
1st Time Ever - 2 Days
Financial Management
Maha Marathon
for
CS Executive & CS Professional
27th April, 11am Onwards
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Live on CSCARTINDIA Youtube Channel

CONTENT

1. COST OF CAPITAL

Definition of cost of capital :

Cost of capital is the minimum rate of return expected by the financers of firm (eg. shareholders, debenture holders etc).

Issue price, floatation cost & net proceeds :

a) **Issue Price:** It is a price at which securities are issued to the investors.

b) **Floatation Cost:** expenditure is incurred to make the securities available to the investors.

c) **Net Proceeds (NP):** net proceeds = issue price – floatation cost (if any).

Redemption value (RV)

*__Exam note:__ If question is silent about net proceeds or redemption value then face value should be taken as net proceeds or redemption value as the case may be.

COST OF CAPITAL

1. COST OF DEBTS

Cost of Irredeemable DEBT	Cost of Redeemable DEBT
$\frac{I[1-T]}{NP}$	$\frac{I[1-T]+[RV-NP]/N}{[RV+NP]/2}$

Where

RV = Redeemable value of Debt N = Life of the Debenture.

NP = Net proceeds (Amount realized by company) t = tax rate

2. COST OF PREFERENCE SHARE

Cost of Irredeemable Pref. shares	Cost of Redeemable Pref. shares
$\frac{PREF\ DIVIDEND}{NP}$	$\frac{PREF\ DIVIDED+[RV-NP]/N}{[RV+NP]/2}$

Where
RV = Redeemable value,
NP = Net proceeds
N = No of years

3. COST OF RETAINED EARNINGS :

TAXABLE	NON - TAXABLE
Kr = Ke (1- TAX)	Kr = Ke

4. COST OF EQUITY :

COST OF EQUITY

- DIVIDEND PRICE APPROACH: $Ke = \frac{D_1}{P_0}$
- DIVIDEND PRICE APPROACH WITH GROWTH: $Ke = \frac{D_1}{P_0} + g$
- EARNING PRICE APPROACH: $Ke = \frac{EPS_1}{P_0}$
- EARNING PRICE APPROACH WITH GROWTH: $K_e = \frac{EPS_1}{P_0} + g$
- CAPITAL ASSET PRICING MODEL (CAPM): $K_e = Rf + \beta(Rm - Rf)$

FORMAT FOR CALCULATION OF WACC or Ko

Sources of finance	Book value or market value	Weights	Individual cost of capital	WACC
Equity capital	XX	W1	Ke	Ke *W1
Preference capital	XX	W2	Kp	Kp *W2
Retained earning	XX	W3	Ke	Ke *W3
Debt	XX	W4	Kd	Kd *W4
total	XXX	TOTAL OF ABOVE		Ke = WACC

- WEIGHTS MAY ON BOOK VALUE / MARKET VALUE

Exercise 1

Jain & Co sells a new issue of 6% irredeemable debentures to raise ` 100,000 and realizes the full face value of ` 100. The company falls in 40% tax bracket. Debts are issued at par. Find Cost of Capital

Exercise 2

Jain & Co sells a new issue of 6%, 1000 irredeemable debentures of ` 100 each @ 10 % premium. The company

falls in 40% tax bracket. Find Cost of Capital

Exercise 3

A firm issues debentures worth ` 1,00,000 and realizes ` 98,000 after allowing 2% commission to brokers. They carry an interest rate of 10% and are due for maturity at the end of 10th year. The company has 40% tax bracket.

Exercise 4: A company issues 10,000, 8% preference shares of `100 each redeemable after 20 years at face value. The floatation costs are `3 per share find case of capital.

Exercise 5

A company has on its books the following amounts and specific costs of each type of capital.

Type of Capital	Book Value	Market Value	Specific Costs (%)
	`	`	
Debt	4,00,000	3,80,000	5
Preference	1,00,000	1,10,000	8

Equity	6,00,000	9,00,000	15
Retained Earnings	2,00,000	3,00,000	13
	13,00,000	16,90,000	

Determine the weighted average cost of capital using:

(a) Book value weights, and

(b) Market value weights.

How are they different? Can you think of a situation where the weighted average cost of capital would be the same using either of the weights?

MCQ`S

1. The cost of equity share or debt is called -

(A) Related cost of capital

(B) Easy to calculate cost of capital

(C) Specific cost of capital

(D) Burden on the shareholder

2. In which of the following method cost of equity capital is computed by dividing the dividend by market price per share or net proceeds per share?

(A) Price Earning Method

(B) Adjusted Price Method

(C) Adjusted Dividend Method

(D) Dividend Yield Method

3. In weighted average cost of capital, a company can affect its capital cost through -

1. Policy of capital structure

2. Policy of dividends

3. Policy of investment

Select the correct answer from the options given below:

(A) 1 only

(B) 2 & 3

(C) 1 & 3

(D) All 1, 2 & 3

4. Which of the following model/method makes use of beta (P) in calculation of cost of equity?

(A) Risk Adjusted Discount Model

(B) Capital Assets Pricing Method

(C) MM Model

(D) Price Earning Method

5. Marginal cost -

(A) is the weighted average cost of new finance raised by the company.

(B) is the additional cost of capital when the company goes for further raising of finance.

(C) is the cost of raising an additional rupee of capital.

(D) All of the above

6. Which one of the following is a correct statement regarding a firm's weighted average cost of capital (WACC)Rs.

(A) The WACC can be used as the required return for all new projects with similar risk to that of the existing firm.

(B) An increase in the market risk premium will tend to decrease a firm's WACC.

(C) A reduction in the risk level of a firm will tend to increase the firm's WACC.

(D) The WACC will decrease when the tax rate decreases for all firms that utilize debt financing.

7. R Ltd. has disbursed a dividend of Rs.75 on each equity share of Rs.25. The market price of share is Rs.200. Corporate tax rate is 40%. Its cost of equity is -

(A) . 30.0%

(B) 37.5%

(C) 35.7%

(D) 33.5%

8. F Ltd. issued 1,00,000 equity share of Rs.100 each at a premium of Rs.20 each. Company has incurred issue expenses of Rs.50,000. Corporate tax rate is 40%. The equity shareholders expects the rate of dividend to 18% p.a. Cost of equity = Rs.

(A) 15.60%

(B) 15.65%

(C) 15.06%

(D) 16.50%

9. Maya Ltd. share beta factor (P) is 1.1214. Dividend paid by the company last year was Rs.3.60 per share on face value of Rs.20. The risk free rate of interest on government bonds is 7.5%. The expected rate of return on company equity shares is 13%. What is the cost of equity (Ke) of Maya Ltd.Rs.

(A) 12.89%

(B) 13.67%

(C) 14.52%

(D) 13.03%

10. A Company issues Rs.50,00,000 12% Debentures of Rs.100 each. Risk premium is 8%. Debentures are redeemable after the expiry of fixed period of 7 years. The Company is in 35% tax bracket. Calculate the cost of debt after tax, if debentures are issued at par.

(A) 0.78

(B) 7.8%

(C) 8.7%

(D) 0.87

11. Parag Ltd. issued 14% bonds of Rs.100 each at 98%. Corporate tax rate is 34%. Issue expense per bond was Rs.1.5. Cost of Debt = Rs.

(A) 9.24%

(B) 9.38%

(C) 9.58%

(D) 9.12%

12. A Company issues Rs.48,50,000 12% Debentures of Rs.100 each. Debentures are redeemable at par after the expiry of fixed period of 7 years. The Company is in 35% tax bracket. Calculate the cost of debt after tax, if debentures are issued at 10% premium.

(A) 6.77%

(B) 6.07%

(C) 7.60%

(D) 6.88%

ANSWER`S OF MCQ :

1. C

2. D

3. D

4. B

5. D

6. A

7. B

8. C

9. B

10. B

11. C

12. B

2. DIVIDEND POLICY

BASICS OF DIVIDEND

Dividends are paid out of profits. These could either be profits of the current year or the accumulated profits of the past. Dividends are paid quarterly, half yearly or annually.

Concept	Formula	Explanation
Dividend Rate	**DR=DPS / FV**	Dividend is expressed as a percentage of face value and is referred to as **dividend rate.**
Dividend Yield	**DY = DPS / MPS**	When the dividend amount is expressed as a percentage of market prices, it's called **dividend yield**.
Dividend Payout ratio	**DPR = DPS / EPS**	When expressed as a percentage of earnings it is known as **dividend payout**.
Earning Yield	**EY = EPS / MPS**	When EPS is expressed in terms of MPS it is known as **earnings yield**

WALTER'S MODEL

Walter's model is based on the following assumptions:

1. The firm finances all investment through retained earnings; that is debt or new equity is not issued;
2. The firm's internal rate of return (r), and its cost of capital (k) are constant;
3. All earnings are either distributed as dividend or reinvested internally immediately.

4. Beginning earnings and dividends never change. The values of the earnings per share (E), and the divided per share (D) may be changed in the model to determine results, but any given values of E and
   D are assumed to remain constant forever in determining a given value.

5. The firm has a very long or infinite life.

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

Where:

P : market price per share of common stock

D : dividend per share

E : earnings per share

r : return on investment

k : market capitalization rate.

VALUE OF FIRM = MPS * no of shares

Walter's view on optimum dividend payout ratio where firms value is highest :

i. R > K (12% > 10%)

- Dividend payout ratio = 0%
- Full amount of earning must be reatained in company
- Then value of firm is increased .

ii. R < K (8% < 10%)

- Dividend payout ratio = 100%
- Full amount of earning be distributed to shareholders
- Then value of firm is increased .

iii. R = K (10% = 10%)

- Dividend payout ratio = **tumhari marzi**
- Then value of firm is increased .

GORDON'S MODEL

Another theory, which contends that dividends are relevant, is the Gordon's model. This model which opines that dividend policy of a firm affects its value of the share and firm is based on the following assumptions:

(a) The firm is an all equity firm (no debt).

