

Question Paper

Security Analysis - I (MSF2D1) : July 2007

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 **not true**?

[< Answer >](#)

- (a) A promissory note is negotiable and transferable by a simple endorsement
- (b) The discount rates on T-bills increase as the number of days to maturity increase
- (c) The coupon rate on the central government dated securities is lower than the discount rate on treasury bills
- (d) Corporate debentures are debt obligations of issuing companies
- (e) Interest is paid semi-annually on Central Government Dated Securities and the payment is usually made by issuing coupons which can be encashed at any bank.

2. Which of the following statements is/are **not true**?

[< Answer >](#)

- I. Residual risk in a portfolio cannot be diversified away.
- II. Beta of a portfolio is equal to the sum of the betas of securities that constitute the portfolio.
- III. A portfolio that has 'n' number of securities has (n^2-n) unique covariances.

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

3. Which of the following statements is **true**?

[< Answer >](#)

- (a) Securities with negative alpha have above normal returns
- (b) Securities which plot above the ex-post SML generate below normal returns for their risk
- (c) Characteristic line represents a normal trade-off between risk and return for a security

- (d) Alpha represents the amount by which a security's return differs from the normal return for its level of risk
- (e) The x-axis for the SML represents the expected returns of a particular security.
4. A portfolio has 40% of its fund invested in security A and the balance in security B. The standard deviation of security A's return is 10% and its correlation coefficient with security B's return is 0.5. If the variance of the portfolio is $133(\%)^2$, the standard deviation of security B's return is [< Answer >](#)
- (a) 10%
- (b) 12%
- (c) 15%
- (d) 18%
- (e) 20%.
5. Closing prices of the stock of Global Ltd. for 5 days are given below: [< Answer >](#)

Day	Closing Price (Rs.)
1	230.50
2	235.50
3	222.10
4	225.10
5	230.10

The relative strength index of the stock is

- (a) 49.11
- (b) 50.90
- (c) 52.48
- (d) 55.29
- (e) 65.63.
6. Which of the following statements is **not true** with respect to the two-stage dividend discount model? [< Answer >](#)
- I. It is difficult to specify the supernormal growth period with precision.
- II. The terminal price calculated in this model is derived from Gordon model.
- III. This model is best suited to those firms which have a high growth rate in the beginning and a gradual decline in the growth rate over a period of time.
- (a) Only (I) above
- (b) Only (III) above
- (c) Both (I) and (II) above
- (d) Both (I) and (III) above

(e) Both (II) and (III) above.

7. Mr. Ramesh, an employee of ABC Ltd. was not able to earn profit from the information he had about the likely profit figure for the company, even after trying for an extended period of time. This means that the market is exhibiting [< Answer >](#)

- (a) Weak form of market efficiency
- (b) Semi-strong form of market efficiency
- (c) Super strong form of market efficiency
- (d) Near strong form of market efficiency
- (e) Inefficiency of market.

8. Which of the following will cause an increase in the quick ratio? [< Answer >](#)

- (a) Negotiating a 10% reduction on an outstanding balance owed to a supplier
- (b) Restating inventory at LIFO (in an industry where raw material costs rise over time)
- (c) Paying off long-term debt
- (d) Persuading a customer to pay their invoices earlier
- (e) Increase in cash credit limit by 20%.

9. Which of the following is a natural entry barrier? [< Answer >](#)

- (a) Control over raw material
- (b) Licensing policy of government
- (c) Control over technology
- (d) Economies of scale
- (e) Control over market through strong brand equity.

10. Which of the following statements are **not true** with respect to the companies that are in the stabilization stage of the industry life cycle? [< Answer >](#)

- I. Companies in this stage are more suitable for investors aiming at capital gains.
- II. Earnings and growth in dividend for such companies are stable.
- III. Products of such companies are more standardized and less innovative.
- IV. Companies may have relatively low dividend-payouts.

- (a) Both (I) and (II) above
- (b) Both (I) and (III) above
- (c) Both (I) and (IV) above
- (d) Both (II) and (III) above
- (e) Both (III) and (IV) above.

11. Which of the following risks is eliminated by bond immunization? [< Answer >](#)

- I. Price risk.

- II. Default risk.
- III. Market risk.
- IV. Reinvestment risk.

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

12. Which of the following statements is/are **not true** regarding the Price/Sales (P/S) ratio?

[< Answer >](#)

- I. P/S ratio is useful for valuing companies even with no dividends at all.
- II. P/S ratio can be positive or negative.
- III. Firms with low profit margins and high P/S ratio are undervalued.
- IV. P/S ratio is not influenced by accounting methods.

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

13. Which of the following statements is **not true**?

[< Answer >](#)

- (a) Economic Value Added (EVA) is primarily used for evaluating the performance of management
- (b) EVA serves as a proxy for measuring a stock's performance
- (c) EVA cannot be applied to calculate NPV
- (d) Market Value Added (MVA) serves as a measure of a firm's external performance
- (e) MVA can be computed by discounting the EVA of each year by the WACC.

14. Anand Textiles Ltd. paid dividends per share of Rs.3.56 during the recently ended financial year, and dividends are expected to grow 5.5% a year forever. The covariance of the stock returns with that of the market is $169(\%)^2$ and the variance of the returns from the market is $187(\%)^2$. The return on the market index is 12%, and the risk-free rate of interest is 6.25%. The intrinsic value of the share is

[< Answer >](#)

- (a) Rs.60.34
- (b) Rs.61.45
- (c) Rs.63.39
- (d) Rs.65.56
- (e) Rs.68.65.

