

Question Paper

Security Analysis – I (MSF2D1) : July 2008

Section A : Basic Concepts (30 Marks)

- This section consists of questions with serial number 1 - 30.
- Answer all questions.
- Each question carries one mark.
- Maximum time for answering Section A is 30 Minutes.

1. Which of the following statements is **false** for duration of a bond?

[<Answer>](#)

- (a) The duration of an interest paying bond being sold at a discount reaches a maximum value when its term to maturity is inversely related to its yield to maturity
- (b) When the market price of the bond is equal to or greater than its face value, the duration increases with decrease in term to maturity
- (c) The longer the term to maturity of a coupon bearing bond, the greater the difference between its duration and the term to maturity
- (d) The duration of an interest paying bond being sold at a discount reaches a maximum value when its term to maturity is directly related to the bond's coupon rate
- (e) A bond which pays interest for a finite period has its duration less than its term to maturity.

2. Mr. G .K. Gupta is evaluating the share prices of Minerva Ltd., through runs test. If the numbers of positive and negative price change in the stock are 41 and 32 respectively, the mean is

[<Answer>](#)

- (a) 36.95
- (b) 40.12
- (c) 55.28
- (d) 61.77
- (e) 70.05.

3. There are various models for calculating the value of the stock, H-model is one among them. Which of the following statements is/are true for H-Model?

[<Answer>](#)

- I. The growth rate of earnings starts at a high initial rate and declines over the supernormal growth period linearly.
 - II. Dividend payout is irregular over a time period and usually affected by the shifting growth rates.
 - III. This model is similar to the two-stage model except that a gradual change in the growth rate is assumed rather than a sudden change.
- (a) Only (I) above
 - (b) Only (II) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

4. In which of the following stages of industry life cycle the rapid growth in demand occurs?

[<Answer>](#)

- (a) Growth stage
- (b) Expansion stage
- (c) Pioneering stage
- (d) Declining stage
- (e) Stabilization stage.

5. Consider the following data pertaining to Global Auto Ltd.:

[<Answer>](#)

Estimated industry sales	Rs. 395 crore
Estimated market share	18%
Estimated profit margin	8%

If the number of outstanding shares is 40 lakh, the EPS of the company is

- (a) Rs.14.22
- (b) Rs.15.48
- (c) Rs.16.77
- (d) Rs.17.02
- (e) Rs.18.94.

6. The net operating income from a property is Rs.50,000. The required rate of return is 11.5% p.a. If the net operating income is growing at a rate of 6% p.a., the market value of the property is approximately

[<Answer>](#)

- (a) Rs.9,09,091

- (b) Rs.8,20,781
- (c) Rs.7,11,067
- (d) Rs.6,14,531
- (e) Rs.5,77,671.

7. In floating rate notes which of the following features provide provision for payment of minimum coupon rate during falling interest rate?

[<Answer>](#)

- (a) Call
- (b) Put
- (c) Cap
- (d) Floor
- (e) Collar.

8. Which of the following statements is/are **not** an advantage of listing of securities on stock exchanges?

[<Answer>](#)

- I. The company gains national and international importance by the share value quoted on the stock exchanges.
- II. Since the securities are officially traded, liquidity of investment by the investor is well insured.
- III. Listing provides liquidity but does not help to mobilize savings for the overall development of the economy.

- (a) Only (I) above
- (b) Only (III) above
- (c) Both (I) and (II) above
- (d) Both (II) and (III) above
- (e) All (I), (II) and (III) above.

9. In a 100 days stochastic analysis, the closing price is Rs.155.50 and the 100 days low and high prices are Rs.140.20 and Rs.185.00 respectively then stochastic (% K) is equal to

[<Answer>](#)

- (a) 22.87%
- (b) 34.15%
- (c) 40.81%
- (d) 50.12%
- (e) 63.11%.

10. The formation of an isolated price pattern usually within a narrow range, at the end of a price trend is called

[<Answer>](#)

- (a) Islands
- (b) Flags
- (c) Saucers
- (d) Head and shoulders
- (e) Double tops.

11. An event study is a test of which form of efficient market hypothesis?

[<Answer>](#)

- I. Semi- strong form.
 - II. Weak form.
 - III. Strong form.
- (a) Only (I) above
 - (b) Only (II) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

12. A 6-year bonds is currently yielding at 8% and a 5-year bond is yielding is 7.5%. What is the implied yield for 1-year bonds starting 5 years from now?

[<Answer>](#)

- (a) 17.37%
- (b) 15.22%
- (c) 13.71%
- (d) 11.96%
- (e) 10.54%.