(b) There is no outside financing and all investments are financed exclusively by retained earnings.

(c) Internal rate of return (r) of the firm remains constant.

(d) Cost of capital (*k*) of the firm also remains same regardless of the change in the risk complexion of the firm.

(e) The firm derives its earnings in perpetuity.

(f) The retention ratio (b) once decided upon is constant. Thus the growth rate of firm (g) is also constant (g=br).

(g) ke >g.

(h) A corporate tax does not exist.

Gordon used the following formula to find out price per share:

$$P = \frac{E(1-b)}{K-g}$$

where g = b*r

Where, P = Market price of a share

E = Earning per share

b = Retention ratio or percentage of earnings retained or (1 – Payout ratio)
(1 - b) = dividend payout ratio, i.e., percentage of earnings distributed as dividend
k = Capitalisation rate/cost of capital

Modigliani And Miller's Approach (M M Hypothesis)

The fundamental premise of this theory is that the price of the shares of a firm is determined by its earning potentiality and investment policy and never by the pattern of income distribution. The logical put forward in support of this theory is that only increase in shareholders wealth resulting from dividend payments will exactly offset the effect of raising additional capital.

Proof for M. M. Hypothesis:

According to M. M. Hypothesis, the market value of a share at the beginning of the period is equal to the present value of dividends paid at the end of the period plus the market price of the share at the end of the period.

1) $P_1 = P_0(1+K_e)-D_1$

P_0= Prevailing market price of a share
D_1 = Dividend to be received at the end of the period one
P_1= Market price of share at the end of period one
K_e = Cost of equity capital

2) **Computation of the number of new shares to be issued:**

$$N_1 = I-(E-D) / P_1$$

N_1 = Number of shares to be issued

P_1 = Price at which new issue is to be made

I = Amount of investments required

E = Total net profit of the firm during the period

D = Total dividend paid during the year.

3) **Value of the firm = $(n+n_1)P_1 - I + E / 1 + K_e$**

E = Total earnings

N = Existing number of shares

PROBLEMS

1. Calculate the share price of PC Ltd in following cases if Ke = 10%, Expected dividend isRs. 15, dividend Payout Ratio of 20%.
Case a) R = 12%,

Case b) R = 11%

Case c) R = 10%. Use Gordon Model

2. RST Ltd. has a capital of Rs. 10 lakhs in equity shares of Rs. 100 each. The shares are currently quoted at par. The company proposes declaration of dividend of Rs. 10 per share at the end of current financial year. The capitalization rate for the risk class to which company belongs is 12%. What will be the market price of the share at the end of the year if (using MM approach)

i. dividend is not declared
ii. dividend is declared
iii. assuming that the company pays the dividend and has profits of Rs. 5 lakhs and makes new investment of Rs. 10 lakhs during the period, how many new shares must be issued?

3. From the following information supplied to you, determine the theoretical market value of equity shares of a company as per Walter's model:

Earnings of the company	5,00,000
Dividends paid	3,00,000
Number of shares outstanding	1,00,000
Price earnings ratio	8

Rate of return on investment 0.15

Are you satisfied with the current dividend policy of the firm? If not, what should be the optimal dividend payout ratio in this case?

4. Following are the details regarding three companies:

P Limited	**Q Limited**	**R Limited**
r = 12%	r = 10%	r = 7%
K = 10%	K = 10%	K = 10%
E = Rs 10	E = Rs. 10	E = Rs 10

You are required to calculate the effect of dividend payment on the value of shares of each of the above companies under the following different situations (Use Walter's model)

a. When no dividend is paid
b. When dividend is paid at Rs. 4 per share
c. When dividend is paid at Rs. 10 per share

MCQ`S

1. Dividend policy determines -

(A) what portion of earnings will be paid out to stock holders

(B) what portion will be retained in the business to finance long-term growth.

(C) Only (A) not (B)

(D) Both (A) and (B)

2. Dividend constitutes the cash flow that accrues to -

(A) Holders

(B) Equity holders

(C) Bond holders

(D) All of the above

3. Retained earnings are -

(A) An indication of a company's liquidity.

(B) The same as cash in the bank.

(C) Not important when determining dividends.

(D) The cumulative earnings of the company after dividends.

4. In retention growth model, per cent of net income firms usualiy pay out as shareholders dividends, is classified as -

(A) Payout ratio

(B) Payback ratio

(C) Growth retention ratio

(D) Present value of ratio

5.As per Modigliani-Miller hypothesis of dividend irrelevance price of share at year zero is -

(A) D0 + P0/1+Ke

(B) (D, + P,)X(l+Ke)

(C) D,+ P1/1+Ke

(D) 1 - (D0 + P0) ÷ Ke

6. The dividend growth model can be used to compute the cost of equity for a firm in which of the following situations?

I. Firms that have a 100% retention ratio.

II. Firms that pay a constant dividend.

III. Firms that pay an increasing dividend

IV. Firms that pay a decreasing dividend.

Select correct answer from the options given below.

(A) I & II only

(B) II & III only

(C) II, III & IV only

(D) I, II & ffl only

7. Modigliani and Miller argue that the dividend decision ..... .

(A) is irrelevant as the value of the firm is based on the earning power of its assets.

(B) is relevant as the value of the firm is not based just on the earning power of its assets.

(C) is irrelevant as dividends represent cash leaving the firm to shareholders, who own the firm anyway.

(D) is relevant as cash outflow always influences other firm decisions

8. Constant payout ratio means -

(A) Declaration same bonus ratio every year.

(B) The payment of fixed percentage of earning as dividend every year.

(C) Constantly paying same dividend if EPS is same for all the year.

(D) None of the above

9. The ..... is the proportion of earnings that are paid to common shareholders in the form of a cash dividend.

(A) Retention rate

(B) 1 + Retention rate

(C) Growth rate

(D) Dividend payout ratio

10. The dividend payout ratio describes:

(A) The proportion of earnings paid as dividends

(B) The relationship of dividends per share to market price per share

(C) The percentage change in dividends this year compared to fast year

(D) Dividends as a percentage of the price/earnings ratio

11. ..... reflects the market's confidence in the company's equity.

(A) P/E ratio

(B) Net profit ratio

(C) Cash profit ratio

(D) Total assets turnover ratio

12. As per Gordon's Model whether company adopts 50%, 80% or any other payout ratio, market price will remain same when -

(A) K >r

(B) K <r

(C) K=r

(D) Ke>Rf

13. As per Walter's Model when Ra < Rc increase in dividend payout ratio will lead to -

(A) Increase in market price

(B) Decrease in market price

(C) No change in market price

(D) None of the above

14. The cost of capital and rate of return on investment of GOD Ltd. is 10% and 15% respectively. The company has 10 lakh shares of Rs.10 each. Its earnings per share is Rs.7.5. Calculate the value of the firm per share using Walter's Model assuming all earnings are distributed as dividend.

(A) Rs.75

(B) Rs.100

(C) Rs.125

(D) Rs.150

15. Cost of capital of MNL Ltd. is less than rate of return on investment. Its market price per share is Rs.62.50 as per Walter's Model at 50% retention ratio. If firm increase its retention ratio then -

(A) Its price will fall below Rs.62.50

(B) Its price will increase above Rs.62.50

(C) Its price will increase above Rs.100

(D) It price will not change

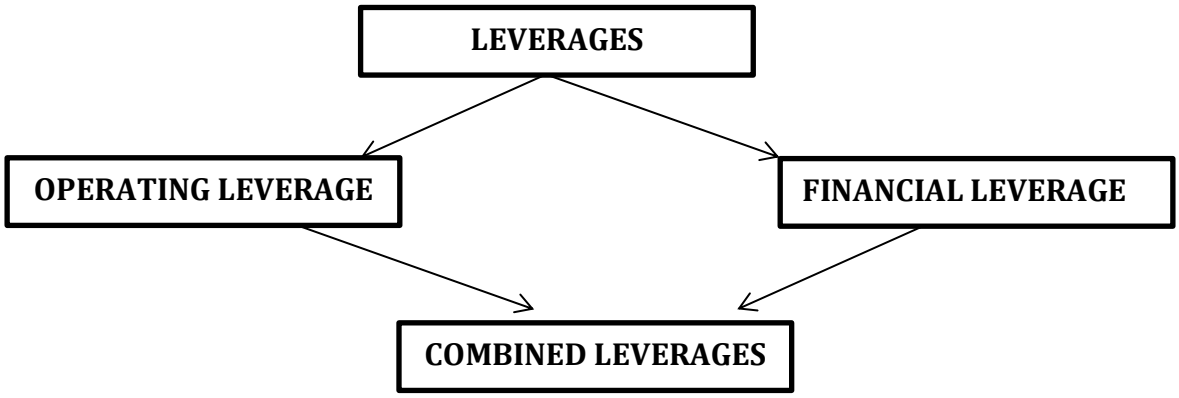
ANSWERS :

1. **D**
2. **B**
3. **D**
4. **A**
5. **C**
6. **C**
7. **A**
8. **B**
9. **D**
10. **A**
11. **A**
12. **C**
13. **A**
14. **A**
15. **B**

3. LEVERAGE

MEANING : In the financial point of view, leverage refers to furnish the ability to use fixed cost assets or funds to increase the return to its shareholders.