15. Which of the following is **not true** regarding the Head and Shoulders pattern?

[< Answer >](#)

- (a) It occurs at the end of a bull market
- (b) A trend reversal always occurs almost when the neckline is penetrated by the price line
- (c) The formation of right shoulder confirms the beginning of a bear market
- (d) Volume is low at the left shoulder and high at the right shoulder
- (e) An inverted head and shoulders pattern occurs at the market bottoms.

16. Which of the following statements is/are **true** with respect to trend lines?

[< Answer >](#)

- I. The smaller the number of peaks/troughs that touch a trend line, the greater its significance.
- II. Longer the time span covered by a trend line, greater the importance of a violation.
- III. A steep trend line is easily violated by small sideward movements in the price chart and hence, is not particularly useful in identifying reversals.

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

17. Which of the following statements is/are **true** with respect to Price Earning Growth (PEG) ratio?

[< Answer >](#)

- I. If the PEG ratio is less than one, it is a sign of possibly undervalued stock or the market does not expect the company to achieve the earnings growth that is reflected in the market estimates.
- II. Value stock usually has a PEG ratio more than one.
- III. PEG ratio is particularly helpful in valuing small and mid-cap growth stocks, which typically pay no dividend.

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

18. Which of the following statements are **true**?

[< Answer >](#)

- I. All market orders are day orders only and provide immediate liquidity.
- II. A stop order to sell becomes a market order if the market price goes below the spot order price.
- III. Open orders are known as “good till cancelled” orders.
- IV. In a stop limit order to buy, the investor can specify the maximum price that he is ready to pay for the stock.

- (a) Both (I) and (II) above
- (b) Both (II) and (III) above
- (c) Both (III) and (IV) above

- (d) (I), (II) and (III) above
- (e) All (I), (II), (III) and (IV) above.

19. Which of the following statements is **not true**?

[< Answer >](#)

- (a) Premium on a warrant is the difference between the market price of the warrant and the minimum price of the warrant
- (b) Premium on a warrant is inversely proportional to the market price of the warrant
- (c) The longer the maturity period of the warrant, lesser the premium of the warrant
- (d) As the price volatility of the underlying share increases, the premium of the warrant also increases
- (e) Declaration of dividend on share may result in a fall in the premium of the warrant.

20. Consider the following bonds each with a face value of Rs.1,000:

[< Answer >](#)

Bond	Coupon (%)	YTM (%)	Term to maturity
A	8	10	6 years
B	8	10	9 years
C	10	10	5 years
D	12	10	5 years
E	8	11	6 years
F	8	13	6 years

Which of the following statements is/are **true** if the YTM increases by 50 basis points?

- I. The percentage change in price in case of bond B is more than that in case of bond A.
- II. The percentage change in price in case of bond D is less than that in case of bond C.
- III. The percentage change in price in case of bond F is less than that in case of bond E.

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

21. At the beginning of a trading day, Mr. Ravi Jain is in a long position in the futures market and his collateral is exactly at the required margin. If the closing futures price is above the opening price, what will happen at the end of the day?

[< Answer >](#)

- (a) He will be subjected to a margin call
- (b) His account will be marked to market and losses will be transferred out
- (c) His account will be marked to market and gains will be transferred in
- (d) His losses will be offset by gains made by investors holding short positions
- (e) His losses will be carried forward to the next day.

22. Which of the following is/are **true** regarding the current yield?

[< Answer >](#)

- I. It considers both coupon income and capital gain (loss) as a source of return to the investor.
- II. Current yield of bonds selling at par is equal to the coupon interest rate.
- III. Current yield of bonds selling at discount is less than the coupon interest rate.

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

23. Which of the following is **not** the reason for attractiveness of real estate?

[< Answer >](#)

- (a) Capital appreciation of real estate is in general very high
- (b) Loans are available from various Financial Institutions/Banks for buying or constructing real estate
- (c) Interest on loans taken for buying or constructing a residential home is tax deductible within certain limits
- (d) Real Estates are less illiquid
- (e) Ownership of a residential property provides psychological satisfaction.

24. Which of the following statements is **not true**?

[< Answer >](#)

- (a) Duration of bonds with periodic coupons is less than their term to maturity
- (b) Duration of zero-coupon bonds is equal to their term to maturity
- (c) Longer a coupon paying bond's term to maturity, the greater the difference between its term to maturity and duration
- (d) Duration is directly related to the yield on the bond
- (e) Duration is directly related to the interest rate elasticity of the bond.

25. A bond's current price is Rs.98.75 and modified duration is 5.25 years. The new price of the bond, if the prevailing interest rate declines from 11% to 10% is

[< Answer >](#)

- (a) Rs. 88.74
- (b) Rs. 93.57
- (c) Rs.100.00
- (d) Rs.103.93
- (e) Rs.104.26.

26. A support level is the price at which a technical analyst would expect the

[< Answer >](#)

- (a) Supply to be static
- (b) Supply of stock to be more than the demand for stock
- (c) Supply of stock to be equal to the demand for stock

- (d) Supply of stock to be nil below that level of price
- (e) Supply to change more than the demand for the stock.

27. Which of the following securities is most liquid?

[< Answer >](#)

- (a) Money market instruments
- (b) Capital market instruments
- (c) Gilt-edged securities
- (d) Index Futures
- (e) Stock options.

28. Which of the following statements is **false** with respect to different features of an efficient market?

[< Answer >](#)

- (a) Information arbitrage efficiency is said to exist, if the participants do not have any scope to reap abnormal profits using information that is of common knowledge
- (b) Fundamental valuation efficiency is said to exist, if the price of an asset is neither undervalued nor overvalued
- (c) Full insurance efficiency is said to exist, if participants can adopt hedging as an effective tool against possible risk in future
- (d) Operational efficiency is said to exist, if the operating costs are minimum possible to participants, but still provides a fair return to the intermediaries for their services
- (e) Allocational efficiency is said to exist, if the market channelizes resources into projects where the marginal efficiency of capital adjusted for risk differences is lowest.