13. Which of the following statements is/are **true** under cost approach in estimating market value of the property?

[<Answer>](#)

- I. According to this approach, value of a property is equal to the sum of the land value and the replacement cost of building.
- II. In this approach it is difficult to quantify the functional and external obsolescence.
- III. In this approach the value of the property is determined based on the sales of similar properties.

- (a) Only (I) above
- (b) Only (III) above
- (c) Both (I) and (II) above
- (d) Both (I) and (III) above
- (e) All (I), (II) and (III) above.

[<Answer>](#)

14. If a firm has a required rate of return equal to the ROE which of the following statements is/are **true**?

- I. The amount of earnings retained by the firm does not affect market price or the P/E ratio.
 - II. The firm can increase market price and P/E ratio by decreasing the growth rate.
 - III. The P/E ratio is inversely proportional to the ROE of the firm.
- (a) Only (I) above
 - (b) Only (III) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

[<Answer>](#)

15. Mr. Rahul Srivastav is thinking of investing in the stocks of Marian Pharma Ltd., He found that the beta of the stock is 1.88. If the standard deviation of the return on the market is 14.71%, the covariance of returns of the stock with that of market is

- (a) 348.71%²
- (b) 406.80%²
- (c) 552.14%²
- (d) 671.89%²
- (e) 708.14%².

[<Answer>](#)

16. Which of the following statements is/are **true**?

- I. Generally basis is higher for contracts with longer maturity.
 - II. Basis = future price - current cash price.
 - III. The basis for normal markets usually exhibit convergence.
- (a) Only (I) above
 - (b) Only (III) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

[<Answer>](#)

17. Funds use speculative and risky investments like short sale, to take advantage of declining market to realize gains from the short sale is called

- (a) Leveraged funds
- (b) Balanced funds
- (c) Specialized funds
- (d) Income funds
- (e) Money market funds.

[<Answer>](#)

18. Which of the following statements is/are **true** for point and figure charts in technical analysis?

- I. It concerns itself only with the measurement of prices.
 - II. Unlike a bar chart, it records changes in prices that are larger than a specific amount called points.
 - III. It has a time dimension.
- (a) Only (I) above
 - (b) Only (III) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

[<Answer>](#)

19. Book-building process is different from fixed price process for raising share capital from public. Which of the following statements is/are **true** about Book-building process?

- I. Price at which securities will be offered/allotted is not known in advance to investor. Only an indicative price range is known.
 - II. Demand for the securities offered can be known everyday.
 - III. Payment is made at the time of subscription.
- (a) Only (I) above
 - (b) Only (III) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

[<Answer>](#)

20. Stocks of Apple Ltd., has conversion parity price of Rs.48.72. If the bond price is Rs.730.80, number of shares on conversion per warrant is

- (a) 13
- (b) 15
- (c) 18
- (d) 22
- (e) 23.

[<Answer>](#)

21. Which of the following statements is **true** regarding impact cost?

- (a) It is defined as the percentage difference between the executed price and either the best buying or the best selling price
- (b) It is defined as the percentage difference between the executed price and the difference between the best buying price and the best selling price
- (c) It is defined as the percentage difference between the executed price and the mean of the best buy and the best sell prices
- (d) It is defined as the percentage difference between the executed price and the best selling price
- (e) It is defined as the percentage difference between the executed price and the best buying price.
22. Which of the following order is known as 'good till canceled' order? [<Answer>](#)
- (a) Open order
- (b) Limit order
- (c) Market order
- (d) Day order
- (e) Discretionary order.
23. Which of the following statements is/are **false** for Liquidity Preference Theory? [<Answer>](#)
- I. In a longer time frame, the fluctuations in the short-term rates cannot be predicted.
- II. It focuses on the demand and supply aspects of the funds in an economy with different sectors.
- III. This theory is also widely used to predict interest rates in different sectors of the economy.
- (a) Only (I) above
- (b) Only (III) above
- (c) Both (I) and (II) above
- (d) Both (II) and (III) above
- (e) All (I), (II) and (III) above.
24. What will be the capital gain for a 6-year 8.5% annual coupon bond of face value Rs.1,000 if interest rates go down from 11% to 8.5%? [<Answer>](#)
- (a) Rs.58.11
- (b) Rs.63.71
- (c) Rs.71.20
- (d) Rs.80.05
- (e) Rs.92.35.
25. Contra Growth Fund has a net annual value of Rs.35.50. If the public offering price of the fund is Rs.36.98, maximum sales charge applicable is [<Answer>](#)
- (a) 2.5%
- (b) 3.8%
- (c) 4.0%
- (d) 5.5%
- (e) 6.3%.
26. Which of the following statements is/are **true**? [<Answer>](#)
- I. When coupon and maturity are constant the coupon of a bond and convexity are inversely related.
- II. When yield and coupon are constant the maturity of a bond and convexity are inversely related.
- III. When coupon and maturity are constant the yield of a bond and convexity are inversely related.
- (a) Only (I) above
- (b) Only (II) above
- (c) Both (I) and (II) above
- (d) Both (I) and (III) above
- (e) All (I), (II) and (III) above.
27. Which of the following statements is a **false** assumption underlying technical analysis? [<Answer>](#)
- (a) Changes in trends are caused by shifts in supply and demand
- (b) Market value is determined solely by the interactions of supply and demand
- (c) Some charts patterns tend to repeat themselves
- (d) Supply and demand are governed by rational factors only
- (e) Ignoring minor fluctuations in the market, stock prices tend to move in trends which persist for an appreciable length of time.
28. Which of the following statements is/are **false** for bond immunization? [<Answer>](#)
- I. Immunization will provide a compound rate of return over the period immunized that equals the bond's YTM, irrespective of changes in market rates.
- II. When the duration of the bonds is not equal to the investment time horizon any unexpected change in the market value of the unmatured bond at the end of the investment horizon will be exactly equal in magnitude, but opposite in direction, to any unexpected change in the reinvestment income under immunization.
- III. Investor can protect themselves from the interest rate risk through bond immunization.
- (a) Only (I) above