TYPES OF LEVERAGE :



INCOME STATEMENT

PARTICULARS	AMOUNT
SALES (-) VARIABLE COST	XXX (XX)
CONTRIBUTION (-) FIXED COST	XXX (XX)
EBIT (-) INTEREST	XXX (XX)
EBT (-) TAXES	XXX (XX)

EAT	**XXX**
(-) PREFERENCE DIVIDEND	**(XX)**
PAT OR NET INCOME	**XXX**

TYPES OF LEVERAGE

Operating leverage or degree of operating leverage (DOL)	**Financial leverage or degree of financial leverage (DOF)**	**Combined leverage or degree of combined leverage (DCL)**
Taking advantage of operations of business i.e. operating fixed cost	Taking advantage of financial structure of business i.e. Fixed cost of finance - interest	Taking advantage of both operations and financial structure of business i.e. Fixed cost of operations + fixed cost of finance i.e. interest

	1. Assuming that there are no preference shares	**1. Assuming that there are no preference shares**
By increasing the SALES by a certain % we want to increase EBIT by a greater %	By increasing the EBIT by a certain % we want to increase EPS by a greater %	By increasing the SALES by a certain % we want to increase EPS by a greater %
a.DOL = %CHANGE IN EBIT / %CHANGE IN SALES	**a.DFL = %CHANGE IN EPS / %CHANGE IN EBIT**	**a.DCL = %CHANGE IN EPS / %CHANGE IS SALES**

OR

In other words we are measuring the impact of FIXED COST	**In other words we are measuring the impact of INTEREST COST**	**In other words we are measuring the impact of FIXED COST OF OPERATIONS AND INTEREST COST**

b. DOL = CONTRIBUTION / EBIT	**b. DFL = EBIT / EBT**	**b. DCL= CONTRIBUTION / EBIT**
Formula (a) to be used where two situation are given . whereas formula (b) to be used when only one situation is given .	Formula (a) to be used where two situation are given . whereas formula (b) to be used when only one situation is given .	Formula (a) to be used where two situation are given . whereas formula (b) to be used when only one situation is given .

	2. Assuming that there are preference shares	**2.Assuming that there are preference shares**
	Now assuming that preference shares are given in question . we can now take advantage of interest and preference dividend .	Now assuming that preference shares are given in question . we can now take advantage of fixed cost of operaations and interest and preference dividend .
	DFL = EBIT / EBIT-INTEREST-[PD/(1-t)]	**DCL = CONTRIBUTION / EBIT-INTEREST-[PD/(1-t)]**

COMBINED LEVERAGE = DOL * DFL = CONTRIBUTION / EBIT * EBIT / PBT = CONTRIBUTION / PBT

PROBLEM 1.

From the following selected operating data, determine the degree of operating leverage. Which company has the greater amount of business risk? Why?

	Company A (`)	**Company B (`)**
Sales	25,00,000	30,00,000
Fixed costs	7,50,000	15,00,000

Variable expenses as a percentage of sales are 50% for company A and 25% for company B.

PROBLEM 2.

A Company has the following capital structure :

Particulars	`
Equity share capital	1,00,000
10% Preference share capital	1,00,000
8% Debentures	1,25,000

The present EBIT is `50,000. Calculate the financial leverage assuming that the company is in 50% tax bracket.

PROBLEM 3.

The following information as available for ABC & co.

EBIT	11,20,000
PROFIT BEFORE TAX	3,20,000
FIXED COST	7,00,000

Calculate % change in EPS if the sales are expected to increase by 5% .

PROBLEM 4

A firm has sales of 10, 00, 000 variable cost of Rs. 7, 00, 000 and fixed cost of Rs. 2, 00, 000 and debt of Rs. 5, 00, 000 at 10% rate of interest. What are the operating, financial and combined leverages? If the firm wants to double its earnings before interest and tax (EBIT), how much of a rise in sales would be needed on a percentage basis?

MCQ`S

1. The term Leverage in general refers to a -

(A) Relationship between fixed cost and profit.

(B) Relationship between sales and fixed cost.

(C) Relationship between two interrelated variables.

(D) Relationship between two unrelated variables.

2. In financial analysis Leverage represents the influence of one ..... over some other related .....

(A) Non-financial variable; financial variable

(B) financial variable; financial variable

(C) financial variable; non-financial variable

(D) variable relating to revenue; financial variable

3. Which of the following is not commonly used measures of leverage in financial analysis?

(A) Operating Leverage

(B) Financial Leverage

(C) Combined Leverage

(D) Matrix Leverage

4. There is no operating leverage if there is no

(A) Profit

(B) Sales

(C) Fixed cost

(D) EPS

5. If operating leverage is 4, this means that -

(A) 496 change in sales will cause 196 change in EBIT.

(B) 196 change in sales will cause 496 change in EBIT.

(C) 196 change in sales will cause 496 change in EPS.

(D) 496 change in sales will cause 196 change in EPS.

6. Measure of business risk is -

(A) Operating leverage

(B) Financial leverage

(C) Combines leverage

(D) Working capital leverage

7. Match List-I with List-II and select the correct answer using the codes given below the lists:

	List-I		**List-II**
p.	Factoring	1.	Sales
Q.	Operating leverage	2.	Fixed interest cost
R.	Debtors turnover ratio	3.	Working capital
S.	Financial leverage	4.	Break-even point
		5.	Fixed cost

Select the correct answer from the options given below:

	P	**0**	**R**	**S**
(A)	4	5	1	2

(B)	3	5	2	1
(C)	3	5	1	2
(D)	4	2	3	5

8. A firm has a DOL of 4.5 at Q units. What does this tell us about the firm?

(A) If sales rise by 4.5%, then EBIT will rise by 1%.

(B) If EBIT rises by 4.5%, then EPS will rise by 1%.

(C) If EBIT rises by 1%, then EPS will rise by 4.5%.

(D) If sales rise by 1%, then EBIT will rise by 4.5%

9. A firm has a DFL of 5.5. What does this tell us about the firm?

(A) If sales rise by 5.5%, then EBIT will rise by 1%.

(B) If EBIT rises by 5.5%, then EPS will rise by 1%.

(C) If EBIT rises by 1%, then EPS will rise by 5.5%.

(D) If sales rise by 1%, then EBIT will rise by 5.5%.

10. Higher operating leverage is related to the use of additional .....

(A) Fixed costs

(B) Variable costs

(C) Debt financing

(D) Common equity financing

11. Which of the following statement is correct?

(A) If a business firm has a lot of variable costs as compared to fixed costs, then the firm is said to have high operating leverage.

(B) Combined Leverage = % change in EPS multiplied by % change in Sales

(C) If a business firm has a lot of fixed costs as compared to variable costs, then the firm is said to have high operating leverage.

(D) If contribution is less than fixed cost, operating leverage will be favourable and vice versa.

ANSWERS OF MCQ`S

1. C

2. B

3. D

4. C

5. B

6. A

7.C

8. D

9. C

10. A

11. C

4. WORKING CAPITAL

MEANING OF WORKING CAPITAL :

- The capital which is required to finance current assets is called working capital.
- It is the capital of a busniess which is used to carry out day-to-day business operations of a firm.
- "Working capital may be defined as all the short term assets used in daily operation"—John. J Harpton.
- Gross Working Capital means investments in current assets of business.
- Net working capital is the difference of current assets minus current liabilities.

Current Assets: An asset is classified as current when:

(i) It is expected to be realised or intends to be sold or consumed in normal operating cycle of the entity;

(ii) The asset is held primarily for the purpose of trading;

(iii) It is expected to be realised within twelve months after the reporting period;

(iv) It is non- restricted cash or cash equivalent.

Current Liabilities: A liability is classified as current when:

(i) It is expected to be settled in normal operating cycle of the entity

(ii) The liability is held primarily for the purpose of trading

(iii) It is expected to be settled within twelve months after the reporting period.

SIGNIFICANCE OF WORKING CAPITAL :

❖ Management of working capital is an essential task of the finance manager. He has to ensure that the amount of working capital available with his concern is neither too large nor too small for its requirements.

❖ If the firm has inadequate working capital, such firm runs the risk of insolvency.

❖ Maintaining adequate working capital is not just important in the short-term. Sufficient liquidity must be maintained in order to ensure the survival of the business in the long- term as well.

❖ For e.g.:-Increased production leads to holding of additional stocks of raw materials and work-in-progress. An increased sale usually means that the level of debtors will increase. A general increase in the firm's scale of operations tends to imply a need for greater levels of working capital.

❖ Excessive as well as inadequate working capital positions are dangerous.

OPERATING OR WORKING CAPITAL CYCLE :

☑ The operating cycle is the length of time between the company's outlay on raw materials, wages and other expenditures and the inflow of cash from the sale of the goods.

☑ Working Capital cycle indicates the length of time between a company's payments for raw material and the cash received from debtors.

The operating cycle process can be expressed as follows:

Operating cycle = r + w + f + d – c

Where,

R = raw material storage period

W = work-in-progress holding period

F = finished goods storage period

D = receivables (debtors) collection period.

C = credit period allowed by suppliers (creditors).

Formula to calculate number of days in each stage of working capital cycle

1. Raw material storage period = **Average value of Raw material stock**
   Consumption of raw material per day

2. Period of Production = **Average value of work in progress** / **Average cost of production per day**

3. Period of tumover of finished goods stock = **Stock of finished goods** / **Average cost of gods sold per day**

4. Period of credit taken by customers = **Average value of debtors** / **Average value of sales per day**

5. Granted by supplier = **Average level of creditors** / **Purchase of raw materials per day**

Total operating cycle period = Sum of Sl. Nos. 1, 2, 3, 4,5

WORKING CAPITAL REQUIREMENT ASSESSMENT

Working capital requirement assessment requires :

1. Calculation of average value of Raw Material Inventory, Work in Progress inventory and Finished Goods inventory
2. Calculation of Trade receivables
3. Calculation of Cash and Cash Convertibles required for normal running of business,
4. Calculation of trade payables.