29. Given below is the data of two similar residential properties:

[< Answer >](#)

Property	Sales price (Rs.)	Gross annual income (Rs.)
A	25,00,000	1,20,000
B	22,50,000	1,05,000

If the gross annual income of property 'C', which is similar in characteristics to the above two properties is Rs.1,15,000, the indicated market value of property 'C' as per gross income multiplier method is

- (a) Rs.23,35,500
- (b) Rs.24,00,000
- (c) Rs.24,29,950
- (d) Rs.25,19,350
- (e) Rs.26,00,000.

30. Consider the following data of Omega Mutual Fund (Income plan):

[< Answer >](#)

	(Rs.million)
Value of investments	3474.20
Receivables	260.60
Accrued income	173.60
Other current assets	521.00
Liabilities	390.86
Accrued expenses	86.80

Number of outstanding units is 200 million. Entry load and exit load applicable to this scheme are 2% and 2.5% respectively. If the investor sells his units, the per unit price he will get is

- (a) Rs.20.2526
- (b) Rs.20.1539
- (c) Rs.19.7587
- (d) Rs.19.3635
- (e) Rs.19.2647.

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. The closing stock prices of Suzlon Energy Ltd.(SEL) and the Sensex values on the last trading days of the last eight months are as follows:

[< Answer >](#)

Time	SEL (Rs.)	Sensex
Aug-2006	1203.35	11699.05
Sep-2006	1236.05	12454.42
Oct-2006	1309.55	12961.90
Nov-2006	1446.65	13696.31
Dec-2006	1304.35	13786.91
Jan-2007	1142.35	14090.92
Feb-2007	1037.05	12938.09
Mar-2007	1001.95	13072.10

You are **required** to

- Calculate the beta of the SEL and the coefficient of correlation between the returns on the SEL stock with the returns of the Sensex.
- Indicate the proportions of the systematic and unsystematic risks in the total risk of the SEL.

(6 + 4 = 10 marks)

2. A market analyst is keen on testing whether the Indian markets are exhibiting semi-strong form of efficiency or not. For the purpose he has selected three companies, viz., BHEL, Ranbaxy Laboratories Ltd. and Wipro Ltd. which have declared higher dividends on December 15, 2006. He estimated the characteristic lines to study the relationship between the returns on these three companies and the return on the market index for a period of five years on a monthly basis up to September 15, 2006, which are as follows:

[< Answer >](#)

$$r_{\text{BHEL},t} = 1.50\% + 0.90r_{m,t}$$

$$r_{\text{Ranbaxy},t} = 1.48\% + 1.13r_{m,t}$$

$$r_{\text{Wipro},t} = 1.75\% + 1.25r_{m,t}$$

The following table shows the returns on the stocks of the three companies and the market return for the period three months before and three months after the declaration of dividend:

Period (months)	Actual Return (%)			Market return (%) $r_{m,t}$
	$r_{\text{BHEL},t}$	$r_{\text{Ranbaxy},t}$	$r_{\text{Wipro},t}$	
September 15, 2006	5.83	8.12	1.39	6.46
October 15, 2006	0.92	-9.13	2.49	4.07
November 15, 2006	3.81	-6.86	11.30	5.67

December 15, 2006	-8.32	5.25	0.93	0.66
January 15, 2007	9.53	4.27	1.38	2.21
February 15, 2007	-13.52	-17.38	-8.49	- 8.18
March 15, 2007	3.86	4.44	-0.45	1.04

You are **required** to verify the validity of semi-strong form of market efficiency in the Indian market using Event Studies.

(10 marks)

3. Towards the payment of its liabilities, PVS Ltd. is expected to make an annual payment of Rs.1,75,000 for five years, starting from end of the second year from now. Presently the interest rate on such liability is 12%. PVS Ltd. wants to immunize the liability and is actively considering the following two bonds:

[< Answer >](#)

Bond A: A zero-coupon bond with a face value Rs.1,000, maturing after 5 years and is currently trading at Rs.566.

Bond B: 9% coupon bearing bond with a face value of Rs.1,000, maturing after 4 years, redeemable at par value and is currently trading at Rs.908.86.

You are **required** to

- Determine the proportion of funds to be invested in the bonds A and B so that the liability of PVS Ltd. is immunized.
- State the conditions to be fulfilled for perfect immunization.

(8 + 2 = 10 marks)

4. Mr. Jain, an analyst is evaluating Teldat Industries Ltd (TIL). The company has maintained high growth rates in the face of strong competition in the last few years; it has done so while maintaining high returns on capital. The fundamentals suggest that growth will continue to be high and given the size of the market and potential growth (as well as the strong brand name identification), growth seems sustainable for a longer period.

[< Answer >](#)

Earnings per share of TIL in 2006-07 is Rs.32.

The following are the assumptions made by Mr. Jain

Assumptions for the High Growth Period

- Length of the high growth period is 5 years.
- Expected growth rate in earnings is 25% (Based upon analyst projections).
- Beta during high growth period is 1.40.
- Risk free rate is 6.5%.

- Market rate of return is 20%.
- Dividend Payout Ratio is 20% (based on existing payout ratio).

Assumptions for the Transition Period

- Length of the transition period is 5 years.
- Growth rate in earnings will decline from 25% in year 5 to 10% in year 10 in linear increments.
- Payout ratio will increase from 20% to 60% over the same period in linear increments.
- Beta will drop from 1.40 to 1.00 over the same period in linear increments.
- Risk free rate is 6%.
- Market rate of return is 15%.

