue amount.

Assuming corporate tax rate is 40%.

14

INTERMEDIATE EXAMINATION: MAY 2022

- (i) Calculate the cost of convertible debentures using the approximation method.
- (ii) Use YTM method to calculate cost of preference shares.

Year	1	2	3	4	5	6	7	8	9	10
$PVIF_{0.03, t}$	0.971	0.943	0.915	0.888	0.863	0.837	0.813	0.789	0.766	0.744
$PVIF_{0.05, t}$	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614
$PVIFA_{0.03, t}$	0.971	1.913	2.829	3.717	4.580	5.417	6.230	7.020	7.786	8.530
$PVIFA_{0.05, t}$	0.952	1.859	2.723	3.546	4.329	5.076	5.786	6.463	7.108	7.722

Interest rate	1%	2%	3%	4%	5%	6%	7%	8%	9%
$FVIF_{i, 5}$	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539
$FVIF_{i, 6}$	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677
$FVIF_{i, 7}$	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828

(10 Marks)

Answer

(i) Calculation of Cost of Convertible Debentures:

Given that,

$R_f = 10\%$

$R_m - R_f = 18\%$

$B = 1.25$

$D_0 = 12.76$

$D_{-5} = 10$

Flotation Cost = 5%

Using CAPM,

$$K_e = R_f + \beta (R_m - R_f)$$

$$= 10\% + 1.25 (18\%)$$

$$= 32.50\%$$

Calculation of growth rate in dividend

$12.76 = 10 (1+g)^5$

$1.276 = (1+g)^5$

$(1+5\%)^5 = 1.276$  ..... from FV Table

$g = 5\%$

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

15

$$\text{Price of share after 6 years} = \frac{D_7}{k_e - g} = \frac{12.76(1.05)^7}{0.325 - 0.05}$$

$$P_6 = \frac{12.76 \times 1.407}{0.275}$$

$$P_6 = 65.28$$

$$\text{Redemption Value of Debenture (RV)} = 65.28 \times 2 = \mathbf{130.56 \text{ (RV)}}$$

$$\text{NP} = 95$$

$$n = 6$$

$$K_d = \frac{\text{INT} (1-t) + \frac{(\text{RV} - \text{NP})}{n}}{\frac{(\text{RV} + \text{NP})}{2}} \times 100$$

$$= \frac{15 (1-0.4) + \frac{(130.56 - 95)}{6}}{\frac{(130.56 + 95)}{2}} \times 100$$

$$= \frac{9 + 5.93}{112.78} \times 100$$

$$K_d = \mathbf{13.24\%}$$

**(ii) Calculation of Cost of Preference Shares:**

$$\text{Net Proceeds} = 100 (1.1) - 6\% \text{ of } 100 (1.1)$$

$$= 110 - 6.60$$

$$= \mathbf{103.40}$$

$$\text{Redemption Value} = 100$$

Year	Cash Flows (₹)	PVF @ 3%	PV (₹)	PVF @ 5%	PV (₹)
0	103.40	1	103.40	1	103.40
1-10	-5	8.530	-42.65	7.722	-38.61
10	-100	0.744	-74.40	0.614	-61.40
			<b>-13.65</b>		<b>3.39</b>

$$K_p = 3\% + \frac{5\% - 3\%}{[3.39 - (-13.65)]} \times 13.65$$

16

## INTERMEDIATE EXAMINATION: MAY 2022

$$= 3\% + \frac{2\%}{17.04} \times 13.65$$

$$K_p = 4.6021\%$$

**Question 6**

- (a) Identify the limitations of Internal Rate of Return. (4 Marks)
- (b) Briefly explain the assumptions of Walter's Model. (4 Marks)
- (c) State advantages of "Wealth Maximization" goals in Financial Management (2 Marks)

OR

Distinguish between American Depository Receipts and Global Depository Receipts.

(2 Marks)

**Answer****(a) Limitations of Internal Rate of Return (IRR)**

- The calculation **process is tedious** if there is more than one cash outflow interspersed between the cash inflows; there can be multiple IRR, the interpretation of which is difficult.
- The IRR approach **creates a peculiar situation** if we compare two projects with different inflow/outflow patterns.
- It is assumed that under this method all the future cash inflows of a proposal are reinvested at a rate equal to the IRR. **It ignores a firm's ability to re-invest** in portfolio of different rates.
- If mutually exclusive projects are considered as investment options which have considerably different cash outlays. A project with a larger fund commitment but lower IRR contributes more in terms of absolute NPV and increases the shareholders' wealth. In such situation **decisions based only on IRR criterion may not be correct.**

**(b) Assumptions of Walter's Model**

- All investment proposals of the firm are to be financed **through retained earnings** only.
- 'r' rate of return & 'K<sub>e</sub>' cost of **capital are constant.**
- **Perfect capital markets:** The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes or no tax discrimination** between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 17**

income or capital gain. This assumption is necessary for the universal applicability of the theory, since, the tax rates may be different in different countries.

- **No floatation or transaction cost:** Similarly, these costs may differ country to country or market to market.
- The firm has **perpetual life**.

**(c) Advantages of “Wealth Maximization” goals in Financial Management**

- (i) Emphasizes the long-term gains.
- (ii) Recognises risk or uncertainty.
- (iii) Recognises the timing of returns.
- (iv) Considers shareholders’ return.

**OR**

**Distinguish Between American Depository Receipts and Global Depository Receipts:**

	<b>American Depository Receipts</b>	<b>Global Depository Receipts</b>
<b>Meaning</b>	It is a negotiable instrument which is issued by US bank, which represent the nazon-US Company stock that is being traded in US stock Exchange	It is a negotiable instrument which is issued by the international depository bank that represent the foreign company’s stock trading world-wide.
<b>Issued where</b>	In the US domestic capital market.	European capital market.
<b>Listed in</b>	In the American Stock Exchange	In the Non-US Stock Exchange
<b>Relevance</b>	Foreign companies are able to trade in the US Stock Market.	Foreign companies can trade in any country’s stock market other than that of the US.

**Alternatively:**

**American Depository Receipts (ADRs):** These are securities offered by **non-US companies who want to list on any of the US exchange**. Each ADR represents a certain number of a company's regular shares. ADRs allow US investors to buy shares of these companies without the costs of investing directly in a foreign stock exchange.

**Global Depository Receipts (GDRs):** These are negotiable certificates held in the bank of one country representing a **specific number of shares of a stock traded on the exchange of another country**. These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION – A: FINANCIAL MANAGEMENT**

*Question No. 1 is compulsory.*

*Attempt any **four** questions out of the remaining **five** questions.*

*In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.*

*Working notes should form part of the respective answers.*

**Question 1**

- (a) K Ltd. has a Quarterly cash outflow of ₹ 9,00,000 arising uniformly during the Quarter. The company has an Investment portfolio of Marketable Securities. It plans to meet the demands for cash by periodically selling marketable securities. The marketable securities are generating a return of 12% p.a. Transaction cost of converting investments to cash is ₹ 60. The company uses Baumol model to find out the optimal transaction size for converting marketable securities into cash.

*Consider 360 days in a year.*

*You are required to calculate*

- (i) Company's average cash balance,
- (ii) Number of conversions each year and
- (iii) Time interval between two conversions.

**(5 Marks)**

- (b) The following figures are related to the trading activities of M Ltd.

Total assets	₹ 10,00,000
Debt to total assets	50%
Interest cost	10% per year
Direct Cost	10 times of the interest cost
Operating Exp.	₹ 1,00,000
<i>The goods are sold to customers at a margin of 50% on the direct cost</i>	
<i>Tax Rate is 30%</i>	

*You are required to calculate*

- (i) Net profit margin
- (ii) Net operating profit margin
- (iii) Return on assets



2

INTERMEDIATE EXAMINATION: NOVEMBER 2022

(iv) Return on owner's equity

(5 Marks)

(c) The following is the extract of the Balance Sheet of M/s KD Ltd.:

Particulars	Amount (₹)
Ordinary shares (Face Value ₹ 10/- per share)	5,00,000
Share Premium	1,00,000
Retained Profits	6,00,000
8% Preference Shares (Face Value ₹ 25/- per share)	4,00,000
12% Debentures (Face value ₹ 100/- each)	6,00,000
	22,00,000

The ordinary shares are currently priced at ₹ 39 ex-dividend and preference share is priced at ₹ 18 cum-dividend. The debentures are selling at 120 percent ex-interest. The applicable tax rate to KD Ltd. is 30 percent. KD Ltd.'s cost of equity has been estimated at 19 percent. Calculate the WACC (weighted average cost of capital) of KD Ltd. on the basis of market value.

(5 Marks)

(d) Determine the Risk Adjusted Net Present Value of the following projects:

	A	B	C
Net cash outlays (₹)	70,000	1,20,000	2,20,000
Project life	5 years	5 years	5 years
Annual cash inflow (₹)	30,000	42,000	70,000
Coefficient of Variation	2.2	1.6	1.2

The company selects the risk-adjusted discount rate on the basis of the Coefficient of variation.

Coefficient of Variation	Applicable Risk adjusted discount rate (i)	PVIFA (i,5)
0	10%	3.791
0.4	12%	3.605
0.8	14%	3.433
1.2	16%	3.274
1.6	18%	3.127
2	22%	2.864
>2.0	25%	2.689

Which project should be selected by the company based on Risk Adjusted NPV?

(5 Marks)

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

3

**Answer****(a) (i) Computation of Average Cash balance:**

Annual cash outflow (U) = 9,00,000 x 4 = ₹ 36,00,000

Fixed cost per transaction (P) = ₹ 60

Opportunity cost of one rupee p.a. (S) =  $\frac{12}{100} = 0.12$ Optimum cash balance (C) =  $\sqrt{\frac{2UP}{S}} = \sqrt{\frac{2 \times 36,00,000 \times 60}{0.12}} = ₹ 60,000$  $\therefore$  Average Cash balance =  $\frac{(0 + 60,000)}{2} = ₹ 30,000$ **(ii) Number of conversions p.a.**

Annual cash outflow = ₹ 36,00,000

Optimum cash balance = ₹ 60,000

 $\therefore$  No. of conversions p.a. =  $\frac{36,00,000}{60,000} = 60$ **(iii) Time interval between two conversions**

No. of days in a year = 360

No. of conversions p.a. = 60

 $\therefore$  Time interval =  $\frac{360}{60} = 6$  days**(b) (i) Computation of Net Profit Margin**

Debt = (10,00,000 x 50%) = ₹ 5,00,000

Interest cost = 5,00,000 x  $\left(\frac{10}{100}\right) = ₹ 50,000$ 

Direct cost = 50,000 x 10 = ₹ 5,00,000

Sales = 5,00,000 x 150% = ₹ 7,50,000

(₹)

Gross profit = 7,50,000 – 5,00,000 = 2,50,000

Less: Operating expenses = 1,00,000 $\therefore$  EBIT = 1,50,000Less: Interest = 50,000

4

## INTERMEDIATE EXAMINATION: NOVEMBER 2022

$$\begin{aligned}
 \therefore \text{EBT} &= 1,00,000 \\
 \text{Less: Tax @ 30\%} &= \underline{30,000} \\
 \therefore \text{PAT} &= \underline{\underline{70,000}} \\
 \text{Net profit margin} &= \left( \frac{70,000}{7,50,000} \right) \times 100 = 9.33\%
 \end{aligned}$$

**(ii) Net Operating Profit margin**

$$\begin{aligned}
 \text{Net operating profit margin} &= \left( \frac{\text{EBIT}}{\text{Sales}} \right) \times 100 \\
 &= \left( \frac{1,50,000}{7,50,000} \right) \times 100 = 20\%
 \end{aligned}$$

**(iii) Return on Assets**

$$\begin{aligned}
 \text{Return on Assets} &= \left[ \left( \frac{\text{PAT} + \text{Interest}}{\text{Total Assets}} \right) \right] \times 100 \\
 &= \left[ \left( \frac{1,20,000}{10,00,000} \right) \right] \times 100 = 12\%
 \end{aligned}$$

**(OR)**

$$\begin{aligned}
 \text{Return on Assets} &= \frac{\text{EBIT}}{\text{Assets}} \times 100 \\
 &= \frac{1,50,000}{10,00,000} \times 100 = 15\%
 \end{aligned}$$