- (b) Only (II) above
- (c) Both (I) and (II) above
- (d) Both (I) and (III) above
- (e) All (I), (II) and (III) above.

29. Mr. Sanjay Mittal has two residential complexes Alpa and Shilpi at Hyderabad, purchased 5 years ago. Mr. Mittal is thinking of selling the complex Alpa that can fetch him currently Rs.1.5 Cr. If both the complexes Alpa and Shilpi has a gross annual income of Rs.35,000 and Rs.25,000 respectively, the indicated market value for the complex Shilpi is approximately

[<Answer>](#)

- (a) 1.07 Cr
- (b) 1.25 Cr
- (c) 1.29 Cr
- (d) 1.44 Cr
- (e) 1.82 Cr.

30. Which of the following statements is **false** for Price/Book Value (P/BV) ratio?

[<Answer>](#)

- (a) When the required rate of return is high, P/BV ratio goes down
- (b) P/BV ratio can be calculated even for firms with negative earnings
- (c) P/BV ratio of different firms cannot be compared to identify undervalued or overvalued stocks
- (d) A low P/BV ratio indicates that the firms has a price which is below the book value
- (e) Book value serves a reliable intuitive measure of value compared to the market price.

END OF SECTION A

Section B : Problems (50 Marks)

- This section consists of questions with serial number 1 – 5.
- Answer all questions.
- Marks are indicated against each question.
- Detailed workings should form part of your answer.
- Do not spend more than 110 - 120 minutes on Section B.

1. Mr. Mukul Anand an investor is evaluating the prospects of investing in two companies Sneaker Ltd., and Globsin Ltd., The projections of returns for the stocks of the two companies along with their probabilities are as follows:

[<Answer>](#)

Probabilities	Returns associated with		
	Sneaker Ltd.	Globsin Ltd.	Market index
0.32	46%	33%	25%
0.26	38%	27%	18%
0.24	25%	14%	11%
0.18	15%	9%	7%

The risk free rate of return is 6.5%.

You are **required** to:

- a. Calculate Ex ante betas for both the companies. (6 marks)
- b. Calculate excess return provided by both the companies. (2 marks)
- c. Calculate the proportion of systematic risk and unsystematic risk for both the companies. (4 marks)
- d. State whether the stock of Sneaker Ltd., and Globsin Ltd., is underpriced or over priced? (2 marks)

2. A bond of Rs.1,000 face value carrying an interest rate of 11% p.a. is redeemable after 6 years at a premium of 5.5%. Currently the bond is available in the market at a price of Rs.970.50.

[<Answer>](#)

You are **required** to calculate:

- a. The interest on interest at reinvestment rate of 8.5% and 12.5% for various possible holding periods. (3 marks)
- b. The expected market price for various possible holding periods at the reinvestment rate of 8.5% and 12.5% and the capital gain that would arise, if the bond were sold. (6 marks)
- c. The total return from bond, classifying the each income on bond, for various possible holding periods at the reinvestment rate of 8.5% and 12.5%. (3 marks)

3. The monthly stock prices of State Bank of India at NSE are given below:

[<Answer>](#)

End of month & year	Closing price
April, 2007	1101.90
May, 2007	1353.65

June, 2007	1525.80
July, 2007	1623.85
August, 2007	1596.00
September, 2007	1957.05
October, 2007	2081.00
November, 2007	2305.00
December, 2007	2365.00
January, 2008	2165.00
February, 2008	2088.80
March, 2008	1603.00

You are **required** to calculate the 5 month exponential moving average (EMA) for the period of August, 2007 to March, 2008.