You are **required** to

- Estimate the share price of TIL as on March 31, 2007 as per the assumptions made by Mr. Jain.
- If the shares of the top five companies of the industry to which TIL belongs to are trading at the average P/E of 45, what should be done by Mr. Jain, if the current price reflects the intrinsic value calculated in (a) above.

(8 + 2 = 10 marks)

5. Following are the closing prices of the Infosys Technology Ltd. for the month of April:

[< Answer >](#)

Day	Price (Rs.)
2-Apr-07	1922.95
3-Apr-07	1964.65
4-Apr-07	1994.30
5-Apr-07	1992.30
9-Apr-07	2047.55
10-Apr-07	1998.85
11-Apr-07	1996.25
12-Apr-07	2045.85
13-Apr-07	2086.90
16-Apr-07	2128.70
17-Apr-07	2082.75
18-Apr-07	2076.30
19-Apr-07	2039.90
20-Apr-07	2055.10
23-Apr-07	2069.25

24-Apr-07	2057.90
25-Apr-07	2018.50
26-Apr-07	2018.85
27-Apr-07	2005.15
30-Apr-07	2050.85

The 100 day simple moving average as on 2nd April is 2194.60.

You are **required** to compute the Exponential Moving Average of Infosys Technology Ltd. during the above period.

(10 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. Listing of securities on the stock exchanges is advantageous to the company as well as to the investors. [< Answer >](#)
Discuss.

(10 marks)

7. IT and IT Enabled Services, Auto, Banking, Real Estate, Construction, Engineering, FMCG, Pharmaceuticals, Oil and Gas are the industries which could receive the attraction of investors during the last 5 years in India. As an analyst, what are the important characteristics you would consider before identifying an industry for investment? Discuss. [< Answer >](#)

(10 marks)

END OF SECTION C

END OF QUESTION PAPER

Suggested Answers

Security Analysis - I (MSF2D1) : July 2007

Section A : Basic Concepts

1. Answer : (c)

[< TOP >](#)

Reason: A promissory note is negotiable and transferable by a simple transfer deed. Statement (a) is true.

The discount rates on T-bills increase as the number of days to maturity increase. Statement (b) is true.

The coupon rate on the central government dated securities is higher than the discount rate on treasury bills. Statement (c) is not true.

Corporate debentures are debt obligations of issuing companies. Statement (d) is true.

Interest is paid semi-annually on Central Government Dated Securities and the payment is usually made by issuing coupons which can be encashed at any bank. Hence (c) is the correct statement.

2. Answer : (e)

[< TOP >](#)

Reason: Residual risk in a well-diversified portfolio is equal to the average covariance of securities in the portfolio and represents the market risk, representing the market risk. This is the amount of risk that cannot be diversified away no matter how much the diversification of the portfolio. Hence statement (I) is true.

Beta of a portfolio is equal to the weighted average of the betas of the securities that constitute the portfolio. Statement (II) is not true.

A portfolio that has 'n' number of securities has unique covariances. Statement (III) is not true.

Hence (e) is the answer.

3. Answer : (d)

[< TOP >](#)

Reason: Securities with positive alpha have above normal returns and those with negative alpha have below normal returns. Statement (a) is not true.

Securities which plot above the ex-post SML generate above normal returns for a given beta and securities which plot below the ex-post SML generate below normal return for the given systematic risk. Statement (b) is not true.

Security market line represents a normal trade-off between risk and return for a security. Statement (c) is not true.

Alpha represents the amount by which a security's return differs from the normal return for its level of risk. Statement (d) is true.

The x-axis for the SML represents the betas for different securities and the Y-axis represents their expected returns. Statement (e) is not true.

Hence (d) is the answer.

4. Answer : (c)

[< TOP >](#)

$$\begin{aligned}
 \text{Reason: } \sigma_p^2 &= W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2 W_A W_B \rho_{AB} \sigma_A \sigma_B \\
 133 &= (0.40)^2 \times (10)^2 + (0.60)^2 \times \sigma_B^2 + 2 \times 0.40 \times 0.60 \\
 &\quad \times 0.50 \times 10 \times \sigma_B \\
 133 &= 16 + 0.36 \sigma_B^2 + 2.4 \sigma_B \\
 &= 0.36 \sigma_B^2 + 2.4 \sigma_B - 117 = 0 \\
 \sigma_B &= \\
 \sigma_B &= 15\%
 \end{aligned}$$

Hence (c) is the answer.

5. Answer : (b)

[< TOP >](#)

$$\begin{aligned}
 \text{Reason: Relative strength of the stock} &= \\
 &=
 \end{aligned}$$

Relative strength index =

Hence (b) is the answer.

6. Answer : (b)

[< TOP >](#)

Reason : Option (b) describes the characteristics of the H-model.

It is difficult to specify the supernormal growth period with precision since the growth rate is expected to reduce to stable level after this period. The model

suffers with the limitation of the change of high supernormal growth to a lower stable growth rate at the end of the supernormal growth period. The terminal price calculated in this model is derived from Gordon model and hence it suffers from the limitation of the Gordon model.

Therefore, Option (b) is the correct answer.

7. Answer : (c)

[< TOP >](#)

Reason: In the weak form and semi-strong form of market efficiency, only historical and publicly held information are discounted respectively. In the near-strong form of market efficiency, the analysis made by the mutual fund managers is discounted. In only super strong form of market efficiency the insider information is discounted by the market. Therefore (c) is the answer.

8. Answer : (a)

[< TOP >](#)

Reason : This would reduce current liabilities and therefore increase the quick ratio. Inventory is excluded from the quick ratio so restarting inventory at LIFO will have no impact. Paying off long term debt will reduce quick ratio, and persuading a customer to pay earlier will have zero impact on quick ratio.