The formula which is used for assessing the working capital requirement is listed below:

A. Current Assets

Value of Raw Material Stock	XXXX
Value of Work in Progress	XXXX
Value of Finished Goods Stock	XXXX
Value of Trade Receivables	XXXX
Value of Cash Required	XXX
Total of A	XXX

B. Current Liabilities

Value of Trade Payable	XXX

Value of Bank Overdraft	XXXX
Value of Outstanding expenses	XXXX
Total of B	XXX
Working Capital Total of (A)-Total of (B)	XXXX

FORMULAES :

Raw Materials Inventory

$$\frac{\text{Estimated Production (units)}}{\text{12months / 365days *}} \times \text{Estimated cost per unit} \times \text{Average raw material storage period}$$

Finished Goods

$$\frac{\text{Estimated Production (units)}}{\text{12months / 365days *}} \times \text{Estimated cost of production per unit} \times \text{Average finished goods storage period}$$

Work-in-Progress Inventory

$$\frac{\text{Estimated Production (units)}}{\text{12months / 365days *}} \times \text{Estimated WIP cost per unit} \times \text{Average WIP holding period}$$

Receivables (Debtors)

$$\frac{\text{Estimated credit sales}}{\text{12months / 365days *}} \times \text{Estimated cost of sales (Excl. Dep.) per unit} \times \text{Average receivable collection period}$$

Trade Payables

$$\frac{\text{Estimated credit purchase}}{\text{12months / 365days}} \times \text{Credit period allowed by suppliers}$$

Direct Wages

$$\frac{\text{Estimated labour hours} \times \text{wages rate per hour}}{\text{12months / 365days}} \times \text{Average time lag in payment of}$$

Overheads (other than depreciation and amortization)

$$\frac{\text{Estimated Overheads}}{\text{12months / 360 days}} \times \text{Average time lag in payment of overheads}$$

TANDON COMMITTEE :

1st Method : PBC = 75/100 x WCG

2nd Method : PBC = TCA – [(25/100 x TCA) + OCL]

3rd Method : PBC = TCA – [CRA + 25/100 (TCA – CRA) + OCL]

Where,

PBC stands for Permissible Bank Credit

WCG stands for Working Capital Gap

TCA stands for Total Current Assets

OCL stands for Other Current Liabilities

(i.e. Current Liabilities other than Bank Borrowings)

CRA stands for Amount required to finance Core Assets.

QUESTION 1

The following information is available for Swati Ltd.

Average stock of raw materials and stores	2,00,000
Average work-in-progress inventory	3,00,000
Average finished goods inventory	1,80,000
Average accounts receivable	3,00,000
Average accounts payable	1,80,000
Average raw materials and stores purchased on credit and consumed per day	10,000
Average work-in-progress value of raw materials committed per day	12,500
Average cost of goods sold per day	18,000
Average sales per day	20,000

Calculate the duration of operating cycle.

QUESTION 2

From the following information, you are required to estimate the net working capital:

	Cost per unit (`)
Raw Material	200
Direct Labour	100
Overheads (excluding depreciation)	250
Total Cost	550

Estimated data for the forthcoming period is given as under:

Raw material in stock	average 6 weeks
Work-in-progress(assume50% completion stage with full material consumption)	average 2 weeks
Finished goods in stock	average 4 weeks
Credit allowed by suppliers	average 4 weeks

Credit allowed to debtors	average 6 weeks
Cash at bank is expected to be	`75,000
Selling price	`800 per unit
Output	52,000 units per annum

Assume that production is sustained at an even pace during the 52 weeks of the year. All sales are on credit basis. State any other assumptions that you might have made while computing.

QUESTION 3

MNO Ltd. has furnished the following cost data relating to the year ending of 31st March, 2017.

Sales	450
Material consumed	150
Direct wages	30
Factory overheads (100% variable)	60
Office and Administrative overheads (100% variable)	60
Selling overheads	50

The company wants to make a forecast of working capital needed for the next year and anticipates that:

- Sales will go up by 100%,
- Selling expenses will be ` 150 lakhs,
- Stock holdings for the next year will be-Raw material for two and half months, Work-in-progress for one month, Finished goods for half month and Book debts for one and half months,
- Lags in payment will be of 3 months for creditors, 1 month for wages and half month for Factory, Office and Administrative and Selling overheads.

You are required to:

(i) Prepare statement showing working capital requirements for next year, and

(ii) Calculate maximum permissible bank finance as per Tandon Committee guidelines

assuming that core current assets of the firm are estimated to be ` 30 lakhs.

MCQ`S

1. Working capital is also known as -

(A) Operation capital

(B) Operating capital

(C) Current assets capital

(D) Capital relating to main projects of the company

2. A positive working capital means that -

(A) the company is able to pay-off its long-term liabilities.

(B) the company is able to select profitable projects.

(C) the company is unable to meet its short-term liabilities.

(D) the company is able to pay-off its short-term liabilities.

3. Working capital = ...

(A) Core current assets less current liabilities

(B) Core current assets less core current liabilities

(C) Liquid assets less current liabilities

(D) Current assets less current liabilities

4. Other things remaining constant, if the debtors increases as compared to last year it means -

(A) Company has poor credit policy

(B) Company has positive working capital

(C) Company has negative working capital

(D) Company has no working capital

5. Which of the following will be considered while calculating working capital?

(1) Short Term Advances

(2) Stock of WIP

(3) Short Term Investments

(4) Perpetual inventory policy

Select the correct answer from the options given below.

(A) (2) & (3)

(B) (1) & (3)

(C) (1), (2) & (3)

(D) All of the above except (4)

6. A negative working capital means that -

(A) the company has no current assets at all

(B) the company currently is unable to meet its shortterm liabilities

(C) the company has negative earnings before interest and tax

(D) the company currently is able to meet its shortterm liabilities

7. Which of the following analyzes the accounts receivable, inventory and accounts payable cycles in terms of number of days?

(A) Operation cycle

(B) Current asset cycle

(C) Operating cycle

(D) Business cycle

8. Which of the following method is not used fcr calculating working capital cycle?

(A) Percentage of sales method

(B) Regression analysis method

(C) Operating cycle approach

(D) Trial and error method

9. Which of the following is correct formula to calcula e WIP Conversion Period?

CA1 Annual Cost of Production x 355 d Average Stock of WIP

(B) Average Stock of WIP x 365 days Annual Cost of Sales

(C) Average Stock of WIP x 365 days Annual Cost of Production

(D) Annual Cost of Sales x365days Average Stock of WIP

10. Operating cycles period equals:

(A) Collection period + Inventory holding period - Creditor Payment Period

(B) Collection period - Inventory holding period + Creditor Payment Period

(C) Creditor Payment Period + Inventory holding period - Collection period

(D) Any of the above

11. Which of the following is not a metric to use for measuring the length of the cash cycle?

(A) Acid test days

(B) Accounts receivable days

(C) Accounts payable days

(D) Inventory days

12. Decrease in current assets means -

(A) Increase in working capital

(B) Decrease in inventories

(C) Decrease in working capital

(D) Increase in accounts payable days.

13. Calculate the working capital from the following data:

Particulars %

Raw Material Stock 11,70,000

WIP Stock 9,58,750

Finished Goods Stock 26,65,000

Debtors 55,12,000

Cash & Bank 6,00,000

Creditors 17,55,000

Outstanding expenses 14,95,000

(A) 76,75,550

(B) 76,55,750

(C) 75,65,750

(D) 77,55,650

14. Annual credit sales = Rs.19,50,000

Cash sales = Rs.1,50,000

Debtors = Rs.1,60,000

Bills receivable = Rs.1,00,000

Finished goods = Rs.1,22,000

Collection Period = Rs.

Note: 1 Year = 360 days

(A) 29 days

(B) 30 days

(C) 49 days

(D) Data given is not sufficient

15. WIP Conversion Period =18 days Raw Material Consumed = Rs.8,42,000 Stock of WIP = Rs.72,000

Cost of Production = Rs.

(A) Rs.14,00,000

(B) Rs.22,67,000

(C) Rs.5,83,000

(D) Rs.14,60,000

ANSWERS

1. **B**
2. **D**
3. **D**
4. **B**
5. **D**
6. **B**
7. **C**
8. **D**
9. **C**
10. **A**
11. **A**
12. **C**
13. **B**
14. **C**
15. **D**

5. CAPITAL BUDGETING

TECHNIQUES

A. PAYBACK PERIOD

- It is the time period required to recover back the principal amount invested for a project .

TYPES OF CASH INFLOW

i) Even cash flows

$$\text{Pay-back period} = \frac{\text{initial investment}}{\text{Annual cash flows}}$$

ii) Uneven cash flows

We use cumulative CF to check the exact payback period.

How to select : LESSER the pay-back period better the project .

PROBLEM 1 : if the project needs an initial investment of ` 25,000 and the annual cash inflow for five years are 6,000, ` 9,000, ` 7,000, ` 6,000 and ` 4,000 respectively. CALCULATE pay back period.

B. DISCOUNTED PAY-BACK PERIOD

- It is time period to recover back principal amount invested considering the time value of money for a project .
- We first discount the CFs of future years to PV
- Then discounted CFs are commulated to check the exact discounted payback period
- It is some like payback period exact that here future years cash flows are discounted and then commulated
- **How to select : LESSER** the pay-back period better the project .