(8 marks)

4. Nilesh Kartik a regular investor in stock market purchased shares of Progress Technologies Ltd., (PTL). The company paid a dividend of Rs.8.50 per share and reported its earnings per share of Rs.27.50 in the current year. Currently stock price of PTL quoted in the market is Rs.210.19 and the book value of equity per share is Rs.130.55. The company expects its earnings to grow at a rate of 7.5% p.a. The required rate of return is 12.5%.

[<Answer>](#)

You are **required** to calculate:

- The fair price to book value ratio.
- The increase in return on equity to justify the existing price to book value ratio.

(4 marks)

(4 marks)

5. Pantaloons Retails India Ltd., has a project of constructing a super market in Hyderabad. The project is financed by issuing bonds and equities in the ratio 3:2. The details of the proposed instruments are as follows:

[<Answer>](#)

- Bonds, bearing a coupon rate of 11.25% p.a. maturing in 7 years. The interest is compounded semi-annually. To redeem the bond at maturity a sinking fund is established.
- Issue of equity on which the required rate of return is 16.5% p.a.

The expected net operating income from the property is estimated at Rs. 360 lakh.

You are **required** to calculate:

- Capitalization rate.
- Market value of the property.

(8 marks)

END OF SECTION B

Section C : Applied Theory (20 Marks)

- This section consists of questions with serial number 6 - 7.
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 25 - 30 minutes on Section C.

6. A technical analyst follows certain principles that are useful while observing moving averages for crossovers than for changes in direction and obtains clear buy-sell signals than those obtainable from use of trend lines. Discuss the important principles useful in this regard.

[<Answer>](#)

(10 marks)

7. An investor should make appropriate planning towards his investments to meet the investment objectives subject to his constraints. Briefly, discuss the investment objectives and constraints faced by investors.

[<Answer>](#)

(10 marks)

END OF SECTION C

END OF QUESTION PAPER

Suggested Answers Security Analysis – I (MSF2D1) : July 2008

Section A : Basic Concepts

Answer	Reason	
1. b	When the market price of the bond is equal to or greater than its face value, the duration increases with increase in terms to maturity. Hence option (b) is false.	< TOP >
2. a	Mean (μ_r) = $\frac{1}{n} \sum r_i$ where, n_1 = number of positive price changes n_2 = number of negative price changes = 36.95	< TOP >
3. d	Dividend payout is constant over a time period and not effected by the shifting growth rates. Hence statement (II) is false. Other two statements are true. Hence option (d) is the answer.	< TOP >
4. c	In pioneering stage of industry life cycle rapid growth in demand occurs. Hence option (c) is the answer.	< TOP >
5. a	EPS = $\frac{S_i}{N_c}$ where, S_i = estimated industry sales M_c = estimated market share of the company F_c = estimated net profit margin of the company N_c = number of outstanding shares EPS = $\frac{100 \times 14.22}{1000}$ = Rs. 14.22	< TOP >
6. a	MV = $\frac{9,09,091}{100} \times 100$ = Rs. 9,09,091	< TOP >
7. d	When floating rate notes are issued with floor feature then there is a provision for payment of minimum coupon rate during falling interest rates. Hence option (d) is the answer.	< TOP >
8. b	Listing provides liquidity and helps to mobilize savings for the overall development of the economy. Hence option (b) is the answer.	< TOP >
9. b	%K = $\frac{H-L}{H} \times 100$ where C = latest closing price L = lowest price H = highest price %K = $\frac{15-10}{15} \times 100$ = 33.33%	< TOP >
10. a	Islands refer to the formation of an isolated price pattern, usually within a narrow range, at the end of the price trend. Hence option (a) is the answer.	< TOP >
11. a	Residual analysis and event studies are two tests of semi-strong form of efficient market hypothesis. Hence option (a) is the answer.	< TOP >
12. e	$1+f_0 = \frac{1}{1-0.10} - 1 = 10.54\%$	< TOP >
13. c	In comparison of sales approach the value of the property is determined based on the sales of similar properties. Other statements are true. Hence option (c) is the answer.	< TOP >
14. d	In a condition such that Required rate of return = ROE, According to the Dividend discount model $P_0 = \frac{D_0}{K_e - g}$ Where the symbols are in standard use. $K_e = \frac{ROE}{1-b}$ Where, D_0/E_0 is the Dividend payout ratio = $\frac{ROE}{1-b}$ Where 'b' is the retention ratio Since $K_e = ROE$ and $g = ROE \times \text{Retention ratio}$ We get $\frac{ROE}{1-b} = \frac{D_0}{E_0} \times \frac{1}{1-b}$ Hence from the above derivations we can conclude that when the growth rate increases, the market price of the share and the price earnings ratio will increase. - The amount of earnings retained by the firm does not affect market price or the P/E ratio and - The P/E ratio is inversely proportional to the ROE of the firm. Hence option (d) is the correct answer.	< TOP >
15. b	$\beta = \frac{\text{Cov}(i,m)}{\sigma_m^2}$ or $\text{Cov}(i,m) = \beta \cdot \sigma_m^2 = 1.88 (14.71)^2 = 406.80\%$	< TOP >
16. d	Basis = current cash price – future price. Hence statement (II) is false. Other statements are true. Thus option (d) is the answer.	< TOP >
17. a	Funds used in speculative and risky investments like short sale to take advantage of declining market to realize gains in the portfolio short sales is called leveraged funds.	< TOP >