Therefore, option (a) is the correct answer.

9. Answer : (d)

[< TOP >](#)

Reason: Labour intensive, capital intensive, learning curve and economies of scale are natural entry barriers, and control over raw material, licencing policy of government, control over technology and control over market through strong brand equity are artificial entry barriers.

Hence (d) is the answer.

10. Answer : (c)

[< TOP >](#)

Reason: Companies in this stage have to be avoided by the investors interested primarily in capital gains. Statement (I) is not true.

These companies offer stability in earnings and dividend growth. Statement (II) is true.

In this stage the growth begins to moderate. Sales may be increasing but at a slower rate. Products of such companies become more standardized and less innovative. Statement (III) is true.

Companies in this stage may have relatively high dividend-payouts because their growth prospects are fewer. Statement (IV) is not true.

Hence (c) is the answer.

11. Answer : (d)

[< TOP >](#)

Reason: Bond immunization refers to setting equal the investment time horizon

with the duration of the bond. This eliminates the price risk as well as the reinvestment risk. Hence (d) is the answer.

12. Answer : (d)

[< TOP >](#)

Reason : P/S ratio is useful for valuing companies even with no earnings, viz., no dividends at all.

P/S ratio can never be negative.

Firms with low profit margins and high P/S ratio are overvalued and those with high profit margins and low P/S ratios are undervalued.

P/S ratio is not influenced by accounting methods used for depreciation, inventory, etc.,

Statements (I) and (IV) are true, and statements (II) and (III) are not true. Hence (d) is the answer.

13. Answer : (c)

[< TOP >](#)

Reason: MVA serves as a measure of a firm's external performance and it can be computed by discounting the EVA of each year by the WACC. Some advantages of EVA are that it is primarily used for evaluating the performance of management. It serves as a proxy for measuring a stock's performance and it can be applied to capital budgeting problems like NPV. Therefore statement (c) is not true and is the answer.

14. Answer : (c)

[< TOP >](#)

Reason: According to Gordon's growth model, Price of the share =

$$D_0 = \text{Rs.}3.56$$

$$g = 0.055$$

$$k_e = R_f + \beta(R_m - R_f)$$

$$\beta =$$

$$k_e = 6.25 + 0.9(12 - 6.25) = 11.425\%$$

$$\text{Therefore } P_0 =$$

Hence (c) is the answer.

15. Answer : (d)

[< TOP >](#)

Reason: Head and shoulders pattern occurs at the end of a bull market. The formation of right shoulder confirms the beginning of a bear market. A trend reversal occurs when the neckline is penetrated by the price line. Volume is very high at the left shoulder and continues to rise at a lower rate at the head. An inverted head and shoulders pattern occurs at the market bottoms. Hence statement

(d) is not true and is the answer.

16. Answer : (e)

[< TOP >](#)

Reason: The larger the number of peaks/troughs that touch a trend line, the greater its significance. Longer the time span covered by a trend line, greater the importance of a violation. A steep trend line is easily violated by small sideward movements in the price chart, and is not particularly useful in identifying reversals. Therefore statements (II) and (III) are true and statements .

Hence (e) is the answer.

17. Answer : (d)

[< TOP >](#)

Reason : Statement I and III are correct. Value stocks usually have a PEG ratio less than one because the stock's earnings expectations have risen and the market has not yet recognized the growth potential. Thus statement II is incorrect.

Therefore, option (d) is the correct answer.

18. Answer: (e)

[< TOP >](#)

Reason: All market orders are day orders only and provide immediate liquidity to the market, and the investor is unaware of the price at which the stock will be traded.

Open orders are also known as "good till cancelled" orders.

A stop order to sell becomes a market order if the market price goes below the spot order price.

In a stop limit order to buy, the investor can specify the maximum price that he is ready to pay for the stock.

Hence (e) is the correct answer.

19. Answer : (c)

[< TOP >](#)

Reason: Premium on a warrant is the difference between the market price of the warrant and the minimum price of the warrant. Statement (a) is true. Premium on a warrant is inversely proportional to the market price of the warrant. Statement (b) is true.

The longer the maturity period of the warrant, greater the premium of the warrant. Statement (c) is not true.

As the price volatility of the underlying share increases, the premium of the warrant also increases. Statement (d) is true.

Declaration of dividend on share may result in a fall in the premium of the warrant. Statement (e) is true.

20. Answer : (c)

[< TOP >](#)

Reason: For a given difference between the YTM and the coupon rate of the bonds, the longer the term to maturity, the greater will be the change in price with change in the YTM. When the YTM increases by 50 basis points, the percentage change in price in case of bond B is more than that in case of bond A because of its longer term to maturity.

For any given change in YTM, the percentage price change in case of bonds of high coupon rate will be smaller than in case of bonds of low coupon rate, other things being equal. Therefore When the YTM increases by 50 basis points, The percentage change in price in case of bond D is less than that in case of bond C because its coupon rate is higher.

A change in the YTM affects the bonds with a higher YTM more than it does the bonds with a lower YTM. Therefore when the YTM increases by 50 basis points, The percentage change in price in case of bond F is more than that in case of bond E because it has a higher YTM.

Therefore statements (I) and (II) are true and statement (III) is false. Hence (c) is the answer.

21. Answer: (c)

[< TOP >](#)

Reason: In the situation, given your long position you have profited from the price increase.

Therefore, option (c) is the correct answer.

22. Answer : (b)

[< TOP >](#)

Reason: An important drawback of current yield is that it considers only coupon income as a source of return to the investor, ignoring interest and capital gains (loss) that would also accrue to him. Statement (I) is not true.