PROBLEM 2 : Find out discounted pay-back period with given data of problem no.1

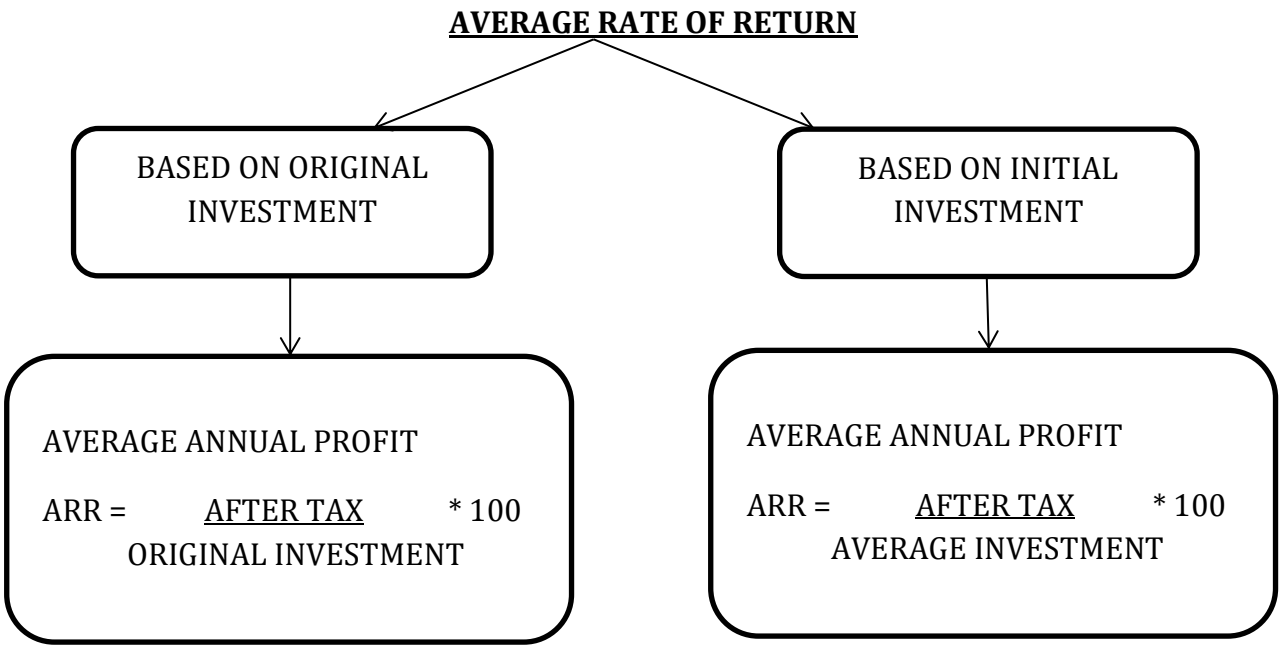
C. PAY-BACK RECIPROCAL

- It is just opposite of payback period
- As the name suggests it is exactly opposite of payback method .
- **Pay-back reciprocal = 1/ pay-back period**
- It indicates the annual rate of return on initial investment without considering time value of money .
- **How to select : HIGHER** the pay-back reciprocal better the project .

PROBLEM 3 : Find out discounted pay-back period with given data of problem no.1

D. AVERAGE RATE OF RETURN :

- It is the rate of return the project is given without considering the time value of money . this method considers profits and not cash flows for calculating rate of return .



WHERE AVERAGE ANNUAL PROFIT =

TOTAL PROFIT / NO. OF YEARS

AND

OPENING WDV + CLOSING WDV / 2

OR

AVERAGE INVESTMENT =

ORIGINAL INVESTMENT – SCRAP VALUE / 2 + ADDITIONAL WORKING CAPITAL + SCRAP VALUE

- **How to select : HIGHER** the ARR , better the project .

PROBLEM 4 : FIND OUT ARR

Suppose there are two investment proposals A and B each with capital investment of ` 20,000 and depreciable life of 4 years. Assume that following are the estimated profit and cash inflows when annual straight line depreciation charged is ` 5,000.

Period	Project A		Project B	
	Book Profits	Net Cash Inflows	Book Profits	Net Cash Inflows
1.	4,000	9,000	1,000	6,000
2.	3,000	8,000	2,000	7,000
3.	2,000	7,000	3,000	8,000
4.	1,000	6,000	4,000	9,000
Total	10,000	30,000	10,000	30,000

E. DISCOUNTED CASH FLOW METHOD :

- **It has 3 methods**

(a) NET PRESENT VALUE METHOD (NPV)

(b) PROFITABILITY INDEX METHOD (PI)

(c) INTERNAL RATE OF RETURN METHOD (IRR)

(a) NET PRESENT VALUE METHOD (NPV)

- As the name suggests it is the net present value of all cash inflows and cash outflows
- **NET PRESENT VALUE (NPV) = PRESENT VALUE OF CASH INFLOWS – PRESENT VALUE CASH OUTFLOWS**
- It indicates by investing the project cost today how much extra we are getting in today`s value .
- The cash flows are discounted using cost of capital .
- If NPV is +ve we accept the project.
- Between 2 projects the projects with higher NPV will be selected .
- Where the life of 2 projects under consideration is not same EAV is used as :

EQUATED ANNUAL VALUE (EAV) = NPV / PVAF FOR LIFE OF PROJECT

PROBLEM 5 : Find out NET PRESENT VALUE of given outflows .

Year	CF
0	-100000
1	26000
2	28000
3	31000
4	33000
5	36000
6	18000

(b) PROFITABILITY INDEX METHOD (PI)

PI = PV OF CASH IN-FLOWS / PV OF CASH OUT-FLOWS

OR

PI = NPV + INITIAL INVESTMENT / INITIAL INVESTMENT

- It indicates that for every 1 rupee invested in the project of how much we are getting in today`s value .
- **HOW TO SELECT** : highet the PI better the project .

PROBLEM 6 : find profitability index with factor at 15 %

Project	*Initial investment*	*Annual Cash Flow*	*Life in years*	*PV Factor at 15%*
A	1,00,000	25,000	10	5.1790
B	70,000	20,000	8	4.6586
C	30,000	6,000	20	6.3345
D	50,000	15,000	10	5.1790
E	50,000	12,000	20	6.3345

(c) INTERNAL RATE OF RETURN METHOD (IRR)

IRR = START RATE + SURPLUS / SURPLUS+DEFICIT * DIFFERENCE IN RATE

- IT is the rate of return given by the project.
- If IRR is taken as discounting rate , NPV is always ZERO & PI is 1 .
- **How to select :**

a) If there is single project under consideration , IRR should be compared with cut off rate . we accept the project if IRR > cut off rate is minimum required rate of return .

b) Between 2 projects , projects with higher IRR should be selected .

IMPORTANT POINTS TO BE REMEMBERED :

1. Depreciation is non-cash expense .
2. Still we consider depreciation for calculating tax amount .
3. If there is no tax rate given we ignore depreciation .

4. If tax amount is given , we ignore depreciation .

PROBLEM 7 : FIND OUT ARR

Year	*Cashflow (`)*
0	(30,000)
1	4,000
2	10,000
3	20,000
4	11,000

The discount rate for discounted cashflow (DCF) calculation is 12 per cent. Accounting profits are the same as cashflow except that the initial expenditure should be depreciated over 4 years; there is no resale value at year 4.

EFFECTIVE INTEREST RATE [ERR] : it is same like internal rate of return (IRR)

- It is the rate used for discount the future cash flows where present value of inflows will be equal to present value of outflows means at IRR . NET PRESENT VALUE OF PROJECT will be always `0` .

MCQs

1. Capital budgeting is the process -

(A) which help to make master budget of the organization.

(B) By which the firm decides how much capital to invest in business

(C) by which the firm decides which long-term investments to make.

(D) undertaken to analyze how make available various finance to the business.

2. The values of the future net incomes discounted by the cost of capital are called -

(A) Average capital cost

(B) Discounted capital cost

(C) Net capital cost

(D) Net present values

3. The Internal Rate of Return (IRR) criterion for project acceptance, under theoretically infinite funds is:

Accept all projects which have -

(A) IRR equal to the cost of capital

(B) IRR greater than the cost of capital

(C) IRR less than the cost of capital

(D) None of the above

4. Where capital availability is unlimited and the projects are not mutually exclusive, for the same cost of capital, following criterion is used?

(A) Net present value

(B) Internal Rate of Return

(C) Profitability Index

(D) Any of the above

5. Which of the following represents the amount of time that it takes for a capital budgeting project to recover its initial cost?

(A) Maturity period

(B) Payback period

(C) Redemption period

(D) Investment period

6. A project is accepted when:

(A) Net present value is greater than zero

(B) Internal Rate of Return will be greater than cost of capital

(C) Profitability index will be greater than unity

(D) Any of the above

7. With limited finance and a number of project proposals at hand, select that package of projects which has

(A) The maximum net present value

(B) Internal rate of return is greater than cost of capital

(C) Profitability index is greater than unity

(D) Any of the above

8. A Profitability Index (PI) of 0.92 for a project means that .....

(A) the project's costs (cash outlay) are (is) less than the present value of the project's benefits.

(B) the project's NPV is greater than zero.

(C) the project's NPV is greater than 1.

(D) the project returns 92 cents in present value for each rupee invested.

9. Which of the following statements is incorrect regarding a normal project?

(A) If the NPV of a project is greater than 0, then its PI will exceed 1.

(B) If the IRR of a project is 8%, its NPV, using a discount rate, K0, greater than 8%, will be less than 0.

(C) If the PI of a project equals 0, then the project's initial cash outflow equals the PV of its cash flows.

(D) If the IRR of a proj ect is greater than the discount rate, then its PI will be greater than 1.

10. Capital budgeting decisions are analyzed with help of weighted average and for this purpose -

(A) Component cost is used

(B) Common stock value is used

(C) Cost of capital is used

(D) Asset valuation is used

11. Which of the following is demerit of payback period?

(A) It is difficult to calculate as well as understand it as compared to accounting rate of return method.

(B) This method disregards the initial investment involved.

(C) It fails to take into account the timing of returns and the cost of capital.

(D) None of the above

12. ..... is an investment appraisal technique calculated by dividing the present value of future cash flows of a project by the initial investment required for the project.

(A) Indexed cost method

(B) Profitability index

(C) Cost benefit ratio

(D) Both (B) and (C)

13. Accept a project if the profitability index is:

(A) less than 1

(B) positive

(C) greater than 1

(D) negative

14. If present value of cash outflow is equal to present value of cash inflow, the net present value will be:

(A) Positive

(B) Negative

(C) Zero

(D) Infinite

15. Generally, a project is considered acceptable if its net present value is:

(A) Negative or zero

(B) Negative or positive

(C) Positive or zero

(D) Negative

16. An increase in the discount rate will:

(A) Reduce the present value of future cash flows.

(B) Increase the present value of future cash flows.

(C) Have no effect on net present value.

(D) Compensate for reduced risk.