18. c The point and figure chart does not have a time dimension. Other statements are true. Hence option (c) is the answer. [< TOP >](#)
19. c In book-building process, payment is made only after allocation. In fixed price process payment is made at the time of subscription whereas refund is possible after allocation. Hence statement (III) is false. Other statements are true. Thus option (c) is the answer. [< TOP >](#)
20. b Conversion parity price = Bond Price/Number of shares on conversion per warrant

$$= 48.72 = 730.80/x$$

$$x = 15$$
 [< TOP >](#)
21. c Impact cost is defined as the percentage difference between the executed price and the mean of the best buy and sell prices. Hence the option (c) is the correct answer. [< TOP >](#)
22. a Open order is also known as good till canceled order. Hence option (a) is the answer. [< TOP >](#)
23. d One of the drawbacks of liquidity preference theory is that in a longer time frame, the fluctuations in the short-term rates cannot be predicted. Therefore there is a risk of having periodic reinvestment, which may result in uncertain returns. Other two statements do not pertain to liquidity preference theory. Hence option (d) is the answer. [< TOP >](#)
24. e Price of the bond at prevailing interest rate of 11%

$$= 85 \times \text{PVIFA} (11\%, 5) + 1000 \times \text{PVIF} (11\%, 5)$$

$$= \text{Rs. } 907.65$$
Price of the 8.5% coupon bond at prevailing interest rate of 8.5% = Rs.1000.00

$$\Rightarrow \text{Capital Gains} = 1000 - 907.65 = \text{Rs. } 92.35$$
 [< TOP >](#)
25. c Public offering price = NAV/(1 - sales charge)

$$36.98 = 35.50/(1-x)$$

$$x = 4\%.$$
 [< TOP >](#)
26. d When yield and coupon are constant the maturity of a bond and convexity are directly related. Hence statement (II) is false. Other statements are true. Hence option (d) is the answer. [< TOP >](#)
27. d Supply and demand are governed by numerous factors, both rational and irrational. Hence option (d) is the answer. [< TOP >](#)
28. b When the duration of the bonds is set equal to the investment time horizon any unexpected change in the market value of the unmaturing bond at the end of the investment horizon will be exactly equal in magnitude, but opposite in direction, to any unexpected change in the reinvestment income under immunization. Hence option (b) is the answer. [< TOP >](#)
29. a Gross income multiplier = sales price/gross annual income

$$= 15000000/35000 = 428.57$$
Indicated market value of Shilpi

$$= \text{gross annual income of Shilpi} \times \text{gross income multiplier}$$

$$= 25000 \times 428.57$$

$$= \text{Rs. } 1.07 \text{ Cr.}$$
 [< TOP >](#)
30. c P/BV ratio of different firms can be compared to identify undervalued or overvalued stocks. Hence statement (c) is false. Other statements are true. Thus option (c) is the answer. [< TOP >](#)

Section B : Problems

1. a. Expected return on stock and variance of Sneaker Ltd. [< TOP >](#)
- $$E(R_S) = 0.32 \times 46 + 0.26 \times 38 + 0.24 \times 25 + 0.18 \times 15$$
- $$= 33.3\%$$
- $$\sigma^2 = 0.32 \times (46-33.3)^2 + 0.26 \times (38-33.3)^2 + 0.24 \times (25-33.3)^2 + 0.18 \times (15-33.3)^2$$
- $$= 134.16 (\%)^2$$
- Expected return on stock and variance of Globsin Ltd.
- $$E(R_G) = 0.32 \times 33 + 0.26 \times 27 + 0.24 \times 14 + 0.18 \times 9$$
- $$= 22.56\%$$
- $$\sigma^2 = 0.32 \times (33-22.56)^2 + 0.26 \times (27-22.56)^2 + 0.24 \times (14-22.56)^2 + 0.18 \times (9-22.56)^2$$
- $$= 90.69 (\%)^2$$
- Expected return and variance on market.
- $$E(R_M) = 0.32 \times 25 + 0.26 \times 18 + 0.24 \times 11 + 0.18 \times 7$$
- $$= 16.58\%$$
- $$\sigma^2 = 0.32 \times (25-16.58)^2 + 0.26 \times (18-16.58)^2 + 0.24 \times (11-16.58)^2 + 0.18 \times (7-16.58)^2$$
- $$= 47.20 (\%)^2$$
- Covariances