**(OR)**

$$= \frac{70,000}{10,00,000} \times 100 = 7\%$$

**(OR)**

$$= \left[ \frac{1,50,000(1-0.3)}{10,00,000} \right] \times 100 = 10.5\%$$

**(iv) Return on owner's equity**

$$\text{Return} = \left( \frac{\text{PAT}}{\text{Owner's equity}} \right) \times 100$$

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

5

$$= \left( \frac{70,000}{5,00,000} \right) \times 100 = 14\%$$

## (c) Computation of WACC on the basis of market value

W.N. 1

Cum-dividend price of Preference shares = ₹ 18

Less: Dividend  $(8/100) \times 25$  = ₹ 2

∴ Market Price of Preference shares = ₹ 16

$$K_p = \frac{2}{16} = 0.125 \text{ (or) } 12.5\%$$

$$\text{No. of Preference shares} = \left( \frac{4,00,000}{25} \right) = 16,000$$

W.N. 2

$$\text{Market price of Debentures} = \left( \frac{120}{100} \right) \times 100 = ₹120$$

$$K_d = \left[ \frac{12 (1 - 0.3)}{120} \right] = 0.07 \text{ (or) } 7\%$$

$$\text{No. of Debentures} = \left( \frac{6,00,000}{100} \right) = 6,000$$

W.N.3

Market Price of Equity shares = ₹39

 $K_e$  (given) = 19% or 0.19

$$\text{No. of Equity shares} = \frac{5,00,000}{10} = 50,000$$

Sources	Market Value (₹)	Nos.	Total Market value (₹)	Weight	Cost of Capital	Product
Equity Shares	39	50,000	19,50,000	0.6664	0.19	0.1266
Preference Shares	16	16,000	2,56,000	0.0875	0.125	0.0109
Debentures	120	6,000	7,20,000	0.2461	0.07	0.0172
					WACC =	0.1547

WACC = 0.1547 or 15.47%

6

## INTERMEDIATE EXAMINATION: NOVEMBER 2022

## (d) Selection of project on the basis of Risk Adjusted Net Present Value

Particulars	A	B	C
Co efficient of Variation	2.2	1.6	1.2
Applicable discount rate (%)	25	18	16
Annual cash inflow (₹)	30,000	42,000	70,000
Relevant PVIFA	2.689	3.127	3.274
<b>PV of cash inflow (₹)</b>	<b>80,670</b>	<b>1,31,334</b>	<b>2,29,180</b>
Less: Cash outflow (₹)	70,000	1,20,000	2,20,000
<b>Risk adjusted NPV (₹)</b>	<b>10,670</b>	<b>11,334</b>	<b>9,180</b>

**Conclusion:** Project B should be selected as its Risk adjusted NPV is high.

**Question 2**

The following information is available for SS Ltd.

Profit volume (PV) ratio	30%
Operating leverage	2.00
Financial leverage	1.50
Loan	₹ 1,25,000
Post-tax interest rate	5.6%
Tax rate	30%
Market Price per share (MPS)	₹ 140
Price Earnings Ratio (PER)	10

You are required to:

- (1) Prepare the Profit-Loss statement of SS Ltd. and
- (2) Find out the number of equity shares.

**(10 Marks)****Answer****(1) Preparation of Profit – Loss Statement****Working Notes:**

1. Post tax interest	5.60%
Tax rate	30%
Pre tax interest rate = (5.6/70) x 100	8%
Loan amount	₹ 1,25,000
Interest amount = 1,25,000 x 8%	₹ 10,000

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

7

$$\text{Financial Leverage (FL)} = \left( \frac{\text{EBIT}}{\text{EBT}} \right) = \left[ \frac{\text{EBIT}}{(\text{EBIT} - \text{Interest})} \right] = \left[ \frac{\text{EBIT}}{(\text{EBIT} - 10,000)} \right]$$

$$1.5 = \left[ \frac{\text{EBIT}}{(\text{EBIT} - 10,000)} \right]$$

$$1.5 \text{ EBIT} - 15,000 = \text{EBIT}$$

$$1.5 \text{ EBIT} - \text{EBIT} = 15,000$$

$$0.5 \text{ EBIT} = 15,000$$

$$\therefore \text{EBIT} = ₹ 30,000$$

$$\text{EBT} = \text{EBIT} - \text{Interest} = 30,000 - 10,000 = ₹ 20,000$$

$$2. \text{ Operating Leverage (OL)} = \frac{\text{Contribution}}{\text{EBIT}}$$

$$2 = \frac{\text{Contribution}}{30,000}$$

$$\text{Contribution} = ₹ 60,000$$

$$3., \text{ Fixed cost} = \text{Contribution} - \text{Profit} \\ = 60,000 - 30,000 = ₹ 30,000$$

$$4., \text{ Sales} = \frac{\text{Contribution}}{\text{PV Ratio}} \\ = \frac{60,000}{30\%} = ₹ 2,00,000$$

5. If PV ratio is 30%, then the variable cost is 70% on sales.

$$\therefore \text{Variable cost} = 2,00,000 \times 70\% = ₹ 1,40,000$$

## Profit – Loss Statement

Particulars	₹
Sales	2,00,000
Less: Variable cost	1,40,000
Contribution	60,000
Less: Fixed cost	30,000
EBIT	30,000
Less: Interest	10,000

8

INTERMEDIATE EXAMINATION: NOVEMBER 2022

EBT	20,000
Less: Tax @ 30%	6,000
EAT	<b>14,000</b>

(2) Calculation of no. of Equity shares

Market Price per Share (MPS) = ₹140

Price Earnings Ratio (PER) = 10

WKT,

$$EPS = \frac{MPS}{PER} = \frac{140}{10} = ₹ 14$$

Total earnings (EAT) = ₹ 14,000

∴ No. of Equity Shares = 14,000 / 14 = **1000**

**Question 3**

A firm is in need of a small vehicle to make deliveries. It is intending to choose between two options. One option is to buy a new three wheeler that would cost ₹ 1,50,000 and will remain in service for 10 years.

The other alternative is to buy a second hand vehicle for ₹ 80,000 that could remain in service for 5 years. Thereafter the firm, can buy another second hand vehicle for ₹ 60,000 that will last for another 5 years.

The scrap value of the discarded vehicle will be equal to its written down value (WDV). The firm pays 30% tax and is allowed to claim depreciation on vehicles @ 25% on WDV basis.

The cost of capital of the firm is 12%.

You are required to advise the best option.

Given:

<i>t</i>	1	2	3	4	5	6	7	8	9	10
PVIF ( <i>t</i> , 12%)	0.892	0.797	0.711	0.635	0.567	0.506	0.452	0.403	0.360	0.322

(10 Marks)

**Answer**

**Selection of Investment Decision**

Tax shield on Purchase of New vehicle			
Year	WDV	Dep. @ 25%	Tax shield @ 30%
1	1,50,000	37,500	11,250

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

9

2	1,12,500	28,125	8,437
3	84,375	21,094	6,328
4	63,281	15,820	4,746
5	47,461	11,865	3,560
6	35,596	8,899	2,670
7	26,697	6,674	2,002
8	20,023	5,006	1,502
9	15,017	3,754	1,126
10	11,263	2,816	845
11	8,447	Scrap value	

## Tax shield on Purchase of Second hand vehicles

Year	WDV	Dep. @ 25%	Tax shield @ 30%
1	80,000	20,000	6,000
2	60,000	15,000	4,500
3	45,000	11,250	3,375
4	33,750	8,437	2,531
5	25,313	6,328	1,898
6	60,000	15,000	4,500
7	45,000	11,250	3,375
8	33,750	8,437	2,531
9	25,313	6,328	1,898
10	18,985	4,746	1,424

Scrap value = ₹ 18,985

Scrap value = ₹ 14,239

## Calculation of PV of Net outflow of New Vehicle

Year	Cash OF/IF	PV Factor	PV of OF/IF
0	1,50,000	1	1,50,000
1	(11,250)	0.892	(10,035)
2	(8,437)	0.797	(6,724)
3	(6,328)	0.711	(4,499)
4	(4,746)	0.635	(3,014)
5	(3,560)	0.567	(2,018)
6	(2,670)	0.506	(1,351)
7	(2,002)	0.452	(905)



10

## INTERMEDIATE EXAMINATION: NOVEMBER 2022

8	(1,502)	0.403	(605)
9	(1,126)	0.360	(405)
10	(845 + 8447)	0.322	(2,992)
		<b>PVNOF</b>	<b>1,17,452</b>

## Calculation of PV of Net outflow of Second hand Vehicles

Year	Cash OF/IF	PV Factor	PV of OF/IF
0	80,000	1	80,000
1	(6,000)	0.892	(5,352)
2	(4,500)	0.797	(3,587)
3	(3,375)	0.711	(2,400)
4	(2,531)	0.635	(1,607)
5	(60000 – 18985 – 1898) = 39,117	0.567	22,179
6	(4,500)	0.506	(2,277)
7	(3,375)	0.452	(1,525)
8	(2,531)	0.403	(1,020)
9	(1,898)	0.360	(683)
10	(1424 + 14239) = (15,663)	0.322	(5,043)
		<b>PVNOF</b>	<b>78,686</b>

**Advise:** The PV of net outflow is low in case of buying the second hand vehicles. Therefore, it is advisable to buy second hand vehicles.

**Question 4**

A hospital is considering to purchase a diagnostic machine costing ₹ 80,000. The projected life of the machine is 8 years and has an expected salvage value of ₹ 6,000 at the end of 8 years. The annual operating cost of the machine is ₹ 7,500. It is expected to generate revenues of ₹ 40,000 per year for eight years. Presently, the hospital is outsourcing the diagnostic work and is earning commission income of ₹ 12,000 per annum.

Consider tax rate of 30% and Discounting Rate as 10%.

Advise:

Whether it would be profitable for the hospital to purchase the machine?

Give your recommendation as per Net Present Value method and Present Value Index method under below mentioned two situations:

- (i) If Commission income of ₹ 12,000 p.a. is before taxes.
- (ii) If Commission income of ₹ 12,000 p.a. is net of taxes.

## PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

11

Given:

<i>t</i>	1	2	3	4	5	6	7	8
PVIF ( <i>t</i> , 10%)	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

(10 Marks)

Answer

## Analysis of Investment Decisions

Determination of Cash inflows	Situation-(i) Commission Income before taxes	Situation-(ii) Commission Income after taxes
<i>Cash flow up-to 7<sup>th</sup> year:</i>		
Sales Revenue	40,000	40,000
Less: Operating Cost	(7,500)	(7,500)
	32,500	32,500
Less: Depreciation $(80,000 - 6,000) \div 8$	(9,250)	(9,250)
Net Income	23,250	23,250
Tax @ 30%	(6,975)	(6,975)
Earnings after Tax (EAT)	16,275	16,275
Add: Depreciation	9,250	9,250
Cash inflow after tax per annum	25,525	25,525
Less: Loss of Commission Income	(8,400)	(12,000)
Net Cash inflow after tax per annum	17,125	13,525
<i>In 8<sup>th</sup> Year:</i>		
Net Cash inflow after tax	17,125	13,525
Add: Salvage Value of Machine	6,000	6,000
<b>Net Cash inflow in year 8</b>	<b>23,125</b>	<b>19,525</b>

## Calculation of Net Present Value (NPV) and Profitability Index (PI)

	Particulars	PV factor @10%	Situation-(i) [Commission Income before taxes]	Situation-(ii) [Commission Income after taxes]
A	Present value of cash inflows (1 <sup>st</sup> to 7 <sup>th</sup> year)	4.867	83,347.38 (17,125 × 4.867)	65,826.18 (13,525 × 4.867)

12

## INTERMEDIATE EXAMINATION: NOVEMBER 2022

B	Present value of cash inflow at 8 <sup>th</sup> year	0.467	10,799.38 (23,125 × 0.467)	9,118.18 (19,525 × 0.467)
C	PV of cash inflows		94,146.76	74,944.36
D	Less: Cash Outflow	1.00	(80,000)	(80,000)
E	<b>Net Present Value (NPV)</b>		<b>14,146.76</b>	<b>(5,055.64)</b>
F	<b>PI = (C÷D)</b>		<b>1.18</b>	<b>0.94</b>

**Recommendation:** The hospital may consider purchasing of diagnostic machine in situation (i) where commission income is 12,000 before tax as NPV is positive and PI is also greater than 1. Contrary to situation (i), in situation (ii) where the commission income is net of tax, the recommendation is reversed to not purchase the machine as NPV is negative and PI is also less than 1.