ANSWERS:

1) C
2) D
3) B
4) D
5) B
6) D
7) A
8) D
9) C
10) C
11) C
12) D
13) B

14) C

15) C

16) A

6. SECURITY ANALYSIS

LEARNING OBJECTIVES

Security Analysis is very important aspect of financial management and is an essential function of a finance manager. Security analysis is about valuing the securities using publicly available information. Keeping this important aspect in view, the subject Security Analysis has been included in the syllabus.

INTRODUCTION

"An Investment is the current commitment of money or other resources in the expectation of reaping future benefits." (Zvi Bodie, 2016). Investment means to forego present consumption for the increased consumption resource available in the future. It can be in any form, assets of all type and kind be it jewellery, commodity, real estate etc. An investor can buy a share of a company in anticipation of getting good returns in future.

Security Analysis

Security Analysis is a process of estimating **return** and **risk** for individual securities. It involves analysis of various attributes of a security with a view to determine its value for investment decisions.

Real Asset & Financial Asset

Real assets are tangible, material things such as buildings, furniture, automobiles etc.
Financial assets are pieces of paper representing an indirect claim to real assets in form of debt or equity commitments.

INVESTMENT

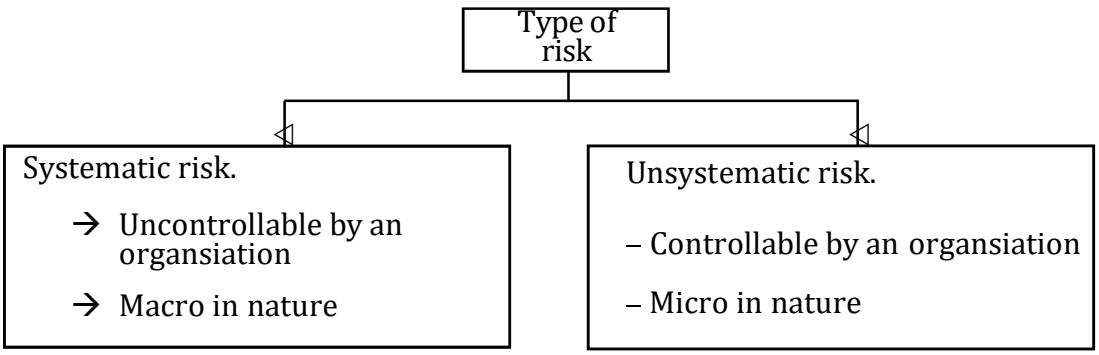
Investment is the employment of funds on assets with the aim of earning income or capital appreciation.

INVESTMENT VS. SPECULATION

An investment operation is one which, upon thorough analysis, promises safety of principal and an adequate return. Operations not meeting these requirements are speculative.
Speculation also involves deployment of funds but it is not backed by a conscious analysis of pros and cons. Mostly it is a spur of the moment activity that is promoted and supported by half-baked information and rumours.

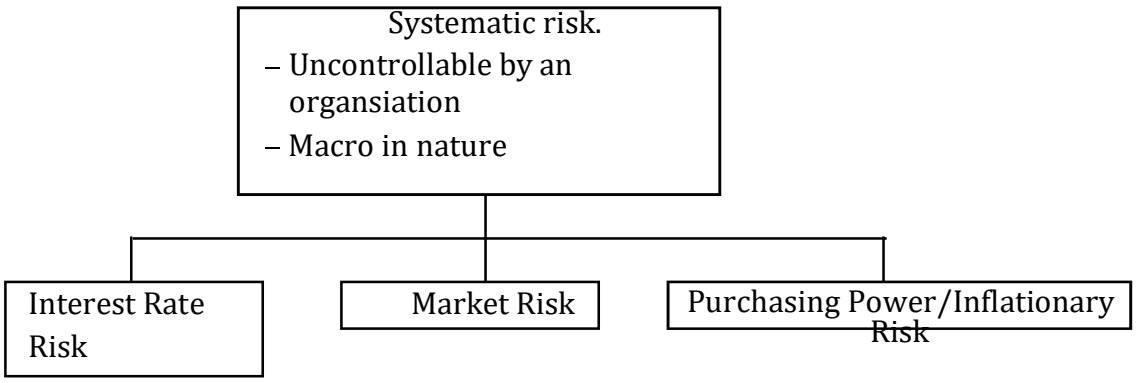
BASIS FOR COMPARISON	*INVESTMENT*	*SPECULATION*
Meaning	The purchase of an asset with the hope of getting returns is called investment.	Speculation is an act of conducting a risky financial transaction, in the hope of substantial profit.
Basis for decision	Fundamental factors, i.e. performance of the company.	Hearsay, technical charts and market psychology.
Time horizon	Long term	Short term
Risk involved	Moderate risk	High risk
Intent to profit	Changes in value	Changes in prices
Expected rate of return	Modest rate of return	High rate of return
Funds	An investor uses his own funds.	A speculator uses borrowed funds.
Income	Stable	Uncertain and Erratic
Behavior of participants	Conservative and Cautious	Daring and Careless

RISK AND ITS TYPES



Points	Systematic Risk	Unsystematic Risk
Meaning	Those forces that are uncontrollable, external and broad in their effect are called sources of systematic risk.	Controllable, internal factors which are peculiar to a particular industry or firms are known as unsystematic risk.
Other name	It is called portfolio risk or market risk.	It is also called specific risk.
Nature	Systematic Risk is uncontrollable.	Unsystematic Risk is controllable.
Factors	Systematic Risk arises due to external factors.	Unsystematic Risk arises due to internal factors.
Formula	Systematic risk = Beta x SD of market	Unsystematic risk = Total risk - Systematic risk

A. SYSTEMATIC RISK



1. Interest rate risk,
2. Market risk and
3. Purchasing power or inflationary risk.

Now let's discuss each risk classified under this group.

1. Interest rate risk

Interest-rate risk is the variation in the single period rates of return caused by

the fluctuations in the market interest rate. It particularly affects debt securities as they carry the fixed rate of interest.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market.

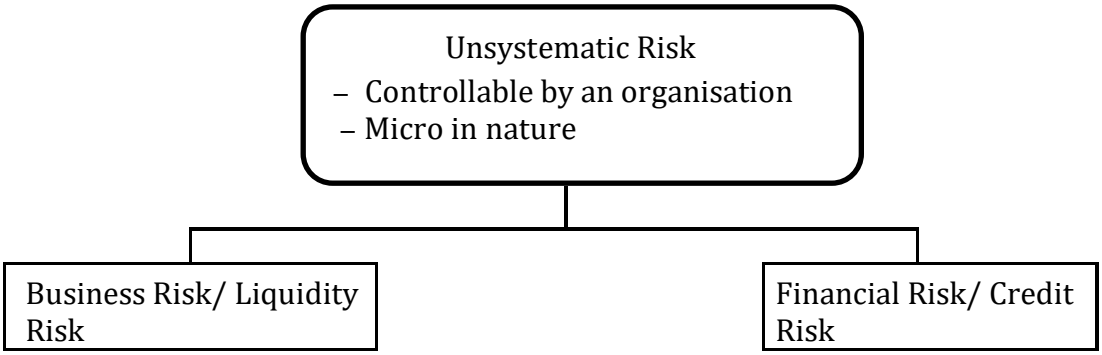
3. Purchasing power or inflationary risk

Purchasing power risk is also known as inflation risk. It is so, since it emanates (originates) from the fact that it affects a purchasing power adversely. It is not desirable to invest in securities during an inflationary period.

1. Business or liquidity risk,
2. Financial or credit risk

Now let's discuss each risk classified under this group.

B.UNSYSTAMATIC RISK



***1.* BUSINESS OR LIQUIDITY RISK**

Business risk is also known as liquidity risk. It is so, since it emanates (originates) from the sale and purchase of securities affected by business cycles, technological changes, etc.

***2.* FINANCIAL OR CREDIT RISK**

Financial risk is also known as credit risk. It arises due to change in the capital structure of the organization. The capital structure mainly comprises of three ways by which funds are

sourced for the projects.

ANALYSIS OF RISK & RETURN

1. RETURN – Return is the compensation that an investor gets for parting with his liquidity. The return from an investment is the expected cash inflows in terms of dividends, interest, bonus, capital gains, etc. available to the holder of an investment. For common stock, we may define one period return as:

$$R = \frac{D+(P_1-P_0)}{P_0}$$

2. RISKLESS SECURITIES – The securities in which the risk can be forecasted with certainty are called riskless securities e.g. government securities. Thus, if we buy a security for Rs. 100 and know that it would pay Rs. 10 in cash to us and be worth Rs. 110 one year later, the return would be

$$\frac{10 + (110-100)}{100} = 20\ \%$$

3. RISKY SECURITES – This risky securities are those where the return cannot be forecasted with certainty as there is always a risk involved that the cashflows may not result as expected and also that market price of the investment may fluctuate in either direction, e.g. shares of companies.

4.RETURN FOR RISKY SECURITIES – For risky securities, the actual rate of return can be viewed as a random variable subject to a probability distribution. For example, as investor has indentified 5 possible outcomes for his return during the next year. Associated with each return is a subjectively determined probability or relative chance of occurrence. The 5 possible outcomes are as follows:

Possible return	Subjective probability
15%	0.20
20%	0.10
22%	0.10
18%	0.15
19%	0.05

Total	1.00

$\overline{X}$ = EXPECTED RETURN

X = RETURN OF POSSIBLE / FUTURE OUTCOMES

n = number of possible / future outcomes

P = PROBABILITY ASSOCIATED WITH X

$$\overline{X} = \frac{\text{SUM OF P. X}}{\text{SUM OF P}}$$

Possible Return (%) P	Probability X	PX
15%	0.20	3
20%	0.10	2
22%	0.10	2.2
18%	0.15	2.7
19%	0.05	0.95
		10.85

5. RISK – Risk refers to the variability of return from those that are expected. In order to analyse the risk, one must be able to measure the risk, the most common, convenient and reliable measure is the degree of spread of possible returns away from the expected return. This is the standard deviation of possible outcomes, i.e.

$$\sigma = \sqrt{\frac{\sum P.(X-\bar{X})^2}{\sum P}}$$

WHERE $\sum P$ IS ALWAYS 1.