$$COV_{SM}$$

$$= 0.32 [(46 - 33.3) [(25 - 16.58) + 0.26 [38 - 33.3] [18 - 16.58] + 0.24 [25 - 33.3] [11 - 16.58] + 0.18 [15 - 33.3] [7 - 16.58]]$$

$$= 78.64 (\%)^2$$

$$COV_{GM}$$

$$= 0.32 [33 - 22.56] [25 - 16.58] + 0.26 [27 - 22.56] [18 - 16.58] + 0.24 [14 - 22.56] [11 - 16.58] + 0.18 [9 - 22.56] [7 - 16.58]$$

$$= 64.61 (\%)^2$$

$$= \quad = \quad = 1.67$$

$$= \quad = \quad = 1.37$$

b. Normal return = $r_f + [r_m - r_f]$

Sneaker Ltd. = $6.5 + 1.67 \times [16.58 - 6.5] = 23.33\%$

Excess return = $33.3 - 23.33 = 9.97\%$

Globsin Ltd. = $6.5 + 1.37 \times [16.58 - 6.5] = 20.31\%$

Excess return = $22.56 - 20.31 = 2.25\%$

c. Systematic risk = $2 \times \quad$

Unsystematic risk = Total risk – systematic risk

Sneaker Ltd.

Systematic risk = $1.67^2 \times 47.2 = 131.64(\%)^2$

Unsystematic risk = $134.16 - 131.64 = 2.52(\%)^2$

Proportion of Systematic risk = 98.12%

Proportion of unsystematic risk = 1.88%

Globsin Ltd.

Systematic risk = $1.37^2 \times 47.2 = 88.59(\%)^2$

Unsystematic risk = $90.69 - 88.59 = 2.10(\%)^2$

Proportion of Systematic risk = 97.68%

Proportion of unsystematic risk = 2.32%

d. The alpha i.e. excess return of both the companies stock is positive. Hence the stock of Sneaker Ltd. and Globsin Ltd. is underpriced.

2. a.

[< TOP >](#)

Reinvestment rate	1	2	3	4	5	6
8.5%	110 FVIFA-(8.5%, 1) – (110 1)	110 FVIFA-(8.5%, 2) – (110 2)	110 FVIFA-(8.5%,3) – (110 3)	110 FVIFA-(8.5%, 4) – (110 4)	110 FVIFA-(8.5%, 5) – (110 5)	110 FVIFA-(8.5%, 6) – (110 6)
	= 0	= 9.35	= 28.84	= 59.35	= 101.79	= 157.19
12.5%	110 FVIFA-(12.5%, 1) – (110 1)	110 FVIFA-(12.5%, 2) – (110 2)	110 FVIFA-(12.5% 3) – (110 3)	110 FVIFA-(12.5%, 4) – (110 4)	110 FVIFA-(12.5%, 5) – (110 5)	110 FVIFA-(12.5%, 6) – (110 6)
	=0	= 13.75	= 42.97	=89.60	= 155.79	= 244.01

b. Market price and capital gains @ 8.5%

	Holding period (Years)					
At reinvestment rate of 8.5%	1	2	3	4	5	6
1. Purchase price (Rs.)	970.50	970.50	970.50	970.50	970.50	970.50
2. Market price at the end of the holding period (Rs.)	110 PVIFA (8.5%,5) + 1055 PVIF (8.5%,5)	110 PVIFA (8.5%,4) + 1055 PVIF (8.5%,4)	110 PVIFA (8.5%, 3) + 1055 PVIF (8.5%, 3)	110 PVIFA (8.5%,2) + 1055 PVIF (8.5%, 2)	110 PVIFA (8.5%,1) + 1055 PVIF (8.5%, 1)	110 0 + 1055
	= 1135.04	= 1121.60	= 1106.90	= 1091.04	= 1073.78	= 1055.00

3. Capital gain (2) – (1) (Rs.)	164.54	151.10	136.40	120.54	103.28	84.50
------------------------------------	--------	--------	--------	--------	--------	-------