**Question 5**

- (a) The following are the costs and values for the firms A and B according to the traditional approach.

	Firm A	Firm B
Total value of firm, V (in ₹)	50,000	60,000
Market value of debt, D (in ₹)	0	30,000
Market value of equity, E (in ₹)	50,000	30,000
Expected net operating income (in ₹)	5,000	5,000
Cost of debt (in ₹)	0	1,800
Net Income (in ₹)	5,000	3,200
Cost of equity, $K_e = NI/V$	10.00%	10.70%

- (i) Compute the Equilibrium value for Firm A and B in accordance with the M-M approach. Assume that (a) taxes do not exist and (b) the equilibrium value of  $K_e$  is 9.09%.
- (ii) Compute Value of Equity and Cost of Equity for both the firms. **(4 Marks)**
- (b) MR Ltd. is having the following capital structure, which is considered to be optimum as on 31.03.2022.

Equity share capital (50,000 shares)	₹ 8,00,000
12% Pref. share capital	₹ 50,000
15% Debentures	<u>₹ 1,50,000</u>
	₹ 10,00,000

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 13**

The earnings per share (EPS) of the company were ₹ 2.50 in 2021 and the expected growth in equity dividend is 10% per year. The next year's dividend per share (DPS) is 50% of EPS of the year 2021. The current market price per share (MPS) is ₹ 25.00. The 15% new debentures can be issued by the company. The company's debentures are currently selling at ₹ 96 per debenture. The new 12% Pref. share can be sold at a net price of ₹ 91.50 (face value ₹ 100 each). The applicable tax rate is 30%.

You are required to calculate

- (a) After tax cost of
  - (i) New debt,
  - (ii) New pref. share capital and
  - (iii) Equity shares assuming that new equity shares come from retained earnings.
- (b) Marginal cost of capital,

How much can be spent for capital investment before sale of new equity shares assuming that retained earnings for next year investment is 50% of 2021? **(6 Marks)**

**Answer**

**(a) (i) Computation of Equilibrium value of Firms A & B under MM Approach:**

As per MM approach  $K_0$  is equal to  $K_{eu}$

$$\therefore K_0 = K_{eu} (1 - t) = 9.09 (1 - 0) = 9.09$$

Particulars	A	B
EBIT (NOI) (₹)	5000	5000
$K_0$ (%)	9.09	9.09
Equilibrium value (₹) (NOI/ $K_0$ ) X 100	55005.5	55005.5
	$\frac{5,000}{9.09} \times 100$	$\frac{5,000}{9.09} \times 100$

**(ii) Computation of value of equity and cost of equity of Firms A & B**

Particulars	A	B
Equilibrium value (₹)	55,005.5	55,005.5
Less: Value of Debt	-	30,000
Value of Equity	55,005.5	25,005.5

Cost of Equity of Firm A (unlevered) = 9.09

Cost of Debt of Firm B ( $K_d$ ) (levered) =  $(1800/30000) \times 100 = 6\%$

Cost of Equity of Firm B (Levered) =  $K_0 + (K_0 - K_d) \times (\text{Debt} / \text{Equity})$

14

INTERMEDIATE EXAMINATION: NOVEMBER 2022

$$= 9.09 + (9.09 - 6) \times (30000/25005.5)$$

$$= 9.09 + 3.09 \times 1.2 = 9.09 + 3.71 = \mathbf{12.80\%}$$

(OR)

$$\text{Cost of Equity of Firm B (Levered)} = \left( \frac{\text{NI}}{\text{Value of Equity}} \right) \times 100$$

$$= \left( \frac{3200}{25005.5} \right) \times 100 = \mathbf{12.8\%}$$

(b) (a) (i) After tax cost of new Debt:

$$K_d = 1 \frac{(1 - t)}{P_1} = 15 \frac{(1 - 0.3)}{96}$$

$$= 0.1094 \text{ (or) } \mathbf{10.94\%}$$

(ii) After tax cost of New Preference share capital:

$$K_p = \frac{PD}{P_0} = \left( \frac{12}{91.5} \right) = 0.1311 \text{ (or) } \mathbf{13.11\%}$$

(iii) After tax cost of Equity shares:

$$K_e = \left( \frac{D_1}{P_0} \right) + g = \left[ \frac{(2.50 \times 50\%)}{25} \right] + 0.10$$

$$= \mathbf{0.15 \text{ (or) } 15\%}$$

(b) Marginal Cost of Capital

Type of capital	Proportions	Specific cost	Product
Equity Shares	0.80	0.15	0.12
Preference Shares	0.05	0.1311	0.0066
Debentures	0.15	0.1094	0.0164
∴ Marginal cost of capital			<b>0.1430</b>

(c) Amount that can be spend for capital investment

$$\text{Retained earnings} = 50\% \text{ of EPS} \times \text{No. of outstanding Equity shares}$$

$$= 1.25 \times 50,000$$

$$= \mathbf{₹ 62,500}$$

Proportion of equity (Retained earnings here) capital is 80% of total capital. Therefore,

**PAPER 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 15**

₹ 62,500 is 80% of total capital.

$$\therefore \text{Amount of Capital Investment} = \frac{62,500}{0.80} = ₹ 78,125$$

**Question 6**

- (a) *These bonds are issued by non-US Banks and non-US corporations in US. What this bond is called and what are the other features of this Bond?* **(4 Marks)**
- (b) *Elucidate the fundamental tasks of treasury department of a firm.* **(4 Marks)**
- (c) *The firm has more capital than its requirements. What is this situation called? Give two consequences of it.* **(2 Marks)**

OR

*What are the important factors considered for deciding the source and quantum of capital?* **(2 Marks)**

**Answer**

- (a) The Bond is called as Yankee Bond.

Features of the bond:

- These bonds are denominated in Dollars
- Bonds are to be registered in SEC (Securities and Exchange Commission)
- Bonds are issued in tranches
- Time taken can be up to 14 weeks

- (b) Fundamental tasks of treasury department of a firm:

- (i) **Cash management:** It involves efficient cash collection process and managing payment of cash both inside the organization and to third parties. Treasury will also manage surplus funds in an investment portfolio.
- (ii) **Currency management:** The treasury department manages the foreign currency risk exposure of the company. In a large multi-national company, the first step will usually be to set off intra-group indebtedness. The use of matching receipts and payments in the same currency will save transaction costs and will save the organization from any unfavorable exchange movement.
- (iii) **Fund management:** Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. It also facilitates temporary investment of surplus funds by mapping the time gap between funds inflow and outflow.
- (iv) **Banking:** It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers with respect to

16

**INTERMEDIATE EXAMINATION: NOVEMBER 2022**

interest rates, foreign exchange rates etc. and act as the initial point of contact with them.

- (v) Corporate finance: Treasury department is involved with both acquisition and divestment activities within the group. In addition, it will often have responsibility for investors' relations.
- (c) The situation is called as Over Capitalization.

Consequences of Over Capitalization:

- Considerable reduction in the rate of dividend and interest payments.
- Reduction in the market price of shares
- Resorting to "Window dressing"
- Some companies may opt for reorganization. However, sometimes the matter gets worse and the company may go into liquidation.

**(OR)**

The source and quantum of capital is decided keeping in mind the following factors:

- (i) Control: Capital structure should be designed in such a manner that existing shareholders continue to hold majority stake
- (ii) Risk: Capital structure should be designed in such a manner that financial risk of a company does not increase beyond tolerable limit.
- (iii) Cost: Overall cost of capital remains minimum.

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

**Question 1**

(a) Following information are given for a company:

Earnings per share	₹ 10
P/E ratio	12.5
Rate of return on investment	12%
Market price per share as per Walter's Model	₹ 130

You are required to calculate:

- (i) Dividend payout ratio.
  - (ii) Market price of share at optimum dividend payout ratio.
  - (iii) P/E ratio, at which the dividend policy will have no effect on the price of share.
  - (iv) Market price of share at this P/E ratio.
  - (v) Market price of share using Dividend growth model. **(5 Marks)**
- (b) A company has current sale of ₹ 12 lakhs per year. The profit-volume ratio is 20% and post-tax cost of investment in receivables is 15%. The current credit terms are 1/10, net 50 days and average collection period is 40 days. 50% of customers in terms of sales revenue are availing cash discount and bad debt is 2% of sales.

In order to increase sales, the company want to liberalize its existing credit terms to 2/10, net 35 days. Due to which, expected sales will increase to ₹ 15 lakhs. Percentage of default in sales will remain same. Average collection period will decrease by 10 days. 80% of customers in terms of sales revenue are expected to avail cash discount under this proposed policy.

Tax rate is 30%.

ADVISE, should the company change its credit terms. (Assume 360 days in a year.)

**(5 Marks)**



2

INTERMEDIATE EXAMINATION: MAY, 2023

- (c) A company wants to invest in a project. This requires an initial investment of ₹ 4,50,000. Salvage value after estimated useful life of 5 years is ₹ 50,000. Other details of project are as follows:

	Worst case	Most likely	Best case
Contribution (₹)	3,30,000	5,40,000	6,31,250
Fixed cost (excluding depreciation) (₹)	75,000	1,50,000	2,00,000

Tax rate is 40%. Expected cost of capital of project is 12%. Ignore tax on capital gain.

- (i) Calculate NPV in each scenario.  
 (ii) The company is certain about most likely result in first two years, but uncertain about remaining period. In such a situation, calculate NPV expecting worst case scenario during next two years and best case scenario in the remaining period.

Years	1	2	3	4	5
PVIF <sub>0.12,t</sub>	0.893	0.797	0.712	0.636	0.567
PVIFA <sub>0.12,t</sub>	0.893	1.690	2.402	3.038	3.605

(5 Marks)

- (d) Following information is given for X Ltd.:

Total contribution (₹)	4,25,000
Operating leverage	3.125
15% Preference shares (₹ 100 each)	1,000
Number of equity shares	2,500
Tax rate	50%

Calculate EPS of X Ltd., if 40% decrease in sales will result EPS to zero. (5 Marks)

Answer

- (a) (i) The EPS of the firm is ₹ 10, r =12%. The P/E Ratio is given at 12.5 and the cost of capital (K<sub>e</sub>) may be taken as the inverse of P/E ratio. Therefore, K<sub>e</sub> is 8% (i.e., 1/12.5). The value of the share is ₹ 130 which may be equated with Walter Model as follows:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e} \text{ or } P = \frac{D + \frac{12\%}{8\%}(10-D)}{8\%}$$

$$\text{or } [D + 1.5(10-D)] / 0.08 = 130$$

$$\text{or } D + 15 - 1.5D = 10.4$$

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 3**

$$\text{or } -0.5D = -4.6$$

$$\text{So, } D = ₹ 9.2$$

The firm has a dividend pay-out of 92% (i.e., 9.2/10).

- (ii) Since the rate of return of the firm ( $r$ ) is 12% and it is more than the  $K_e$  of 8%, therefore, by distributing 92% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such a situation, the market price would be:

$$P = \frac{0 + \frac{12\%}{8\%}(10-0)}{8\%}$$

$$P = ₹ 187.5$$

So, theoretically the market price of the share can be increased by adopting a zero pay-out.