SO , $\sigma = \sqrt{\sum P.(X-\bar{X})^2}$

VARIANCE = $\sigma^2 = \sum P.(X-\bar{X})^2$

It is to be noted that greater the standard deviation of return, the greater the variability of returns, and greater the risk of the investment.

RETURN (X)	PROB.(P)	$(X-\bar{X})^2$	$P.(X-\bar{X})^2$
15	0.20	4.15	0.83
20	0.10	9.15	0.915
22	0.10	11.15	1.115
18	0.15	7.15	1.0725
19	0.05	8.15	0.4075
$\bar{X}$=10.85			4.34

$$\sigma = \sqrt{4.34} = 2.083$$

PORTFOLIO MANAGEMENT

PORTFOLIO MANAGEMENT

The Investment process consists of two tasks. The first is security analysis which focuses on assessing the risk and return characteristics of the available investment alternatives. The second task is portfolio selection which involves choosing the best possible portfolio from the set of feasible portfolios.

Individual securities have risk-return characteristics of their own. In any case, given an estimate of return, the investor is always concerned about the probable downside price expectation or the risk. Portfolio, or combination of securities, helps in spreading this risk over many securities. The investors hope that if they hold different assets, even if one goes bad, the others will provide some protection from an extreme loss.

Meaning of Portfolio: The term portfolio means a basket or combination of securities. Thus, if a person invests in more than security, he is creating portfolio.

Meaning of Portfolio Management: Portfolio management means pursuant to contract or arrangement with the client, advising or directing or undertaking the management or administration of a portfolio of securities or the funds of the clients.

Meaning of Portfolio Manager: Portfolio manager means any person who pursuant to contract or arrangement with the client, advises or directs or undertakes on behalf of the client the management or administration of a portfolio of securities or the funds of the clients as the case may be.

There are two types of portfolio managers:

(1) Discretionary portfolio manager: Discretionary portfolio manager is one who exercises any degree of discretion as to the investment or management of the portfolio of the securities or the funds of the client.

(2) Non-discretionary portfolio manager: Non-discretionary portfolio manager manages the funds with the discretion of client.

RETURN CALACULATION

Mathematically we can calculate the return in following way:

$$R = \frac{(P_1 - P_0) + D}{P_0} \times 100$$

Where,

R = Return

P1 = Market price at the end of the period P0 = Market price at the beginning of the period
D = Dividend

Example: Mr. X invests ` 125 in one share of NS Ltd. and at the end of period price of share is ` 132. He get dividend of ` 8. Calculate the return of security.

Return = (132-125)+ 8/125 x 100 = 12%

CALCULATION OF MEAN RETURN

(A) FIND THE MEAN RETURN OF THE SHARES OF PARTICULAR COMPANY OVER 5 YEARS :

YEAR	2000	2001	2002	2003	2004
RETURN %	16	6	-5	30	42

(B) FIND THE MEAN RETURN OF THE SHARES OF COMPANY

RETURN %	16	6	-5	30	42
PROBABILITY	0.10	0.20	0.40	0.20	0.10

STANDARD DEVIATION

(A) FIND THE SD OF THE RATE OF RETURN ON THE SHARES OF PARTICULAR COMPANY OVER 5 YEARS :

YEAR	**2000**	**2001**	**2002**	**2003**	**2004**
RATE OF RETURN (%)	**10**	**20**	**-5**	**12**	**13**

(B) FIND THE SD OF THE RATE OF RETURN ON THE SHARES OF PARTICULAR COMPANY

RATE OF RETURN (%)	**10**	**20**	**30**	**20**	**10**

PROB.	**0.10**	**0.20**	**0.40**	**0.20**	**0.10**

COEFFICIENT OF VARIATION

=(SD/MEAN)*100.It refers to the risk per rupee of return . For example, if the coefficient of variation is 20% , it means for earning an income of rupee one, the investor has to take the risk of loss of 0.20. Moderate investors take decisions on the basis of coefficient of variation . Lower coefficient of variation is preffered by such investors .

EXAMPLE

AN investor is evaluating two securities , A and B in terms of their risk and return which have following characteristics :

	A	B
EXPECTED RETURN(R)	12%	20%
STANDARD DEVIATION(σ)	9%	10%

CO-VARIANCE

- It is a measure of variability of one variable in relation to another variable i.e., it measures joint variations of two variables.
- It is the arithmetic mean of the deviation of x and y taken from their simple arithmetic mean.
- Formula

$$\text{cov}(x,y) = \frac{\sum(X-\bar{X})(Y-\bar{Y})}{n}$$ use this formula when no. of observations given

or

$$\text{cov}(X,Y) = r.\sigma_x.\sigma_y$$

or

$$\text{cov}(x, = \sum p(X-\bar{X})(Y-\bar{Y})$$ (when prob. are given)

Where, r = co-relation coefficient

σ_x = Standard Deviation of x

σ_y = Standard Deviation of y

X = mean of X

$\bar{Y}$ = mean of Y

p = probability

COEFFICIENT OF CORRELATION

- It measures the degree of association of two variables.
- It measures not only magnitude of co-relation but also the direction.
- Its value lies between – 1 to + 1
- If 'r' is zero, it indicated no correlation between two variables.
- If 'r' is = 1, it indicates perfect positive correlation.
- If 'r' = -1, it indicates perfect negative correlation.
- It is also measure of co-variance between two series.

$$Corr_{XY} = \frac{Cov_{XY}}{\sigma_X \times \sigma_Y}$$

CAPM Model:

According to CAPM, in equilibrium return of a portfolio is equal to the risk – free plus a risk premium that is proportional to its beta. In this model, risk and return are related in a linear fashion. The CAPM is represented mathematically by

$$\mathbf{Ri = Rf + \beta i\ (Rm - Rf)}$$

Where,

Ri = Expected or required rate of return on security i

Rf = Risk free rate of return

βi = Beta co – efficient of security

Rm = Return on market portfolio

As per the above relationship, the required return on a security consists of two components

- Risk-free return : Rm
- Risk Premimum: (Rm- Rf)

Example:

Given, Rf = 6%, β**i = 1.6,** Rm = 12%. Calculate expected rate of return

Rj = Rf + β**i (Rm−Rf)**

= 6+ 1.6 (12-6)

= 15.6%

Note: Market Portfolio is the portfolio that contains all the securities in the economy.

The CAMP Model can be used to find out the minimum required rate of return of the investors and thereby can also be used for valuation of securities / assets.

PORTFOLIO EVALUATION TECHNIQUES

1. **Sharpe Ratio: (Developed by: William Sharpe)**

$$\textbf{Sharp ratio(s)} = \frac{\textbf{Returns of portfolio – return of risk free investment}}{\textbf{Standard deviation of portfolio (portfolios total risk)}}$$

The Sharpe ratio is often used to rank the risk-adjusted performance of various portfolios over the same time. The higher a Sharpe ratio, the better a portfolio's returns have been relative to the amount of investment risk the investor has taken.

2. **Treynor Ratio: (Developed by Jack Treynor)**

$$\textbf{Treynor ratio (T)} = \frac{\textbf{Return of portfolio – return of investment}}{\textbf{Beta of portfolio}}$$

PORTFOLIO RISK

The portfolio standard deviation is not the weighted average of individual security standard deviations. To take a weighted average of individual security standard deviations would be to ignore the relationship or correlation, between the return of two securities. Correlation between the return of two securities, complicates the calculation of portfolio standard deviation by requiring us to calculate the covariance between returns for every possible pair wise combination of securities in the portfolio.

The variance and standard deviation of the return of a two security portfolio are

$$\sqrt{(\sigma_A)^2 \times (W_A)^2 + (\sigma_B)^2 \times (W_B)^2 + [2 \times \sigma_A \times W_A \times \sigma_B \times W_B \times Corr_{AB}]}$$

Where,

σ_A = Standard deviation of Security A

W_A = Weight of Security A in portfolio

σ_B = Standard deviation of Security B

W_B = Weight of Security B in portfolio

CorrAB = Correlation Coefficient

Beta (β)

- It is a measure of non-diversifiable risk of a stock of a portfolio.
- It measures the relative risk associated with any individual portfolio or security as measured in relation to the risk of market portfolio.
- It is a measure of systematic risk of an asset relative to that of market portfolio.
- Beta depends only on non-diversifiable risk.
- Beta of a portfolio is the weighted average of the betas of the securities that constitute the portfolio.
- If Beta > 1, it indicates above average risk i.e. its returns tend to be more riskier than the market portfolio.
- If Beta = 1, it indicates an average risk, its risk is similar to that of the market portfolio.
- If Beta < 1, it indicates below average risk, i.e. it is less riskier than the market portfolio.

Formula

Beta = COVARIANCE BETWEEN RETURNS FROM MARKET PORTFOLIO AND THOSE FROM PARTICULAR SECURITY

VARIANCE OF MARKET PORTFOLIO

Beta of market portfolio is taken as 1.

$$\boldsymbol{\beta} = \frac{\sum(X_S - \bar{X}_S) \,.\, (X_M - \bar{X}_M)}{\sum (X_M - \bar{X}_M)^2}$$

$\beta = \frac{\Sigma XY - n\,\bar{X}\bar{Y}}{\Sigma Y^2 - n\,\bar{Y}^2}$	$\beta = \frac{Cov_{SM}}{(\sigma_M)^2}$	$\beta = \frac{\sigma_S}{\sigma_M} \times Corr_{SM}$

EXERCISE

Question 1

The beta for Marathon Limited is 1.10. The current six-month treasury bill rate is 3.25%, while the thirty-year bond rate is 6.25%. Estimate the cost of equity for Marathon Limited, based upon

(a) Using the treasury bill rate as your risk-free rate.

(b) Using the treasury bond rate as your risk-free rate.