Current yield of bonds selling at par would be equal to the coupon interest rate. Statement (II) is true.

Current yield of bonds selling at discount would be more than the coupon interest rate. Statement (III) is not true.

Hence (B) is the answer.

23. Answer : (d)

[< TOP >](#)

Reason : A real estate represents a very attractive investment proposition for the following reasons:

- i. Capital appreciation of real estate is, in general very high.

ii. Loans are available from various financial institutions/banks for buying or constructing real estate.

iii. Interest on loans taken for buying or constructing a residential home is tax deductible within certain limits.

iv. Ownership of a residential property provides psychological satisfaction.

Hence (a), (b), (c) and (e) are correct. However real estate are more illiquid and are not a reason for attractiveness and hence (d) is the answer.

24. Answer : (d)

[< TOP >](#)

Reason: Duration of bonds with periodic coupons is less than their term to maturity. Statement (a) is true.

Duration of zero-coupon bonds is equal to their term to maturity. Statement (b) is true.

Longer a coupon paying bond's term to maturity, the greater the difference between its term to maturity and duration. Statement (c) is true.

Duration is inversely related to the yield on the bond. Statement (d) is not true.

Duration is directly related to the interest rate elasticity of the bond. Statement (e) is true.

Hence (d) is the answer.

25. Answer : (d)

[< TOP >](#)

Reason : $= -D_{\text{mod}} \times$

$$= \quad \quad \quad = 0.0525$$

$$\Delta P = 0.0525P = 0.0525 \times 98.75 = 5.18$$

$$\text{New price} = 98.75 + 5.18 = \text{Rs.}103.93$$

26. Answer : (d)

[< TOP >](#)

Reason : A support level is one below which the price of a stock should not fall. As soon as the price line reaches this level, it turns around and rallies upwards. This is possible only when the supply of the stock is nil below that price level. Hence the correct answer is (d).

27. Answer : (c)

[< TOP >](#)

Reason : Of the securities given, gilt edged securities are considered as most liquid because they are government bonds and are very safe and have an active secondary market.

28. Answer: (e)

[< TOP >](#)

Reason: All the statements are correct except option (e) as allocational efficiency is said to exist, if the market channelizes resources into projects where the marginal efficiency of capital adjusted for risk differences is highest.

Therefore, option (e) is the correct answer.

29. Answer : (c)

[< TOP >](#)

Reason: First we calculate the gross annual income multiplier for these two units.

Gross Income Multiplier (GIM) =

Property A: GIM = 20.83

Property B: GIM = 21.43

Average GIM = 21.13.

Indicated market value of the third unit is Average GIM x Gross Annual income of the third property = $21.13 \times 1,15,000 = \text{Rs. } 24,29,950$. Hence (c) is the answer.

30. Answer : (e)

[< TOP >](#)

Reason: $\text{NAV} = (\text{Value of investments} + \text{Receivables} + \text{Accrued income} + \text{Other current assets} - \text{Liabilities} - \text{Accrued Expenses}) / \text{Number of units outstanding}$

$$= (3474.2 + 260.6 + 173.6 + 521 - 390.86 - 86.8) / 200 = \text{Rs. } 19.7587$$

Now the selling price of the investor will be $19.7587 \times (1 - 0.025)$

= Rs. 19.2647

Hence (e) is the answer.

Section B : Problems

- 1 Beta of the stock is given by _____ and correlation coefficient ρ is given by _____
Standard deviation of Suzlon Energy Ltd.:

[< TOP >](#)

Month/year	Prices	Return (R_i)	$R_i - E(R_i)$	$[R_i - E(R_i)]^2$
Aug-2006	1203.35			
Sep-2006	1236.05	2.72	4.97	24.60
Oct-2006	1309.55	5.95	8.20	67.24
Nov-2006	1446.65	10.47	12.72	161.80
Dec-2006	1304.35	-9.84	-7.59	57.61
Jan-2007	1142.35	-12.42	-10.17	103.43
Feb-2007	1037.05	-9.22	-6.97	48.58
Mar-2007	1001.95	-3.38	-1.13	1.28
Total		-15.72		464.54
Mean		-2.25		
Standard Deviation		8.80		

Standard deviation of the Sensex:

Month/year	Sensex	Return (R_m)	$R_m - E(R_m)$	$[R_m - E(R_m)]^2$
Aug-2006	11699.05			
Sep-2006	12454.42	6.46	4.76	22.66
Oct-2006	12961.90	4.07	2.37	5.62
Nov-2006	13696.31	5.67	3.97	15.76
Dec-2006	13786.91	0.66	-1.04	1.08
Jan-2007	14090.92	2.21	0.51	0.26
Feb-2007	12938.09	-8.18	-9.88	97.61
Mar-2007	13072.10	1.04	-0.66	0.44
Total		11.93		143.43
Mean		1.70		
Standard Deviation		4.89		

Covariance:

Month/Year	$R_i - E(R_i)$	$R_m - E(R_m)$	$[R_i - E(R_i)][R_m - E(R_m)]$
Aug-2006			
Sep-2006	4.97	4.76	23.66
Oct-2006	8.20	2.37	19.43
Nov-2006	12.72	3.97	50.50
Dec-2006	-7.59	-1.04	7.89
Jan-2007	-10.17	0.51	-5.19
Feb-2007	-6.97	-9.88	68.86
Mar-2007	-1.13	-0.66	0.75
Total			165.95
Covariance			27.66(%)²