- (iii) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the  $K_e$  would be equal to the rate of return ( $r$ ) of the firm. The  $K_e$  would be 12% ( $= r$ ) at the P/E ratio of  $1/12\% = 8.33$ . Therefore, at the P/E ratio of 8.33, the dividend policy would have no effect on the value of the share.
- (iv) If the P/E is 8.33 instead of 12.5, then the  $K_e$  which is the inverse of P/E ratio, would be 12% and in such a situation  $k_e = r$  and the market price, as per Walter's model would be:

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e} = \frac{9.2 + \frac{0.12}{0.12}(10-9.2)}{0.12} = ₹ 83.33$$

- (v) **Dividend Growth Model applying growth on dividend**

$$K_e = 8\%, r = 12\%, D_0 = 9.2, b = 0.08$$

$$g = b.r$$

$$g = 0.08 \times 0.12 = 0.96\%$$

$$D_1 = D_0(1+g) = 9.2(1+0.0096) = ₹ 9.2883$$

$$P = \frac{D_1}{(K_e - g)} = \frac{9.2883}{(0.08 - 0.0096)} = \frac{9.2883}{0.0704} = ₹ 131.936$$

4

## INTERMEDIATE EXAMINATION: MAY, 2023

## Alternative

Alternatively, without applying growth on dividend

$$P = \frac{E(1-b)}{K_e - br} = \frac{10(1-0.08)}{0.08 - (0.08 \times 0.12)} = ₹ 130.68$$

## (b) (i) Calculation of Cash Discount

Cash Discount = Total credit sales × % of customers who take up discount × Rate

$$\text{Present Policy} = \frac{12,00,000 \times 50 \times 0.01}{100} = ₹ 6,000$$

$$\text{Proposed Policy} = 15,00,000 \times 0.80 \times 0.02 = ₹ 24,000$$

## (ii) Opportunity Cost of Investment in Receivables

$$\text{Present Policy: Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection period}}{360} \times \frac{\text{Rate of Return}}{100}$$

$$= 9,60,000 \times \frac{40}{360} \times \frac{15}{100} = ₹ 16,000$$

$$\text{Proposed Policy:} = \text{Total Cost} \times \frac{\text{Collection period}}{360} \times \frac{\text{Rate of Return}}{100}$$

$$= 12,00,000 \times \frac{30}{360} \times \frac{15}{100} = ₹ 15,000$$

## Statement showing Evaluation of Credit Policies

Particulars	Present Policy	Proposed Policy
Credit Sales	12,00,000	15,00,000
Variable Cost @ 80%* of sales	9,60,000	12,00,000
Bad Debts @ 2%	24,000	30,000
Cash Discount	6,000	24,000
<b>Profit before tax</b>	<b>2,10,000</b>	<b>2,46,000</b>
Tax @ 30%	63,000	73,800
<b>Profit after Tax</b>	<b>1,47,000</b>	<b>1,72,200</b>
Opportunity Cost of Investment in Receivables	16,000	15,000
<b>Net Profit</b>	<b>1,31,000</b>	<b>1,57,200</b>

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 5**

\*Only relevant or variable costs are considered for calculating the opportunity costs on the funds blocked in receivables. Since 20% is profit-volume ratio, hence the relevant costs are taken to be 80% of the respective sales.

**Advise:** Proposed policy should be adopted since the net benefit is increased by (₹ 1,57,200 - ₹ 1,31,000) = ₹ 26,200.

**Alternative presentation using incremental approach**

	₹
Incremental sales (15,00,000 – 12,00,000)	3,00,000
Less: Incremental variable cost (12,00,000 – 9,60,000)	2,40,000
Less: Incremental Bad debts (30,000 – 24,000)	6,000
Less: Incremental Cash discount (24,000 – 6,000)	18,000
<b>Increase in Profit Before Tax</b>	<b>36,000</b>
Less: Tax @ 30%	10,800
<b>Increase in Profit After Tax</b>	<b>25,200</b>
Add: <b>Savings in opportunity cost</b> (16,000 - 15,000)	<b>1,000</b>
<b>Increase in Net Profit</b>	<b>26,200</b>

**Advise:** Proposed policy should be adopted since the net benefit is increased by (₹ 1,57,200 - ₹ 1,31,000)

= ₹ 26,200.

(c) (i) Initial Investment = ₹ 4,50,000

Salvage Value = ₹ 50,000

Useful Life = 5 years

**Calculation of cash flow in each scenario**

Particulars	Scenario		
	Worst case	Most Likely	Best case
Contribution	3,30,000	5,40,000	6,31,250
Less: Fixed Cost	75,000	1,50,000	2,00,000
Less: Depreciation	80,000	80,000	80,000
Profit before tax	1,75,000	3,10,000	3,51,250
Less: Taxes	70,000	1,24,000	1,40,500

6

## INTERMEDIATE EXAMINATION: MAY, 2023

Profit after tax	1,05,000	1,86,000	2,10,750
Add: Depreciation	80,000	80,000	80,000
<b>Cash Flow After Tax</b>	<b>1,85,000</b>	<b>2,66,000</b>	<b>2,90,750</b>

The possible outcomes will be as follows:

Year	PVF @ 12%	Worst Case		Most likely		Best case	
		Cash Flow	PV	Cash Flow	PV	Cash Flow	PV
0	1	(4,50,000)	(4,50,000)	(4,50,000)	(4,50,000)	(4,50,000)	(4,50,000)
1-5	3.605	1,85,000	6,66,925	2,66,000	9,58,930	2,90,750	10,48,153.75
5	0.567	50,000	28,350	50,000	28,350	50,000	28,350
<b>NPV</b>			<b>2,45,275</b>		<b>5,37,280</b>		<b>6,26,503.75</b>

## Alternative presentation

## (i) Computation of NPV of different scenarios

Years	DF	Worst case		Most-likely case		Best case	
		CF	DCF	CF	DCF	CF	DCF
0	1.000	(450000)	(450000)	(450000)	(450000)	(450000)	(450000)
1	0.893	185000	165205	266000	237538	290750	259640
2	0.797	185000	147445	266000	212002	290750	231728
3	0.712	185000	131720	266000	189392	290750	207014
4	0.636	185000	117660	266000	169176	290750	184917
5	0.567	185000	104895	266000	150822	290750	164855
5	0.567	50000	28350	50000	28350	50000	28350
	<b>NPV</b>		<b>2,45,275</b>		<b>5,37,280</b>		<b>6,26,504</b>

- (ii) If the company is certain about the most likely result in first two years but uncertain about the remaining period, then, NPV expecting worst case scenario during next two years and best-case scenario in remaining period will be as follows:

$$= -4,50,000 + \frac{₹2,66,000}{(1+0.12)} + \frac{₹2,66,000}{(1+0.12)^2} + \frac{₹1,85,000}{(1+0.12)^3} + \frac{₹1,85,000}{(1+0.12)^4} + \frac{₹2,90,750}{(1+0.12)^5} + \frac{₹50,000}{(1+0.12)^5}$$

$$= -4,50,000 + (2,66,000 \times 0.893) + (2,66,000 \times 0.797) + (1,85,000 \times 0.712) + (1,85,000 \times 0.636) + (2,90,750 \times 0.567) + (50,000 \times 0.567)$$

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 7**

$$= -4,50,000 + 2,37,538 + 2,12,002 + 1,31,720 + 1,17,660 + 1,64,855 + 28,350$$

$$= ₹ 4,42,125$$

**Alternative presentation**

**(ii) Computation of NPV on the basis of fixed scenarios**

Years	Scenarios	DF	CF	DCF (DF*CF)
0	Initial Outflow	1.000	(450000)	<b>(450000)</b>
1	Most-likely case	0.893	266000	<b>237538</b>
2	Most-likely case	0.797	266000	<b>212002</b>
3	Worst case	0.712	185000	<b>131720</b>
4	Worst case	0.636	185000	<b>117660</b>
5	Best case	0.567	290750	<b>164855</b>
5	Salvage	0.567	50000	<b>28350</b>
				<b><u>4,42,125</u></b>

(All figures are in ₹)

(d) (i) Operating Leverage (OL) =  $\frac{\text{Contribution}}{\text{EBIT}}$  Or, 3.125 =  $\frac{₹ 4,25,000}{\text{EBIT}}$  Or EBIT = ₹ 1,36,000

(ii) Degree of Combined Leverage (CL) =  $\frac{\% \text{ Change in EPS}}{\% \text{ Change in Sales}} = \frac{100}{40} = 2.5$

(iii) Combined Leverage = OL × FL = 3.125 × FL  
So, Financial Leverage = 2.5 / 3.125 = 0.8

(iv) Financial Leverage =  $\frac{\text{EBIT}}{\text{EBT}} = \frac{1,36,000}{\text{EBT}} = 0.8$

$$\text{So, EBT} = \frac{1,36,000}{0.80} = ₹ 1,70,000$$

**Calculation of EPS of X Ltd**

Particulars	(₹)
EBT	1,70,000
Less: Tax (50%)	85,000

8

## INTERMEDIATE EXAMINATION: MAY, 2023

EAT	85,000
Preference Dividend	15,000
Net Earnings for Equity Shareholders	70,000
Number of equity shares	2,500
<b>EPS</b>	<b>28</b>

**Question 2**

Following information and ratios are given in respect of AQUA Ltd. for the year ended 31<sup>st</sup> March, 2023:

Current ratio	4.0
Acid test ratio	2.5
Inventory turnover ratio (based on sales)	6
Average collection period (days)	70
Earnings per share	₹ 3.5
Current liabilities	₹ 3,10,000
Total assets turnover ratio (based on sales)	0.96
Cash ratio	0.43
Proprietary ratio	0.48
Total equity dividend	₹ 1,75,000
Equity dividend coverage ratio	1.60

Assume 360 days in a year.

You are required to complete Balance Sheet as on 31<sup>st</sup> March, 2023.

**Balance Sheet as on 31<sup>st</sup> March, 2023.**

Liabilities	₹	Assets	₹
Equity share capital (₹10 per share)	XXX	Fixed assets	XXX
Reserves & surplus	XXX	Inventory	XXX
Long-term debt	XXX	Debtors	XXX
Current liabilities	3,10,000	Loans & advances	XXX
	_____	Cash & bank	XXX
Total	XXX	Total	XXX

**(10 Marks)**

## PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 9

**Answer**

(i) Current Ratio = 4

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 4$$

$$\therefore \frac{\text{Current Assets}}{3,10,000} = 4$$

$$\therefore \text{Current Assets} = ₹ 12,40,000$$

(ii) Acid Test Ratio = 2.5

$$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} = 2.5$$

$$\therefore \frac{12,40,000 - \text{Inventory}}{3,10,000} = 2.5$$

$$\therefore 12,40,000 - \text{Inventory} = ₹ 7,75,000$$

$$\text{Inventory} = ₹ 4,65,000$$

(iii) Inventory Turnover Ratio (on Sales) = 6

$$\frac{\text{Sales}}{\text{Inventory}} = 6$$

$$\frac{\text{Sales}}{4,65,000} = 6$$

$$\therefore \text{Sales} = ₹ 27,90,000$$

(iv) Debtors Collection Period = 70 days

$$\therefore (\text{Debtors} / \text{sales}) \times 360 = 70$$

$$\therefore (\text{Debtors} / 27,90,000) \times 360 = 70$$

$$\text{Debtors} = ₹ 5,42,500$$

(v) Total Assets Turnover Ratio (on Sales) = 0.96

$$\therefore \frac{\text{Sales}}{\text{Total Assets}} = 0.96$$

$$\therefore \frac{27,90,000}{\text{Total Assets}} = 0.96$$

$$\text{Total Assets} = ₹ 29,06,250$$



10

## INTERMEDIATE EXAMINATION: MAY, 2023

(vi) Fixed Assets (FA) = Total Assets – Current Assets

$$= 29,06,250 - 12,40,000$$

$$\text{Fixed Assets} = ₹ 16,66,250$$

(vii) Cash Ratio =  $\frac{\text{Cash}}{\text{Current Liabilities}} = 0.43$ 

$$\therefore \frac{\text{Cash}}{3,10,000} = 0.43$$

$$\therefore \text{Cash} = ₹ 1,33,300$$

(viii) Proprietary Ratio =  $\frac{\text{Proprietary Fund}}{\text{Total Assets}} = 0.48$ 

$$\therefore \frac{\text{Proprietary Fund}}{29,06,250} = 0.48$$

$$\therefore \text{Proprietary Fund} = ₹ 13,95,000$$

(ix) Equity Dividend Coverage Ratio = 1.6

$$\text{or } \frac{\text{EPS}}{\text{DPS}} = \frac{3.5}{\text{DPS}}$$

$$\therefore \text{DPS} = ₹ 2.1875$$

$$\text{DPS} = \frac{\text{Total Dividend}}{\text{Number of Equity Shares}}$$

$$\therefore 2.1875 = \frac{1,75,000}{\text{Number of Equity Shares}}$$

$$\therefore \text{Number of Equity Shares} = 80,000$$

$$\therefore \text{Equity Share Capital} = 80,000 \times 10 = ₹ 8,00,000$$

$$\therefore \text{Reserves \& Surplus} = 13,95,000 - 8,00,000 = ₹ 5,95,000$$

(x) Loans and Advances = Current Assets - (Inventory + Receivables + Cash &amp; Bank)

$$= ₹ 12,40,000 - (₹ 4,65,000 + 5,42,500 + 1,33,300) = ₹ 99,200$$

## PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 11

Balance Sheet as on 31<sup>st</sup> March 2023

Liabilities	₹	Assets	₹
Equity Share Capital (₹ 10 per share)	8,00,000	Fixed Assets	16,66,250
Reserves & Surplus	5,95,000	Inventory	4,65,000
Long-term debt *(B/F)	12,01,250	Receivables	5,42,500
Current Liabilities	3,10,000	Loans & Advances	99,200
		Cash & Bank	1,33,300
<b>Total</b>	<b>29,06,250</b>	<b>Total</b>	<b>29,06,250</b>

## Question 3

The following information pertains to CIZA Ltd.:

	₹
<i>Capital Structure:</i>	
Equity share capital (₹ 10 each)	8,00,000
Retained earnings	20,00,000
9% Preference share capital (₹ 100 each)	12,00,000
12% Long-term loan	10,00,000
Interest coverage ratio	8
Income tax rate	30%
Price – earnings ratio	25

The company is proposed to take up an expansion plan, which requires an additional investment of ₹ 34,50,000. Due to this proposed expansion, earnings before interest and taxes of the company will increase by ₹ 6,15,000 per annum. The additional fund can be raised in following manner:

- By issue of equity shares at present market price, or
- By borrowing 16% Long-term loans from bank.