(Use the premiums in the table in question 1, if necessary.)

Which one of these estimates would you use in valuation? Why?

Question 2

You have been asked to estimate the beta of a high-technology firm which has three divisions with the following characteristics

Division	Beta	Market Value
Personal Computers	1.60	` 100 million
Software	2.00	` 150 million

Computer Mainframes	1.20	` 250 million

A. What is the beta of the equity of the firm?

B. What would happen to the beta of equity if the firm divested itself of its software business?

C. If you were asked to value the software business for the divestiture, which beta would you use in your valuation?

Question No 3 Evaluate two securities

	A	**B**
Expected Return	12%	20%
Standard Deviation	9%	10%

Calculate coefficient of Variation. Also advise the stock to be purchased ?

Question No 4 From the following information, calculate the expected rate of return of a portfolio

Risk-free rate of interest	8%
Expected return on market portfolio	18%
Standard deviation of an asset	2.8%
Market standard deviation	2.3%
Co-relation co-efficient of portfolio of market	0.8

Problem No. 5 Pavan has invested in four securities. Amount invested and beta of each security is as follows:

Security	Rs	(β)

A	25,000	0.80
B	50,000	1.20
C	40,000	1.40
D	35,000	1.75

Compute portfolio beta.

Problem No. 6 Calculate the market sensitivity index and required return on the security on the portfolio from the following information:

Standard deviation	2.596
Market standard deviation	2.096
Risk free rate of return	1396
Expected rate of return on market portfolio	1596
Correlation coefficient of portfolio with the market	0.8

MCQ`S

1. Security Analysis is a process of estimating ..... for individual securities.

(A) Return and risk

(B) Risk and correlation

(C) Correlation and co-efficient

(D) Return and co-efficient

2. Standard deviation determine -

(A) Systematic risk of a security

(B) Unsystematic risk of security

(C) Total risk of security

(D) Premium of security

3. Financial Assets are -

(A) Pieces of paper representing an indirect claim to real assets in form of debt or equity commitments.

(B) Tangible, material things such as buildings, furniture, automobiles etc.

(C) Both (A) and (B)

(D) Neither (A) nor (B)

4. ..... is one who exercises any degree of discretion as to the investment or management of the portfolio of the securities or the funds of the client.

(A) Non-discretionary portfolio manager

(B) Portfolio investor

(C) Discretionary portfolio manager

(D) Portfolio custodian

5. Return from listed security is in two forms -

(A) One is interest and second is capital appreciation in price.

(B) One is stock split and second is dividend.

(C) One is interest and second is dividend.

(D) One is dividend and second is capital appreciation in price.

6. Which of the following is correct formula to calculate returns of listed security?

(A) [(P, - P0) + D] ÷ [P0 x 100]

(B) [(P,' P0) + D] ÷ [P, x 100]

(C) t(P,-P0)-D] ÷ [P0x100]

(D) [(P, - P0) + D (1 -1)] ÷ [P0 x 100]

7. If probability of occurrence is assigned, then the expected return would be:

(A) average return being assigned to return of security for the various scenarios

(B) weighted average of probabilities being assigned to return of security for the various scenarios

(C) weighted average return with probabilities being assigned to return of security for the various scenarios

(D) weighted average return multiplied by risk with probabilities being assigned to return of security for the various scenarios

8. Standard deviation is a deviation from -

(A) Arithmetic mean

(B) Harmonic mean

(C) Median mean

(D) Mode mean

9. Standard deviation is expressed -

(A) always in percentage

(B) in same units in respect of which the deviation is computed.

(C) in terms of rupee risk

(D) in terms of amount

10. The market price of a bond depend on -

(A) The coupon rate and terms of the indenture

(B) The coupon rate and maturity date

(C) The terms of the indenture, and maturity date

(D) The coupon rate, terms of the indenture, and maturity date

11. Investment with lower standard deviation carries

(A) High risk

(B) Less risk

(C) Infinite risk

(D) Avoidable risk

12. Which of the following is on the horizontal axis of the Security Market Line?

(A) Standard deviation

(B) Beta

(C) Expected return

(D) Required return

13. Covariance is a measurement of -

(A) The co-movement between two variables

(B) The link between the variability of returns in two independent securities

(C) Both (A) and (B)

(D) None of the above

14. Expected worth is the -

(A) Inverse of standard deviation

(B) Correlation between a security

(C) Same as discrete probability distribution

(D) Weighted average of all possible outcomes

15. Positive Covariance indicates that -

(A) Returns on two assets bear a tendency to off-set each other ie. if return on A is above par, return on B is likely to be below par. If return on A is below par, return on B is likely to be above par.

(B) There is no distinct relationship between the movements in returns of two securities.

(C) Returns on two assets tend to go together, le. if return on A is above par, return on B is also likely to be above par.

ANSWERS :

1.	(A)	2.	(C)	3.	(A)	4.	(C)	5.	(D)	6.	(A)	7.	(C)
8.	(A)	9.	(B)	10.	(D)	11.	(B)	12.	(B)	13.	(C)	14.	(D)
15.	(C)												

7. NATURE AND SCOPE OF FINANCIAL MANAGEMENT

DEFINITION

Definition: Financial Management comprises the forecasting, planning, organizing, directing, coordinating and controlling of all activities relating to acquisition and application of the financial resources of an undertaking in keeping with its financial objective." ***Raymond Chambers***

Financial management "is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations. – ***Joseph and Massie*.**

There are two basic aspects of financial management viz., procurement of funds and an effective use of these funds to achieve business objectives :

ASPECTS OF FINANCIAL STATEMENT

1) PROCUREMENT OF FUNDS
2) UTILIZATION OF FUNDS

SCOPE OF FINANCIAL STATEMENT :

Financial statement involves :

- **INVESTMENT DECISIONS :** Decisions as to which assets the firm should acquire .
- **FINANCING DECISIONS :** Decisions as to how to raise the funds to pay for investment in assets .
- **DIVIDEND DECISIONS :** Decisions as to how much , how frequently and in what form to return cash to the owners .

OBJECTIVE OF FINANCIAL MANAGEMENT :

Financial management of any business firm has to set goals for itself and to interpret them in relation to the objective of the firm .

(1) Primary Objectives	(2) Other Objectives
➢ Profit Maximization. ➢ Value or Wealth Maximization.	Customer Satisfaction, i.e. value for money, quality goods, etc. Employee Welfare, i.e. good standard of living, giving fair wages, etc. Maintaining and improving Market Share. Market Leadership in terms of products, services, technology, management techniques, etc. Good Corporate Citizenship in terms of tax remittance, maintaining ecological balance, etc.

Profit Maximization	Wealth Maximization
Does not consider the effect of future cash flows, dividend decisions, EPS, etc.	Recognises the effect of all future cash flows, dividends, BPS, etc.
A Firm with Profit Maximization objective may refrain from payment of dividend to its Shareholders.	A Firm with Wealth Maximization objective may pay regular dividends to its Shareholders.
Ignores time pattern of returns.	Recognises the time pattern of returns.
Focus on Short-Term.	Focus on Medium / Long Term
Does not consider the effect of uncertain/ risk.	Recognises the risk-return relationships.
Comparatively easy to determine the relationship between financial decisions and Profits	Offers no clear or specific relationship between financial decisions and share market prices.

MCQ`S

1. .....is the life blood of a business.

(A) Finance Manager

(B) Finance

(C) Financial Management

(D) Corporate Financial Management

2. "Shareholder wealth" in a firm is represented by -

(A) The number of people employed in the firm.

(B) The book value of the firm's assets less the book value of its liabilities.

(C) The amount of salary paid to its employees.

(D) The market price per share of the firm's common stock.

3. To increase a given present value, the discount rate should be adjusted -

(A) upward

(B) downward

(C) keep as it is

(D) none of the above

4. Long-run objective of financial management is to -

(A) Maximize earnings per share.

(B) Maximize the value of the firm's common stock.

(C) Maximize return on investment.

(D) Maximize market share.

5. Financial Management is concerned with -

(A) Investment Decisions

(B) Finance Decisions

(C) Dividend Decisions

(D) All of the above

6. The market price of a share of common stock is determined by:

(A) the board of directors of the firm.

(B) the stock exchange on which the stock is listed.

(C) the president of the company.

(D) individuals buying and selling the stock.

7. The focal point of financial management in a firm is -

(A) the number and types of products or services provided by the firm.

(B) the minimization of the amount of taxes paid by the firm.

(C) the creation of value for shareholders.

(D) the profits earned by the firm.

8. A business organization can obtain funds from -

(A) Issue of preference or equity share capital

(B) Issue of debentures

(C) Loan from banks and financial institution

(D) All of the above

9. The decision function of financial management can be broken down into the ..... decisions.

(A) financing and investment

(B) investment, financing & asset management

(C) financing and dividend

(D) capital budgeting, cash management & credit management

10. The funds raised by the issue of ..... are the best from the risk point of view for the company.

(A) equity shares

(B) debentures

(C) both (A) & (B)

(D) none of the above

11. Financial management is -

(A) Science

(B) Art

(C) Both

(D) None

12. The purpose of financial markets is to:

(A) increase the price of common stocks

(B) lower the yield on bonds

(C) allocate savings efficiently

(D) control inflation

13. Investment decisions are concerned with -

(A) Efficient allocation of funds to specific assets

(B) Determining the proper amount of funds to be employed in the firm.

(C) Determining the composition of liabilities

(D) Short run projects

14. ..... ensures that firm utilizes its available resources most efficiently under conditions of competitive markets.

(A) Wealth Maximization

(B) Profit Maximization

(C) Value Maximization

(D) Relation Maximization

15. .....consistent with the object of maximizing owner's economic welfare.

(A) Profit Maximization

(B) Wealth Maximization

(C) Relation Maximization

(D) All of the above

ANSWERS :

1) B
2) D
3) B
4) B
5) D
6) D
7) C
8) D
9) B
10) A
11) C
12) C
13) A
14) B
15) B