(a) Beta = $\frac{27.66}{77.44} = 0.3572$

Correlation coefficient = $\frac{27.66}{4.89 \times 7.74} = 0.58$

(b) Now the systematic risk of the Suzlon is

$$= 0.3572^2 \times 77.44 = 1.16^2 \times 4.89^2 = 32.18(\%)^2$$

Unsystematic risk =

$$= 77.44 - 32.18 = 45.26(\%)^2$$

Now, the proportion of systematic risk to total risk is $32.18/77.44 = 41.55\%$

The proportion of unsystematic risk to total risk is $45.26/77.44 = 58.45\%$

$r_{\text{BHEL},t} = 1.50\% + 0.90r_{m,t}$				
	Actual Return	Market Return	Expected Return	Abnormal Return
15-Sep-06	5.83	6.46	7.31	-1.48
15-Oct-06	0.92	4.07	5.16	-4.24
15-Nov-06	3.81	5.67	6.60	-2.79
15-Dec-06	-8.32	0.66	2.09	-10.41
15-Jan-07	9.53	2.21	3.49	6.04
15-Feb-07	-13.52	-8.18	-5.86	-7.66
15-Mar-07	3.86	1.04	2.44	1.42

$r_{\text{Ranbaxy},t} = 1.48\% + 1.13r_{m,t}$				
	Actual Return	Market Return	Expected Return	Abnormal Return
15-Sep-06	8.12	6.46	8.78	-0.66
15-Oct-06	-9.13	4.07	6.08	-15.21
15-Nov-06	-6.86	5.67	7.89	-14.75
15-Dec-06	5.25	0.66	2.23	3.02
15-Jan-07	4.27	2.21	3.98	0.29
15-Feb-07	-17.38	-8.18	-7.76	-9.62
15-Mar-07	4.44	1.04	2.66	1.78

$r_{\text{Wipro},t} = 1.75\% + 1.25r_{m,t}$				
	Actual Return	Market Return	Expected Return	Abnormal Return
15-Sep-06	1.39	6.46	9.83	-8.44
15-Oct-06	2.49	4.07	6.84	-4.35
15-Nov-06	11.30	5.67	8.84	2.46
15-Dec-06	0.93	0.66	2.58	-1.65
15-Jan-07	1.38	2.21	4.51	-3.13
15-Feb-07	-8.49	-8.18	-8.48	-0.01
15-Mar-07	-0.45	1.04	3.05	-3.50

We will now estimate the average abnormal return to each of the months before and after the dividend was announced.

Third month before the announcement of dividend

$$= -3.53\%$$

Second month before the announcement of dividend

$$= -7.93\%$$

First month before the announcement of dividend

$$= -5.03\%$$

Month during which the dividend was announced

$$= -3.01\%$$

First month after the announcement of dividend

$$= 1.07\%$$

Second month after the announcement of dividend

$$= -5.76\%$$

Third month after the announcement of dividend

$$= -0.1\%$$

Now we will compute the cumulative Average Abnormal returns (CAAR) for the period of three months before and after the announcement of dividend.

$$CAAR = (-3.53 - 7.93 - 5.03 - 3.01 + 1.07 - 5.76 - 0.1) = -24.29\%.$$

As the value of CAAR is not close to zero, we conclude that market is not efficient in the semi-strong form.

3

a. **Duration of outflows:**

[< TOP >](#)

	Cash outflows Rs.	PVIF @ 12%	PV. Rs.	
I	II	III	IV=II*III	V=I*IV
2	175000	0.7972	139510.0	279020
3	175000	0.7118	124565.0	373695
4	175000	0.6355	111212.5	444850
5	175000	0.5674	99295.0	496475
6	175000	0.5066	88655.0	531930
Total			563237.5	2125970.0

Hence the duration of the liability is $2125970.0/563237.5 = 3.77$ years.

Duration of bond A:

As it is zero coupon bond, its duration is equal to years to maturity = 5 years.

Duration of Bond B:

YTM is 'k' in the following:

Now, solving for 'k' we get $k = 12\%$.

	Cash inflow Rs.	PVIF @ 12%	PV. Rs.	
I	II	III	IV=II*III	V=I*IV
1	90	0.8929	80.361	80.361
2	90	0.7972	71.748	143.496
3	90	0.7118	64.062	192.186
4	1090	0.6355	692.695	2770.780
Total			908.866	3186.823

Hence duration of bond B is $3186.823/908.866 = 3.51$ years

To immunize the payments, duration of investment = Duration of liabilities

Let proportion of funds to be invested in bond A be X. Then, the distribution of investment

$$= 5(X) + 3.51(1 - X)$$

As duration of investment = Duration of liabilities

$$5X + 3.51 - 3.51X = 3.77$$

$$X = 17.45\% \text{ and } 1 - X = 82.55\%$$

Therefore the proportion of investment is 17.45% and 82.55% for Bond A and B respectively.

b. Proportion of investment will give perfect immunization only if the following assumptions hold good:

- i. There is no default risk of the bonds.
- ii. The buy and hold strategy is adopted by the investor.
- iii. There is no instantaneous change in interest rate during the investment horizon.
- iv. The term structure is flat.

4

a.