You are informed that Debt-equity ratio (Debt/ Shareholders' fund) in the range of 50% to 80% will bring down the price-earnings ratio to 22 whereas; Debt-equity ratio over 80% will bring down the price-earnings ratio to 18.

Required:

Advise which option is most suitable to raise additional capital so that the Market Price per Share (MPS) is maximized. **(10 Marks)**

12

INTERMEDIATE EXAMINATION: MAY, 2023

**Answer****Working notes:**

(i) Interest Coverage ratio = 8

$$\frac{\text{EBIT}}{\text{Interest}} = 8$$

$$\frac{\text{EBIT}}{1,20,000} = 8$$

So, EBIT = ₹ 9,60,000

(ii) Proposed Earnings Before Interest &amp; Tax = 9,60,000 + 6,15,000 = ₹ 15,75,000

**Option 1: Equity option**

Debt = ₹ 10,00,000

Shareholders Fund = 8,00,000+20,00,000+12,00,000+34,50,000 = ₹ 74,50,000

$$\text{Debt Equity ratio(Debt/Shareholders fund)} = \frac{10,00,000}{74,50,000} = 13.42\%$$

P/E ratio in this case will be 25 times

**Option 2: Debt option**

Debt = 10,00,000+34,50,000 = ₹ 44,50,000

Shareholders Fund = 8,00,000+20,00,000+12,00,000 = ₹ 40,00,000

$$\text{Debt Equity ratio(Debt/Shareholders fund)} = \frac{44,50,000}{40,00,000} = 111.25\%$$

Debt equity ratio has crossed the limit of 80% hence PE ratio in this case will remain at 18 times.

**Number of Equity Shares to be issued** = ₹ 34,50,000 / ₹ 150 = 23,000

(iii) Calculation of Earnings per Share and Market Price per share

Particulars	₹
Current Earnings Before Interest & Tax	9,60,000
Less: Interest	1,20,000
Earnings Before Tax	8,40,000
Less: Taxes	2,52,000
Earnings After Tax	5,88,000
Less: Preference Dividend (@9%)	1,08,000

## PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 13

Net earnings for Equity shareholders	4,80,000
Number of equity shares	80,000
<b>Earnings Per Share</b>	<b>6</b>
Price-earnings ratio	25
<b>Market Price per share</b>	<b>150</b>

## Calculation of EPS and MPS under two financial options

Particulars	Financial Options	
	Option I Equity Shares Issued (₹)	Option II 16% Long Term Debt Raised (₹)
Earnings before interest and Tax (EBIT)	15,75,000	15,75,000
Less: Interest on old debentures @ 12%	1,20,000	1,20,000
Less: Interest on additional loan (new) @ 16% on ₹ 34,50,000	NIL	5,52,000
Earnings before tax	14,55,000	9,03,000
Less: Taxes @ 30%	4,36,500	2,70,900
<b>(EAT/Profit after tax)</b>	<b>10,18,500</b>	<b>6,32,100</b>
Less: Preference Dividend (@9%)	1,08,000	1,08,000
<b>Net Earnings available to Equity shareholders</b>	<b>9,10,500</b>	<b>5,24,100</b>
Number of Equity Shares	1,03,000	80,000
<b>Earnings per Share (EPS)</b>	<b>8.84</b>	<b>6.55</b>
Price/ Earnings ratio	25	18
<b>Market price per share (MPS)</b>	<b>221</b>	<b>117.9</b>

**Advise:** Equity option has higher Market Price per Share therefore company should raise additional fund through equity option.

## Question 4

Capital structure of D Ltd. as on 31<sup>st</sup> March, 2023 is given below:

Particulars	₹
Equity share capital (₹ 10 each)	30,00,000
8% Preference share capital (₹ 100 each)	10,00,000
12% Debentures (₹ 100 each)	10,00,000

14

**INTERMEDIATE EXAMINATION: MAY, 2023**

- Current market price of equity share is ₹ 80 per share. The company has paid dividend of ₹ 14.07 per share. Seven years ago, it paid dividend of ₹ 10 per share. Expected dividend is ₹ 16 per share.
- 8% Preference shares are redeemable at 6% premium after five years. Current market price per preference share is ₹ 104.
- 12% debentures are redeemable at 20% premium after 10 years. Flotation cost is ₹ 5 per debenture.
- The company is in 40% tax bracket.
- In order to finance an expansion plan, the company intends to borrow 15% Long-term loan of ₹ 30,00,000 from bank. This financial decision is expected to increase dividend on equity share from ₹ 16 per share to ₹ 18 per share. However, the market price of equity share is expected to decline from ₹ 80 to ₹ 72 per share, because investors' required rate of return is based on current market conditions.

Required:

- Determine the existing Weighted Average Cost of Capital (WACC) taking book value weights.
- Compute Weighted Average Cost of Capital (WACC) after the expansion plan taking book value weights.

Interest Rate	1%	2%	3%	4%	5%	6%	7%
$FVIF_{i,5}$	1.051	1.104	1.159	1.217	1.276	1.338	1.403
$FVIF_{i,6}$	1.062	1.126	1.194	1.265	1.340	1.419	1.501
$FVIF_{i,7}$	1.072	1.149	1.230	1.316	1.407	1.504	1.606

**(10 Marks)**

**Answer**

- (a) Growth rate in Dividends**

$$14.07 = 10 \times FVIF(i, 7 \text{ years})$$

$$FVIF(i, 7 \text{ years}) = 1.407$$

$$FVIF(5\%, 7 \text{ years}) = 1.407$$

$$i = 5\%$$

$$\text{Growth rate in dividend} = 5\%$$

- (b) Cost of Equity**

$$K_e = \frac{D_1}{P_0} + g$$

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 15**

$$K_e = \frac{16}{80} + 0.05$$

$$K_e = 25\%$$

**(c) Cost of Preference Shares**

$$K_p = \frac{PD + \frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

$$K_p = \frac{8 + \frac{(106 - 104)}{5}}{\frac{(106 + 104)}{2}}$$

$$K_p = 8.4/105$$

$$K_p = 8\%$$

**(d) Cost of Debt**

$$K_d = \frac{I(1-t) + \frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

$$K_d = \frac{12(1-0.4) + \frac{(120-95)}{10}}{\frac{(120+95)}{2}}$$

$$K_d = (7.2+2.5)/107.5 = 9.02\%$$

$$K_d = 9.02\%$$

**Calculation of existing Weighted Average Cost of Capital (WACC)**

Capital	Amount (₹)	Weights	Cost	WACC
Equity Share Capital	30,00,000	0.6	25%	15.00%
Preference Share Capital	10,00,000	0.2	8%	1.60%
Debenture	10,00,000	0.2	9.02%	1.80%
	50,00,000	1		<b>18.40%</b>

16

## INTERMEDIATE EXAMINATION: MAY, 2023

## Alternative presentation

## (i) Computation of existing WACC on book value weights

Source (1)	Book value (₹) (2)	Weight (3)	Cost of capital (%) (4)	Product (2) x (4)
Equity share capital	30,00,000	0.60	25	7,50,000
Preference share capital	10,00,000	0.20	8	80,000
Debentures	10,00,000	0.20	9.02	90,200
<b>Total</b>	<b>50,00,000</b>	<b>1.00</b>		<b>9,20,200</b>

$$\text{WACC} = (\text{Product} / \text{Total book value}) \times 100 = (9,20,200 / 50,00,000) \times 100 = 18.4\%$$

## (ii) Cost of Long Term Debt = 15% (1-0.4) = 9%

$$\text{Revised Ke} = \frac{18}{72} + 0.05 = 30\%$$

## Calculation of WACC after expansion taking book value weights

Capital	Amount	Weights	Cost	W.C
Equity Share Capital	30,00,000	0.3750	30%	11.25%
Preference Share Capital	10,00,000	0.1250	8%	1.00%
Debenture	10,00,000	0.1250	9.02%	1.13%
Long Term Debt	30,00,000	0.3750	9.00%	3.38%
	80,00,000	1.0000		<b>16.76%</b>

## Alternative presentation

## (i) Computation of WACC on book value weights after expansion

Source (1)	Book value (₹) (2)	Weight (3)	Cost of capital (%) (4)	Product (2) x (4)
Equity share capital	30,00,000	0.375	30	9,00,000
Preference share capital	10,00,000	0.125	8	80,000
Debentures	10,00,000	0.125	9.02	90,200
Long term loan	30,00,000	0.375	9	2,70,000
<b>Total</b>	<b>80,00,000</b>	<b>1.00</b>		<b>13,40,200</b>

$$\text{WACC} = (\text{Product} / \text{Total book value}) \times 100 = (13,40,200 / 80,00,000) \times 100 = 16.76\%$$

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 17****Question 5**

Four years ago, Z Ltd. had purchased a machine of ₹ 4,80,000 having estimated useful life of 8 years with zero salvage value. Depreciation is charged using SLM method over the useful life. The company want to replace this machine with a new machine. Details of new machine are as below:

- Cost of new machine is ₹ 12,00,000, Vendor of this machine is agreed to take old machine at a value of ₹ 2,40,000. Cost of dismantling and removal of old machine will be ₹ 40,000. 80% of net purchase price will be paid on spot and remaining will be paid at the end of one year.
- Depreciation will be charged @ 20% p.a. under WDV method.
- Estimated useful life of new machine is four years and it has salvage value of ₹ 1,00,000 at the end of year four.
- Incremental annual sales revenue is ₹ 12,25,000.
- Contribution margin is 50%.
- Incremental indirect cost (excluding depreciation) is ₹ 1,18,750 per year.
- Additional working capital of ₹ 2,50,000 is required at the beginning of year and ₹ 3,00,000 at the beginning of year three. Working capital at the end of year four will be nil.
- Tax rate is 30%.
- Ignore tax on capital gain.

Z Ltd. will not make any additional investment, if it yields less than 12%

Advice, whether existing machine should be replaced or not.