Market price and capital gains @ 12.5%

	Holding period (Years)					
At reinvestment rate of 12.5%	1	2	3	4	5	6
1. Purchase price (Rs.)	970.50	970.50	970.50	970.50	970.50	970.50
2. Market price at the end of the holding period (Rs.)	110 PVIFA $(12.5\%, 5) +$ 1055 PVIF $(12.5\%, 5)$	110 PVIFA $(12.5\%, 4) + 1055$ $\text{PVIF } (12.5\%, 4)$	110 PVIFA $(12.5\%, 3) + 1055$ $\text{PVIF } (12.5\%, 3)$	110 PVIFA $(12.5\%, 2) + 1055$ $\text{PVIF } (12.5\%, 2)$	110 PVIFA $(12.5\%, 1) + 1055$ $\text{PVIF } (12.5\%, 1)$	$110 \text{ } 0 +$ 1055
	= 977.09	= 989.25	= 1002.87	= 1018.25	= 1035.57	1055
3. Capital gain (2) – (1) (Rs.)	6.59	18.75	32.37	47.75	65.07	84.50

c. Total Return

		Holding Period (Years)					
Reinvestment rate		1	2	3	4	5	6
8.5% (YTM)	Coupon income	110	220	330	440	550	660
	Interest on interest	0	9.35	28.84	59.35	101.79	157.19
	Capital gains	164.54	151.10	136.40	120.54	103.28	84.50
	Total return	274.54	380.45	495.24	619.89	755.07	901.69
12.5% (YTM)	Coupon income	110	220	330	440	550	660
	Interest on interest	0	13.75	42.97	89.60	155.79	244.01
	Capital gains	6.59	18.75	32.37	47.75	65.07	84.50
	Total return	116.59	252.50	405.34	577.35	770.86	988.51

3. Exponent (Smoothing factor) for 5 month EMA = = 0.4

[< TOP >](#)

End of month (I)	Closing price (II)	EMA of previous month (III)	(IV) = (II) – (III)	(V) = $0.4 \times (IV)$	EMA (VI) = (III) + (V)
April, 2007	1101.90	–	–	–	–
May, 2007	1353.65	–	–	–	–
June, 2007	1525.80	–	–	–	–
July, 2007	1623.85	–	–	–	–
August, 2007	1596.00	–	–	–	–
September, 2007	1957.05	1440.24	516.81	206.72	1646.96
October, 2007	2081.00	1646.96	434.04	173.62	1820.58
November, 2007	2305.00	1820.58	484.42	193.77	2014.35
December, 2007	2365.00	2014.35	350.65	140.26	2154.61
January, 2008	2165.00	2154.61	10.39	4.16	2158.77
February, 2008	2088.80	2158.77	-69.97	-27.99	2130.78
March, 2008	1603.00	2130.78	-527.78	-211.11	1919.67

* The value 1440.24 in 5th row last column is simple moving average (SMA) of first 5 closing prices.

4. a. Dividend pay-out ratio = DPS/EPS
 $8.50/27.50 = 30.91\%$
 Return on equity = EPS/book value of equity
 $27.50/130.55 = 21.06\%$
 Required rate of return = 12.5%
 Growth rate in earnings = 7.5%
 Price/book value ratio (P/BV) = $[ROE \times \text{pay out ratio} \times (1+g)]/(k-g)$
 $= [0.2106 \times 0.3091 \times 1.075]/(0.125 - 0.075)$
 $= 1.40$
- b. The P/BV ratio given with the current market price
 $= 210.19/130.55 = 1.61$
 Since, P/BV ratio
 $= [ROE \times \text{pay out ratio} \times (1+g)]/(k-g)$
 $ROE = [P/BV \times (k-g)]/\text{payout ratio} \times (1+g)$
 $= [1.61 (0.125-0.075)]/[0.3091 \times 1.075]$
 $= 24.23\%$
 ROE should increase from 21.06% to 24.23% to justify the current market price.

Contribution required to the sinking fund (half yearly) = $\frac{1}{2} \times \frac{1}{2} \times 0.1125 = 0.0489$

5.

Total payments for the bonds per half year = $0.0489 + (0.1125/2) = 0.1052$

Annual payment = $(1+0.1052)^2 - 1 = 22.15\%$

Instruments	% employed	Required rate (%)	Weighted rates (%)
Bonds	0.6	22.15	13.29
Equity	0.4	16.50	6.60
			19.89

- a. Capitalization rate = 19.89%
 b. Market value of property = $360/0.1989 = \text{Rs. } 1809.95 \text{ lakh}$

Section C: Applied Theory

6. The following are the important principles useful while observing crossover of moving average line over price line:
- When the moving average rise above the price line, a reversal in bullish trend is signaled. This is based on the simple logic that as long as price at the end of a period is above the average that prevailed in the immediate past, prices are on an up trend. The converse is true for confirming the end of a bear market. The price line in that case would crossover the moving average. (See points A and B in figure below.)
 - The price line moving average crossover has to be examined cautiously when the price line and moving average move in opposite directions before the crossover. The price line that falls below a rising moving average only indicates a secondary reaction and need not signal a trend reversal. Similarly, a price line that rises above a falling moving average is an indication to sell. (See point C in figure below.)
 - A moving average represents a smoothened trend and therefore, also acts as a support/resistance line. A declining price line and rallies without crossing the line. Similarly, a rally in a bear market meets resistance at the moving average, and turns down.
 - If the moving average is flat or has already begun to change direction, a crossover by the price line is a fairly reliable indicator of trend reversal.
 - The significance of a crossover signal depends, to a large extent, on the time span covered by a moving average. A moving average covering a long-term trend, and its crossover is more significant than a crossover of an average of shorter time span.