Year	1	2	3	4	5
$PVIF_{0.12, t}$	0.893	0.797	0.712	0.636	0.567

(10 Marks)

**Answer**

**Working Notes:**

(i) **Calculation of Net Initial Cash Outflow**

Particulars	₹
Cost of New Machine	12,00,000
Less: Sale proceeds of existing machine	2,00,000
Net Purchase Price	10,00,000
Paid in year 0	8,00,000
Paid in year 1	2,00,000



18

## INTERMEDIATE EXAMINATION: MAY, 2023

## (ii) Calculation of Additional Depreciation

Year	1	2	3	4
	₹	₹	₹	₹
Opening WDV of machine	10,00,000	8,00,000	6,40,000	5,12,000
Depreciation on new machine @ 20%	2,00,000	1,60,000	1,28,000	1,02,400
Closing WDV	8,00,000	6,40,000	5,12,000	4,09,600
Depreciation on old machine (4,80,000/8)	60,000	60,000	60,000	60,000
<b>Incremental depreciation</b>	<b>1,40,000</b>	<b>1,00,000</b>	<b>68,000</b>	<b>42,400</b>

## (iii) Calculation of Annual Profit before Depreciation and Tax (PBDT)

Particulars	Incremental Values (₹)
Sales	12,25,000
Contribution	6,12,500
Less: Indirect Cost	<u>1,18,750</u>
Profit before Depreciation and Tax (PBDT)	4,93,750

## Calculation of Incremental NPV

Year	PVF @ 12%	PBDT (₹)	Incremental Depreciation (₹)	PBT (₹)	Tax @ 30% (₹)	Cash Inflows (₹)	PV of Cash Inflows (₹)	
	(1)	(2)	(3)	(4)	(5) = (4) x 0.30	(6) = (4) - (5) + (3)	(7) = (6) x (1)	
1	0.893	4,93,750	1,40,000	3,53,750	106,125	3,87,625	3,46,149.125	
2	0.797	4,93,750	1,00,000	3,93,750	1,18,125	3,75,625	2,99,373.125	
3	0.712	4,93,750	68,000	4,25,750	1,27,725	3,66,025	2,60,609.800	
4	0.636	4,93,750	42,400	4,51,350	1,35,405	3,58,345	2,27,907.420	
			*			*	<b>11,34,039.470</b>	
							Add: PV of Salvage (₹ 1,00,000 x 0.636)	63,600
							Less: Initial Cash Outflow - Year 0	<b>8,00,000</b>
							Year 1 (₹ 2,00,000 x 0.893)	<b>1,78,600</b>

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 19**

Less: Working Capital - Year 0	2,50,000
Year 2 (₹ 3,00,000 × 0.797)	2,39,100
Add: Working Capital released - Year 4 (₹ 5,50,000 × 0.636)	3,49,800
<b>Incremental Net Present Value</b>	<b>79,739.470</b>

Since the incremental NPV is positive, existing machine should be replaced.

**Alternative Presentation**

**Computation of Outflow for new Machine:**

	₹
Cost of new machine	<u>12,00,000</u>
Replaced cost of old machine	2,40,000
Cost of removal	<u>40,000</u>
<b>Net Purchase price</b>	<b>10,00,000</b>
Outflow at year 0	8,00,000
Outflow at year 1	2,00,000

**Computation of additional depreciation**

Year	1	2	3	4
	₹	₹	₹	₹
Opening WDV of machine	10,00,000	8,00,000	6,40,000	5,12,000
Depreciation on new machine @ 20%	2,00,000	1,60,000	1,28,000	1,02,400
Closing WDV	8,00,000	6,40,000	5,12,000	4,09,600
Depreciation on old machine (4,80,000/8)	60,000	60,000	60,000	60,000
<b>Incremental depreciation</b>	<b>1,40,000</b>	<b>1,00,000</b>	<b>68,000</b>	<b>42,400</b>

**Computation of NPV**

Year	0	1	2	3	4
	₹	₹	₹	₹	₹
1. Increase in sales revenue		12,25,000	12,25,000	12,25,000	12,25,000
2. Contribution		6,12,500	6,12,500	6,12,500	6,12,500
3. Increase in fixed cost		1,18,750	1,18,750	1,18,750	1,18,750
4. Incremental Depreciation		1,40,000	1,00,000	68,000	42,400
5. Net profit before tax [1-(2+3+4)]		3,53,750	3,93,750	4,25,750	4,51,350

20

## INTERMEDIATE EXAMINATION: MAY, 2023

6.	Net Profit after tax (5 x 70%)		2,47,625	2,75,625	2,98,025	3,15,945
7.	Add: Incremental depreciation		1,40,000	1,00,000	68,000	42,400
8.	Net Annual cash inflows (6 + 7)		3,87,625	3,75,625	3,66,025	3,58,345
9.	Release of salvage value					1,00,000
10.	(investment)/disinvestment in working capital	(2,50,000)		(3,00,000)		5,50,000
11.	Initial cost	(8,00,000)	(2,00,000)			
12.	Total net cash flows	(10,50,000)	1,87,625.0	75,625	3,66,025	10,08,345
13.	Discounting Factor	1	0.893	0.797	0.712	0.636
14.	Discounted cash flows (12 x 13)	(10,50,000)	1,67,549.125	60,273.125	2,60,609.800	641307.420

$$\text{NPV} = (1,67,549 + 60,273 + 2,60,610 + 6,41,307) - 10,50,000 = ₹ 79,739$$

Since the NPV is positive, existing machine should be replaced.

**Question 6**

- (a) List out the conditions, framed by SEBI, which a company needs to fulfil in order to issue of bonus shares. **(4 Marks)**
- (b) "Permanent working capital and fluctuating (temporary) working capital, both are necessary to facilitate production and sales through the operating cycle." - Describe. **(4 Marks)**
- (c) Briefly explain concept of "Trading on Equity" in financial leverage analysis. **(2 Marks)**

OR

Discuss features of Secured Premium Notes. **(2 Marks)**

**Answer**

- (a) To issue Bonus shares, a Company needs to fulfill all the conditions given by Securities Exchange Board of India (SEBI):
- As per SEBI, the bonus shares are issued not in lieu of cash dividends.
  - A bonus issue should be authorized by Article of Association (AOA) and not to be declared unless all partly paid-up shares have been converted into fully paid-up shares.
  - The Company should not have defaulted on re-payment of loan, interest, and any statutory dues.

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 21**

- (iv) Bonus shares are to be issued only from share premium and free reserves and not from capital reserve on account of fixed assets revaluation.
- (b) Both kinds of working capital i.e. permanent and fluctuating (temporary) are necessary to facilitate production and sales through the operating cycle:

Permanent working capital refers to the base working capital, which is the minimum level of investment in the current assets that is carried by the entity at all times to carry its day to day activities. It generally stays invested in the business unless the operations are scaled up or down permanently which would also result in increase or decrease in permanent working capital. It is generally financed by long term sources of finance.

Temporary working capital refers to that part of total working capital, which is required by an entity in addition to the permanent working capital. It is also called variable or fluctuating working capital which is used to finance the short-term working capital requirements which arises due to fluctuation in sales volume. For instance, an organization would maintain increased levels of inventory to meet increased seasonal demand.

- (c) **Financial Leverage as 'Trading on Equity':**

Financial leverage indicates the use of funds with fixed cost like long term debts and preference share capital along with equity share capital which is known as trading on equity. The basic aim of financial leverage is to increase the earnings available to equity shareholders using fixed cost fund. A firm is known to have a positive/favourable leverage when its earnings are more than the cost of debt. If earnings are equal to or less than cost of debt, it will be a negative/unfavourable leverage. When the quantity of fixed cost fund is relatively high in comparison to equity capital it is said that the firm is 'trading on equity'.

**OR**

**Features of Secured Premium Notes:**

- SPN instruments are issued with a detachable warrant.
- These instruments are redeemable after a notified period of say 4 to 7 years.
- No interest is paid during the lock in period.
- The conversion of detachable warrant into equity shares will have to be done within time period notified by the company.

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE****SECTION A: FINANCIAL MANAGEMENT**

Question No. 1 is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

**Question 1**

(a) You are available with following information of Brave Ltd:

Debtor's velocity	3 months
Stock velocity	6 months
Creditor's velocity	2 months
Gross profit ratio	20%

The gross profit for the year ended 31<sup>st</sup> March, 2023 was ₹ 10,00,000. Stock for the same period was ₹ 40,000 more than what it was at the beginning of the year. Bills receivable were ₹ 1,20,000.

Form the above information you are required to calculate:

- (i) Sales
- (ii) Sundry debtors
- (iii) Closing stock

**(5 Marks)**

(b) The following details of Shiva Ltd. for the year ended 31<sup>st</sup> March, 2023 are given below:

Operating Leverage	1.4
Combined Leverage	2.8
Fixed Cost (Excluding Interest)	₹ 2.04 lakhs
Sales	₹ 30 lakhs
12% Debentures of ₹ 10 each	₹ 21.25 lakhs
Equity Share Capital of ₹ 10 each	₹ 17.00 lakhs
Income Tax Rate	30%

**Required:**

- (i) Calculate P/V ratio and Earning Per Share (EPS)

2

## INTERMEDIATE EXAMINATION: NOVEMBER, 2023

- (ii) If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?
- (iii) Financial Leverage **(5 Marks)**
- (c) (i) EPS of a company is ₹ 60 and Dividend payout ratio is 60%. Multiplier is 5. Determine price per share as per Graham & Dodd model. **(2 Marks)**
- (ii) Last year's dividend is ₹ 6.34, adjustment factor is 45%, target payout ratio is 60% and current year's EPS is ₹ 12. Compute current year's dividend using Linter's model. **(3 Marks)**
- (d) X Ltd. has furnished following cost sheet of per unit cost;

Raw material cost	₹ 150
Direct labour cost	₹ 40
Overhead cost	₹ 60
Total Cost	₹ 250
Profit	₹ 50
Selling Price	₹ 300

The company keeps raw material in stock on an average for 2 months; work in progress on an average for 3 months and finished goods in stock on an average 1 month. The credit allowed by suppliers is 1.5 months and company allows 2 months credit to its debtors. The lag in payment of wages is 1 month and lag in payment of overhead expenses is 1.5 months. The company sells 25% of the output against cash and maintain cash in hand at bank put together at ₹ 1,50,000. Production is carried on evenly throughout the year and wages and overheads also similarly. Work in progress stock is 75% complete in all respects. Prepare statement showing estimate of working capital requirements to finance an activity level of 15,000 units of production. **(5 Marks)**

**Answer****(a) (i) Determination of Sales:**

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

$$\text{Or, } \frac{20}{100} = \frac{₹ 10,00,000}{\text{Sales}}$$

$$\text{Or, Sales} = \frac{10,00,00,000}{20} = ₹ 50,00,000$$

$$\text{Cost of Goods Sold} = \text{Sales} - \text{Gross Profit}$$

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 3**

$$= ₹ 50,00,000 - ₹ 10,00,000 = ₹ 40,00,000$$

**(ii) Determination of Sundry Debtors:**

Debtors' velocity is 3 months or Debtors' collection period is 3 months,

$$\text{So, Debtors' turnover ratio} = \frac{12 \text{ months}}{3 \text{ months}} = 4$$

$$\begin{aligned} \text{Debtors' turnover ratio} &= \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}} \\ &= \frac{₹ 50,00,000}{\text{Bills Receivable} + \text{Sundry Debtors}} = 4 \end{aligned}$$

$$\text{Or, Sundry Debtors} + \text{Bills receivable} = ₹ 12,50,000$$

$$\text{Sundry Debtors} = ₹ 12,50,000 - ₹ 1,20,000 = ₹ 11,30,000$$

**(iii) Determination of Closing Stock**

Stock velocity is 6 months so Stock Turnover Ratio=2

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{₹ 40,00,000}{\text{Average Stock}} = 2$$

$$\text{So, Average Stock} = ₹ 20,00,000$$

$$\text{Now Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$\text{Or } \frac{\text{Opening Stock} + (\text{Opening Stock} + ₹ 40,000)}{2} = ₹ 20,00,000$$

$$\text{Or, Opening Stock} + ₹ 20,000 = ₹ 20,00,000$$

$$\text{Or, Opening Stock} = ₹ 19,80,000$$

$$\text{So, Closing Stock} = ₹ 19,80,000 + ₹ 40,000 = ₹ 20,20,000$$

**(b) (i) P/V Ratio and Earning per share (EPS)**

$$\text{Operating leverage} = \frac{\text{Contribution (C)}}{\text{Contribution} - \text{Fixed Cost (FC)}}$$

$$1.4 = \frac{C}{C - 2,04,000}$$

$$\text{Or, C} = 1.4 (C - 2,04,000)$$

$$\text{Or, C} = 1.4 C - 2,85,600$$

4

**INTERMEDIATE EXAMINATION: NOVEMBER, 2023**

Or, Contribution = ₹ 7,14,000

$$\text{Now, P/V ratio} = \frac{\text{Contribution (C)}}{\text{Sales (S)}} \times 100 = \frac{7,14,000}{30,00,000} \times 100 = 23.8\%$$

Therefore, P/V Ratio = 23.80%

$$\begin{aligned} \text{EBT} &= \text{Contribution} - \text{Fixed Cost} - \text{Interest} \\ &= ₹ 7,14,000 - ₹ 2,04,000 - (12\% \times ₹ 21,25,000) \\ &= ₹ 5,10,000 - ₹ 2,55,000 \\ &= ₹ 2,55,000 \end{aligned}$$

$$\text{PAT} = \text{EBT}(1-T) = ₹ 2,55,000(1-0.3) = ₹ 1,78,500$$

$$\text{EPS} = \frac{\text{Profit after tax}}{\text{No. of equity shares}}$$

$$\text{EPS} = \frac{₹ 1,78,500}{1,70,000 \text{ shares}} = ₹ 1.05$$

**(ii) Assets turnover**

$$\text{Assets turnover} = \frac{\text{Sales}}{\text{Total Assets}^*} = \frac{₹ 30,00,000}{₹ 17,00,000 + ₹ 21,25,000} = 0.7843$$

0.7843 < 1.5 means lower than industry turnover.

\*Total Asset = Equity share capital + 12% Debentures

**(iii) Financial leverage**

$$\text{Combined Leverage} = \text{Operating Leverage (OL)} \times \text{Financial Leverage (FL)}$$

$$2.8 = 1.4 \times \text{FL}$$

$$\text{Or, FL} = 2$$

$$\text{Financial Leverage} = 2$$

$$(c) (i) \text{ Price per share (P)} = m \left( D + \frac{E}{3} \right)$$

Where,

m = Multiplier

D = Dividend

E = EPS



**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 5**

$$P = 5 \left( 60 \times 0.6 + \frac{60}{3} \right)$$

$$P = 5(36 + 20) = ₹ 280$$

$$(ii) D_1 = D_0 + [(EPS \times \text{Target payout}) - D_0] \times \text{Adjustment factor}$$

$$D_1 = 6.34 + [(12 \times 60\%) - 6.34] \times 0.45$$

$$D_1 = 6.34 + 0.387 = ₹ 6.727$$

**(d) Statement showing Estimate of Working Capital Needs****(Receivables (Debtors) are calculated based on Cost of goods sold)**

		(₹)	(₹)
<b>A.</b>	<b>Current Assets</b>		
(i)	Inventories:		
	Raw material (2 months) $\left( \frac{15,000 \text{ units} \times ₹150}{12 \text{ months}} \times 2 \text{ months} \right)$	3,75,000	
	WIP Inventory (3 months) $\left( \frac{15,000 \text{ units} \times ₹250}{12 \text{ months}} \times 3 \text{ months} \right) \times 0.75$	7,03,125	
	Finished goods inventory (1 months) $\left( \frac{15,000 \text{ units} \times ₹250}{12 \text{ months}} \times 1 \text{ months} \right)$	3,12,500	13,90,625
(ii)	Receivables (Debtors) (2 months) $\left( \frac{15,000 \text{ units} \times ₹250}{12 \text{ months}} \times 2 \text{ months} \right) \times 0.75$		4,68,750
(iii)	Cash and bank balance		1,50,000
	<b>Total Current Assets</b>		<b>20,09,375</b>
<b>B.</b>	<b>Current Liabilities:</b>		
(i)	Payables (Creditors) for materials (1.5 months) $\left( \frac{15,000 \text{ units} \times ₹150}{12 \text{ months}} \times 1.5 \text{ months} \right)$		2,81,250
(ii)	Outstanding wages (1 months)		50,000

6

## INTERMEDIATE EXAMINATION: NOVEMBER, 2023

	$\left( \frac{15,000 \text{ units} \times ₹40}{12 \text{ months}} \times 1 \text{ months} \right)$		
(iii)	Outstanding overheads (1.5 months) $\left( \frac{15,000 \text{ units} \times ₹60}{12 \text{ months}} \times 1.5 \text{ months} \right)$		1,12,500
	Total Current Liabilities		4,43,750
	Net Working Capital Needs (A – B)		15,65,625

**Alternative Solution****Statement showing Estimate of Working Capital Needs****(Receivables (Debtors) are calculated based on Selling price)**

		(₹)	(₹)
<b>A.</b>	<b>Current Assets</b>		
(i)	Inventories:		
	Raw material (2 months) $\left( \frac{15,000 \text{ units} \times ₹150}{12 \text{ months}} \times 2 \text{ months} \right)$	3,75,000	
	WIP Inventory (3 months) $\left( \frac{15,000 \text{ units} \times ₹250}{12 \text{ months}} \times 3 \text{ months} \right) \times 0.75$	7,03,125	
	Finished goods inventory (1 months) $\left( \frac{15,000 \text{ units} \times ₹250}{12 \text{ months}} \times 1 \text{ months} \right)$	3,12,500	13,90,625
(ii)	Receivables (Debtors) (2 months) $\left( \frac{15,000 \text{ units} \times ₹300}{12 \text{ months}} \times 2 \text{ months} \right) \times 0.75$		5,62,500
(iii)	Cash and bank balance		1,50,000
	Total Current Assets		21,03,125
<b>B.</b>	<b>Current Liabilities:</b>		
(i)	Payables (Creditors) for materials (1.5 months) $\left( \frac{15,000 \text{ units} \times ₹150}{12 \text{ months}} \times 1.5 \text{ months} \right)$		2,81,250

## PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 7

(ii)	Outstanding wages (1 months) $\left( \frac{15,000 \text{ units} \times ₹40}{12 \text{ months}} \times 1 \text{ months} \right)$		50,000
(iii)	Outstanding overheads (1.5 months) $\left( \frac{15,000 \text{ units} \times ₹60}{12 \text{ months}} \times 1.5 \text{ months} \right)$		1,12,500
	Total Current Liabilities		4,43,750
	Net Working Capital Needs (A – B)		16,59,375

**Question 2**

The data of K Textiles Ltd, are given as follows:

Particulars	Amount (₹)
Profit Before Interest and Tax	50,00,000
Less: Interest on debentures @ 10%	<u>10,00,000</u>
Profit before tax	40,00,000
Less: Income tax @ 50%	<u>20,00,000</u>
Profit after tax	<u>20,00,000</u>
No. of equity shares (₹ 10 each)	10,00,000
EPS	2
PE Ratio	10
Market price per share	20

The Company is planning to start a new project needs to be having a total capital outlay of ₹ 40,00,000. You are informed that a debt equity ratio  $[D/D+E]$  higher than 36% pushes the  $K_e$  (cost of equity) up to 12.5%, means reducing the PE ratio to 8 and rises the interest rate on additional amount borrowed to 12%. Retained earnings of the company is ₹ 1.4 crores.

Find out the probable price of share if:

- The additional funds are raised as a loan
- The amount is raised by issuing equity shares.

**(10 Marks)**

**Answer**

In this question, EBIT after proposed extension is not given. Therefore, we can assume that existing return on capital employed will be maintained.

8

**INTERMEDIATE EXAMINATION: NOVEMBER, 2023****Working notes:**

$$1. \text{ Return on Capital Employed} = \frac{\text{EBIT}}{\text{Capital Employed}} = \frac{\text{₹ } 50,00,000}{\text{₹ } 3,40,00,000} = 14.70\%$$

$$\begin{aligned} \text{Capital Employed} &= \text{Debt} + \text{Equity} \\ &= \text{₹ } 1,00,00,000 + (\text{₹ } 1,00,00,000 + \text{₹ } 1,40,00,000) \\ &= \text{₹ } 3,40,00,000 \end{aligned}$$

$$2. \text{ Proposed EBIT} = \text{Proposed Capital Employed} \times \text{Return on capital employed} \\ = (\text{₹ } 3,40,00,000 + \text{₹ } 40,00,000) \times 14.70\% = \text{₹ } 55,86,000$$

$$3. \text{ Debt Equity Ratio} = \frac{\text{Debt}}{\text{Debt} + \text{Equity}}$$

**Option1: Loan option**

$$\text{Debt} = \text{₹ } 1,00,00,000 + \text{₹ } 40,00,000 = \text{₹ } 1,40,00,000$$

$$\text{Equity} = \text{₹ } 2,40,00,000$$

$$\text{Debt Equity ratio} = \frac{1.4 \text{ cr.}}{1.4 \text{ cr.} + 2.40 \text{ cr.}} = 36.84\%$$

Debt equity ratio has crossed the limit of 36%, hence, PE ratio in this case will be 8 times and additional borrowing will be at the rate of 12%.

**Option2: Equity option**

$$\text{Debt} = \text{₹ } 1,00,00,000$$

$$\text{Equity} = \text{₹ } 2,40,00,000 + \text{₹ } 40,00,000 = \text{₹ } 2,80,00,000$$

$$\text{Debt Equity ratio} = \frac{1 \text{ cr.}}{1 \text{ cr.} + 2.8 \text{ cr.}} = 26.32\%$$

Debt equity ratio has not crossed the limit of 36% hence PE ratio in this case will remain at 10 times.

$$4. \text{ Number of equity shares to be issued in case of equity option @ ₹ } 20 \text{ per share} \\ = \text{₹ } 40,00,000 / \text{₹ } 20 = 2,00,000$$

## PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 9

## Calculation of EPS and MPS under two financial options

Particulars	Financial Options	
	Option I 12% additional loan of 40,00,000	Option II 10,00,000 equity shares @ ₹ 10 and 2,00,000 equity shares @ ₹ 20
	(₹)	(₹)
Profit before interest and Tax (PBIT)	55,86,000	55,86,000
Less: Interest on old debentures @ 10%	10,00,000	10,00,000
Less: Interest on additional loan (new) @ 12% on ₹ 40,00,000	4,80,000	Nil
Profit before tax	41,06,000	45,86,000
Less: Taxes @ 50%	20,53,000	22,93,000
Earnings for equity shareholders (EAT/Profit after tax)	20,53,000	22,93,000
Number of Equity Shares	10,00,000	12,00,000
Earnings per Share (EPS)	2.05	1.91
Price/ Earnings ratio	8	10
Market price per share (MPS)	16.42	19.11

**Question 3**

ABC Ltd. is considering to purchase a machine which is priced at ₹ 5,00,000. The estimated life of machine is 5 years and has an expected salvage value of ₹ 45,000 at the end of 5 years. It is expected to generate revenues of ₹ 1,50,000 per annum for five years. The annual operating cost of the machine is ₹ 28,125, Corporate Tax Rate is 20% and the cost of capital is 10%.

You are required to analyse whether it would be profitable for the company to purchase the machine by using;

- (i) Payback period Method
- (ii) Net Present value method
- (iii) Profitability Index Method

**(10 Marks)**

10

INTERMEDIATE EXAMINATION: NOVEMBER, 2023

Answer

## Computation of Annual Cash Flows

Particular	(₹)
Revenue	1,50,000
Less: Operating Cost	(28,125)
Less: Depreciation $\frac{(5,00,000 - 45,000)}{5}$	(91,000)
Profit before Tax	30,875
Less: Tax	(6,175)
Profit after Tax	24,700
Add: Depreciation	91,000
<b>Annual Cash Inflows</b>	<b>1,15,700</b>

## (i) Computation of Payback Period

Year	Cash Flows	Cumulative Present Value
1	1,15,700	1,15,700
2	1,15,700	2,31,400
3	1,15,700	3,47,100
4	1,15,700	4,62,800
5 (Including Salvage)	1,60,700	6,23,500

Amount to be recovered in 5<sup>th</sup> year cash flow = ₹ 5,00,000 – ₹ 4,62,800 = ₹ 37,200

$$\text{Payback period} = 4 \text{ years} + \frac{37,200}{1,60,700} = 4.23 \text{ years}$$

Since the payback period is less than the life of machinery, the company may purchase the machine.

## (ii) Computation of Net Present Value

Year	Cash Flows	PVF @10%	Present Value
0	(5,00,000)	1.000	(5,00,000)
1 - 5	1,15,700	3.791	4,38,594
5	45,000	0.621	27,941
Net Present Value			(33,465)

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 11**

Since the net present value (NPV) is negative, the company should not purchase the machine.