Some technicians use more than one moving average to smoothen the same price trend. This procedure smoothenes the data twice, and provides warning signals for trend reversals, comparatively more quickly after they have taken place. It is common for analysts to use 100-day and 300-day averages simultaneously.

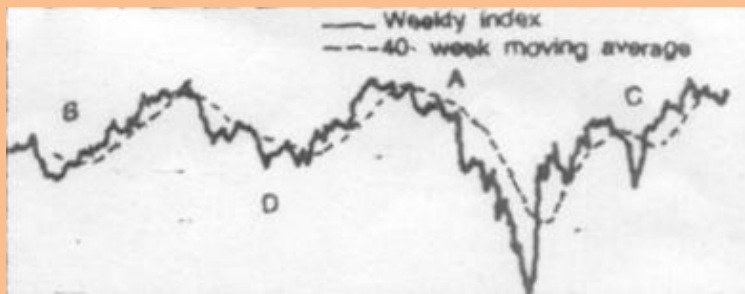
When the 100-day average moves below the declining 300-day average, a trend reversal is signaled. Multiple moving averages are useful because shorter-span averages reach the turning points earlier than the longer-span averages, and are very useful in confirming a trend reversal.

A point of caution is in order. Simple moving averages always invariably provide signals to buy or sell, after the trend reversal has begun. They are neither lead indicators, nor juncture points for change in trends. Simple moving averages, therefore, should only be used along with other indicators. In an accumulation/distribution phase, a series of crossovers can occur whether the market is moving sideways, and provide misleading signals.

[< TOP >](#)

[< TOP >](#)

[< TOP >](#)



7. The investment objectives and constraints faced by investors are as follows

[< TOP >](#)

Investment Objectives

Rationally stating, all personal investing is designed in order to achieve a goal, which may be tangible (e.g., a car, a house, etc.) or intangible (eg., social status, security, etc.). Goals can be classified into various types based on the way investors approach them viz:

a. Near-Term High Priority Goals

These are goals which have a high emotional priority to the investor and he wishes to achieve these goals within a few years at the most. Eg: A new house. As a result, investment vehicles for these goals tend to be either in the forms equivalent to cash or as fixed-income instruments with maturity dates in correspondence with the goal dates. Because of the high emotional importance these goals have, investor, especially the one with moderate means will not go for any other form of investment which involves more risk especially where his goal is just in sight.

b. Long-Term High Priority Goals

For most people, this goal is an indication of their need for financial independence at a point some years ahead in the future. Eg: Financial independence at the time of retirement or starting a fund for the higher education of a three-year old child. Normally, we find that either because of personal preference or because the discounted present value is large in relation to their resources, the time of realization for such goals is set around 60 years of age for people of moderate means. Because of the long-term nature of such goals, there is not a tendency to adopt more aggressive investment approaches except perhaps in the last 5 to 10 years before retirement. Even then, investors usually prefer a diversified approach using different classes of assets.

c. Low Priority Goals

These goals are must lower down in the scale of priority and are not particularly painful if not achieved. For people with moderate to substantial wealth, these could range from a world tour to donating funds for charity. As a result, investors often invest in speculative kinds of investments either for the fun of it or just to try out some particular aspect of the investment process.

d. Entrepreneurial or Money Making Goals

These goals pertain to individuals who want to maximize wealth and who are not satisfied by the conventional saving and investing approach. These investors usually put all the spare money they have into stocks preferably of the company in which they are working/owning and leave it there until it reaches some level which either the individual believes is enough or is scared of losing what has been built-up over the years. Even then, the process of diversification and building up a conventional portfolio usually takes him a long time involving a series of opportunities and sales spread over many years.

Investment Constraints

- Liquidity
- Age
- Need for Regular Income
- Time Horizon
- Risk Tolerance
- Tax Liability

The challenge in investment management, therefore, lies in choosing the appropriate investments and designing a unit that will meet the investment objectives of the investor subject to his constraints. To take on this challenge the first step will be to get acquainted with the different types of investments that are available in our financial market.

[< TOP OF THE DOCUMENT >](#)