**(iii) Computation of Profitability Index (PI)**

$$\begin{aligned} \text{Profitability Index (PI)} &= \frac{\text{Sum of present value of net cash inflow}}{\text{Initial cash outflow}} \\ &= \frac{\text{₹}4,38,594 + \text{₹}27,941}{\text{₹}5,00,000} = 0.93 \end{aligned}$$

Since the profitability index is less than 1, the company should not purchase the machine.

**Question 4**

Z Ltd. wishes to raise additional fund of ₹ 25,00,000 for meeting its investment plan. It has ₹ 5,25,000 in the form of retained earnings available for investment purposes. Further details are as following:

Combination of debt and equity	2:3
Cost of debt	
Upto ₹ 2,50,000	8% (before tax)
Above ₹ 2,50,000 and to upto ₹ 5,00,000	10% (before tax)
Beyond ₹ 5,00,000	12% (after tax)
Earning of company	₹ 50,00,000
Retention Ratio	40%
Expected growth of dividend	15%
Market price per share	₹ 500
Number of outstanding equity shares	1,00,000
Tax Rate	30%

You are required to calculate:

- Cost of debt
- Cost of retained earnings and cost of equity
- Weighted average cost of capital

**(10 Marks)**

12

## INTERMEDIATE EXAMINATION: NOVEMBER, 2023

**Answer**

Equity	60% of ₹ 25,00,000	= ₹ 15,00,000
Debt	40% of ₹ 25,00,000	= ₹ 10,00,000

The capital structure after raising additional finance:

		(₹)
<b>Shareholders' funds</b>		
Equity Capital	(₹ 15,00,000 – ₹ 5,25,000)	9,75,000
Retained earnings		5,25,000
Debt (Interest at 8% p.a.)		2,50,000
	(Interest at 10% p.a.) (₹ 5,00,000 – ₹ 2,50,000)	2,50,000
	(Interest at 12% p.a.) (₹ 10,00,000 – ₹ 5,00,000)	5,00,000
Total Funds		25,00,000

**(i) Determination of post-tax average cost of additional debt:**

$$K_d = I(1 - t)$$

Where,

I = Interest Rate

t = tax-rate

$$\text{On ₹ 2,50,000} = 8\% (1 - 0.3) = 5.6\% \text{ or } 0.056$$

$$\text{On ₹ 2,50,000} = 10\% (1 - 0.3) = 7\% \text{ or } 0.07$$

$$\text{On ₹ 5,00,000} = 12\% \text{ or } 0.12$$

**Average Cost of Debt**

$$= \frac{(\text{₹ } 2,50,000 \times 0.056) + (\text{₹ } 2,50,000 \times 0.07) + (\text{₹ } 5,00,000 \times 0.12)}{\text{₹ } 10,00,000} \times 100 = 9.15\%$$

**(ii) Determination of cost of retained earnings and cost of equity by applying Dividend growth model:**

$$K_e \text{ or } K_r = \frac{D_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

Where,

$$D_0 = \text{Dividend paid} = 60\% \text{ of EPS} = 60\% \times ₹ 50 = ₹ 30$$

$$g = \text{Growth rate} = 15\%$$



**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 13**

$P_0$  = Current market price per share = ₹ 500

$$\text{So, } K_e \text{ or } K_r = \frac{\text{₹ } 30(1+0.15)}{\text{₹ } 500} + 0.15 = 0.069 + 0.15 = 21.9\%$$

(iii) Computation of overall weighted average after tax cost of additional finance:

Particulars	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	15,00,000	0.60	21.9%	13.14
Debt	10,00,000	0.40	9.15%	3.66
<b>WACC</b>	<b>25,00,000</b>			<b>16.80</b>

**Alternative Presentation**

Particulars (1)	(₹) (2)	Cost of funds (3)	Product (2) x (3)
Equity (including retained earnings)	15,00,000	21.9%	3,28,500
Debt	10,00,000	9.15%	91,500
<b>Total</b>	<b>25,00,000</b>		<b>4,20,000</b>

$$\text{WACC} = (\text{Product} / \text{Total book value}) \times 100 = (4,20,000 / 25,00,000) \times 100 = 16.8\%$$

**Alternative Solution for 4(ii) and 4(iii)**

If we assume expected growth rate of Dividend as 5%.

(i) Determination of cost of retained earnings and cost of equity by applying Dividend growth model:

$$K_e \text{ or } K_r = \frac{D_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

Where,

$D_0$  = Dividend paid = 60% of EPS = 60% × ₹ 50 = ₹ 30

$g$  = Growth rate = 5%

$P_0$  = Current market price per share = ₹ 500

$$\text{So, } K_e \text{ or } K_r = \frac{\text{₹ } 30(1+0.05)}{\text{₹ } 500} + 0.05 = 0.063 + 0.05 = 11.3\%$$

14

## INTERMEDIATE EXAMINATION: NOVEMBER, 2023

(ii) Computation of overall weighted average after tax cost of additional finance:

Particulars	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	15,00,000	0.60	11.3%	6.78
Debt	10,00,000	0.40	9.15%	3.66
<b>WACC</b>	25,00,000			<b>10.44</b>

## Alternative Presentation

Particulars (1)	(₹) (2)	Cost of funds (3)	(2) x (3)
Equity (including retained earnings)	15,00,000	11.3%	1,69,500
Debt	10,00,000	9.15%	91,500
<b>Total</b>	25,00,000		2,61,000

$$\text{WACC} = (\text{Product} / \text{Total book value}) \times 100 = (2,61,000 / 25,00,000) \times 100 = \mathbf{10.44\%}$$

## Question 5

(a) BSB Ltd. is considering its new project with the following details:

Sr. No.	Particulars	Amount
1	Initial capital cost	5,00,00,000
2	Annual unit sales	6,00,000
3	Selling price per unit (in ₹)	120
4	Variable cost per unit (in ₹)	80
5	Fixed cost per year	36,00,000
6	Discount Rate	10%

**Required:**

- To advise the company whether to invest in the new project or not based on the NPV concept.
- Compute the impact on the project's NPV considering a 1% adverse variance in each variable. Which variable is having minimum effect?

Consider Life of the project as 3 years.

Year	1	2	3
PVF @ 10%	0.909	0.826	0.751
PVF @ 11%	0.901	0.812	0.731

**(5 Marks)**

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 15**

(b) INFO Ltd is a listed company having share capital of ₹ 2400 Crores of ₹ 5 each.

During the year 2022-23

Dividend distributed 1000%

Expected Annual growth rate in dividend 14%

Expected rate of return on its equity capital 18%

**Required:**

- (a) Calculate price of share applying Gordon's growth Model.  
 (b) What will be the price of share if the Annual growth rate in dividend is only 10%?  
 (c) According to Gordon's growth Model, if Internal Rate of Return is 25%, then what should be the optimum dividend payout ratio in case of growing stage of company?  
 Comment. **(5 Marks)**

**Answer**

(a) 1. **Calculation of Net Cash Inflow per year**

	Particulars	Amount (₹)
A	Selling price per unit	120
B	Variable cost per unit	80
C	Contribution per unit (A - B)	40
D	Number of units sold per year	6 lakhs
E	Total Contribution (C × D)	₹ 240 lakhs
F	Fixed cost per year	₹ 36 lakhs
G	Net cash inflow per year (E - F)	₹ 204 lakhs

**Calculation of Net Present Value (NPV) of the Project**

Year	Year Cash Flow (₹ in lakhs)	PV factor @ 10%	Present Value (PV) (₹ in lakhs)
0	(500.00)	1.000	(500.00)
1	204	0.909	185.44
2	204	0.826	168.50
3	204	0.751	153.20
Net Present Value			7.14

Since the NPV of the project is positive, the company should invest in the new project.

## 2. Sensitivity Analysis considering 1 % Adverse Variance in each variable

	Particulars	Base	Initial capital cost increased to ₹ 505 lakhs	Selling Price per Unit Reduced to ₹ 118.8	Variable Cost Per Unit increased to ₹ 80.80	Fixed Cost per year increased to ₹ 36.36 lakhs	Units sold per year reduced to 5.94 lakhs
		(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
A	Selling price per unit	120	120	118.8	120	120	120
B	Variable cost per unit	80	80	80	80.8	80	80
C	Contribution per unit (A - B)	40	40	38.8	39.2	40	40
		(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)	(₹ in lakhs)
D	Number of units sold per year (units in lakhs)	6	6	6	6	6	5.94
E	Total Contribution (C × D)	240	240	232.8	235.2	240	237.6
F	Fixed cost per year	36	36	36	36	36.36	36
G	Net Cash Inflow per year (E - F)	204	204	196.8	199.2	203.64	201.6
H	PV of Net cash Inflow per year (G × 2.486)	507.14	507.14	489.24	495.21	506.25	501.18
I	Initial capital cost	500	505	500	500	500	500
J	NPV (H - I)	7.14	2.14	-10.76	-4.79	6.25	1.18
K	Percentage Change in NPV	-	-69.99%	-250.55%	-167.03%	-12.53%	-83.52%

The above table shows that by changing one variable at a time by 1% (adverse) while keeping the others constant, the impact in percentage terms on the NPV of the project can be calculated. Thus, it can be seen that the change in fixed cost has the minimum effect on the NPV by 12.53%.

(b) (a) In the present situation, the current MPS is as follows:

$$P = \frac{D_0(1+g)}{K_e - g}$$

**PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE 17**

Where

P = Market price per share

D<sub>0</sub> = current year dividend

g = growth rate of dividends

K<sub>e</sub> = cost of equity capital/ expected rate of return

$$P = \frac{50(1 + 0.14)}{0.18 - 0.14} = ₹ 1425$$

- (b) The impact of changes in growth rate to 10% on MPS will be as follows:

$$P = \frac{50(1 + 0.10)}{0.18 - 0.10} = ₹ 687.5$$

- (c) If Internal rate of return, r = 25% and K<sub>e</sub> = 18%

As per Gordon's model, when r > K<sub>e</sub>, optimum dividend payout ratio is 'Zero'. When IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases.

**Question 6**

- (a) Write the main features of Bulldog Bond. **(4 Marks)**
- (b) What do you understand by Spontaneous Sources of finance and explain its sources of finance? **(4 Marks)**
- (c) What are the causes of over-capitalization? **(2 Marks)**

OR

What are disadvantages of Profit Maximization? **(2 Marks)**

**Answer****(a) Features of Bulldog Bond**

- It is denominated in Bulldog Pound Sterling/Great Britain Pound (GBP)
- Issued in London
- Issuer Non- UK Company
- Regulations: Great Britain
- Purpose: Access of capital available in UK market
- Issue proceeds can be used to fund UK operation
- Issue proceeds can be used to fund a company's local opportunities

18

## INTERMEDIATE EXAMINATION: NOVEMBER, 2023

- (b) Spontaneous sources of finance are those which naturally arise in the course of business operations. Trade credit, credit from employees, credit from suppliers of services, etc. are some of the examples which may be quoted in this respect.

**Spontaneous Sources of Finance**

- (i) **Trade Credit:** Trade credit is a spontaneous source of finance which is normally extended to the purchaser organization by the sellers or services providers. It contributes to about one-third of the total short-term requirements.
- (ii) **Bills Payable:** In the case of "Bills Payable" the purchaser will have to give a written promise to pay the amount of the bill/invoice either on demand or at a fixed future date to the seller or the bearer of the note.
- (iii) **Accrued Expenses:** The accrued expenses refer to the services availed by the firm, but the payment for which has yet to be made. It is a built in and an automatic source of finance as most of the services like wages, salaries, taxes, duties etc., are paid at the end of the period.
- (c) **Over-capitalisation arises due to following reasons:**
- (i) Raising more money through issue of shares or debentures than company can employ profitably.
  - (ii) Borrowing huge amount at higher rate than rate at which company can earn.
  - (iii) Excessive payment for the acquisition of fictitious assets such as goodwill etc.
  - (iv) Improper provision for depreciation, replacement of assets and distribution of dividends at a higher rate.
  - (v) Wrong estimation of earnings and capitalization

**OR**

- (c) Disadvantages of Profit Maximisation objective of financial management.
- (i) Emphasizes the short-term gains
  - (ii) Ignores risk or uncertainty
  - (iii) Ignores the timing of returns
  - (iv) Requires immediate resources.