[< TOP >](#)

Year	EPS	Growth rate (%)	DP (%)	DPS	Beta	Rf	Rm	Ke (%)	Discount rate	PV
0	32.00									
1	40.00	25	20.00	8.00	1.40	6.5	20.0	25.40	1.2540	6.38
2	50.00	25	20.00	10.00	1.40	6.5	20.0	25.40	1.2540	6.36
3	62.50	25	20.00	12.50	1.40	6.5	20.0	25.40	1.2540	6.34
4	78.13	25	20.00	15.63	1.40	6.5	20.0	25.40	1.2540	6.32
5	97.66	25	20.00	19.53	1.40	6.5	20.0	25.40	1.2540	6.30
6	119.14	22	28.00	33.36	1.32	6.0	15.0	17.88	1.1788	12.43
7	141.78	19	36.00	51.04	1.24	6.0	15.0	17.16	1.1716	16.84
8	164.46	16	44.00	72.36	1.16	6.0	15.0	16.44	1.1644	21.41
9	185.84	13	52.00	96.64	1.08	6.0	15.0	15.72	1.1572	25.97+2453.20*
10	204.43	10	60.00	122.66	1.00	6.0	15.0	15.00	1.1500	
Total										2561.55

*Terminal value = $122.66 / (0.15 - 0.1) = 2453.20$

Therefore price of TIL is Rs.2561.56.

b. P/E ratio = $2561.55 / 32 = 80.05$

Therefore here we can conclude that the share of TIL is overpriced as it is traded at the higher P/E than the industry average.

5

[< TOP >](#)

Day	Price of Infosys	EMA for previous day	I-II	III*0.02	EMA=II+IV
	I	II	III	IV	
2-Apr-07	1922.95	—	—	—	2194.60
3-Apr-07	1964.65	2194.60	-229.95	-4.60	2190.00
4-Apr-07	1994.3	2190.00	-195.70	-3.91	2186.09
5-Apr-07	1992.3	2186.09	-193.79	-3.88	2182.21
9-Apr-07	2047.55	2182.21	-134.66	-2.69	2179.52
10-Apr-07	1998.85	2179.52	-180.67	-3.61	2175.91
11-Apr-07	1996.25	2175.91	-179.66	-3.59	2172.32
12-Apr-07	2045.85	2172.32	-126.46	-2.53	2169.79
13-Apr-07	2086.9	2169.79	-82.89	-1.66	2168.13
16-Apr-07	2128.7	2168.13	-39.43	-0.79	2167.34
17-Apr-07	2082.75	2167.34	-84.59	-1.69	2165.65
18-Apr-07	2076.3	2165.65	-89.35	-1.79	2163.86

19-Apr-07	2039.9	2163.86	-123.96	-2.48	2161.38
20-Apr-07	2055.1	2161.38	-106.28	-2.13	2159.25
23-Apr-07	2069.25	2159.25	-90.00	-1.80	2157.45
24-Apr-07	2057.9	2157.45	-99.55	-1.99	2155.46
25-Apr-07	2018.5	2155.46	-136.96	-2.74	2152.72
26-Apr-07	2018.85	2152.72	-133.87	-2.68	2150.04
27-Apr-07	2005.15	2150.04	-144.89	-2.90	2147.14
30-Apr-07	2050.85	2147.14	-96.29	-1.93	2145.21

Section C: Applied Theory

6 Advantages of Listing

[<TOP>](#)

Listing of securities on the stock exchanges is advantageous to the company as well as to the investors as setn hereunder:

a. To the Company

- i. The company enjoys concessions under Direct Tax Laws – In such companies the public is substantially interested resulting in lower rate of income tax payable by them;
- ii. The company gains national and international importance by its share value quoted on the stock exchanges;
- iii. Financial institutions/bankers extend term loan facilities in the form of rupee currency and foreign currency loan;
- iv. It helps the company to mobilize resource from the shareholders through 'Rights Issue' for programs of expansion and modernization without depending on the financial institutions in line with the government policies'
- v. It ensures wide distribution of shareholding thus avoiding fears of easy takeover of the organization by others.

b. To the Investors

- i. Since the securities are officially traded, liquidity of investment by the investors is well ensured;
- ii Rights entitlement in respect of further issues can be disposed of in the market;
- iii Listed securities are well preferred by bankers for extending loan facility;
- iv Official quotations of the securities on the stock exchanges corroborate the valuation taken by the investors for purposes of tax assessments under Income Tax Act, Wealth Tax Act, etc'

- v Since securities are quoted, there is no secrecy of the price realization of securities sold by the investors'
- vi The rules of the stock exchange protect the interest of the investors in respect of their holdings'
- vii Listed companies are obligated to furnish unaudited financial results on a half-yearly basis within two months of the expiry of the period. The said details enable the investing public to appreciate the financial results of the company in between the financial year;
- viii. Takeover offers concerning listed companies are to be announced to the public. This will enable the investing public to exercise its discretion on such matters.

7 Before taking a decision for making an investment, every industry has to be analysed thoroughly. The most important of the characteristics that are to be evaluated for an industry are given below:

[< TOP >](#)

- Past sales and earnings performance
- Performance of the industry.
- The attitude of the government towards the industry.
- Labor conditions within the industry.
- The competitive conditions as reflected by the existence of the entry barriers and
- The stock prices of the firms in the industry relative to their earnings.

Past sales and earnings performance: For an analyst, past sales and earnings performance of the firm form a crucial input in forecasting future trends. This is because by examining the contribution of various factors in the past sales reveals the relevance of these factors individually and relatively under present conditions.

In any firm sales and the earnings play an important role. These variables will exhibit a degree of consistency only when the firm has weathered a variety of economic conditions. The analyst from the observation of these variables will be able to judge the stability of the performance in terms of sales and earnings as well as the growth rates.

Another crucial factor is that of the relationship between the sales and the fixed costs. The more the fixed costs, the higher will be the breakeven point and higher will be the sales volume to be achieved.

Performance of the industry:

By performance, we understand the products and the technology of a particular industry not becoming obsolete in a short span of time. If the industry is not permanent, then investing in that industry altogether becomes a losing proposition. In some of the cases a product with additional features manufactured by employing superior technology makes the existing product totally irrelevant or at least results in the manufacturing process becoming a commercially enviable proposition.

In this age of rapid technological developments, this factor plays a crucial role in industry analysis. The Government's role is also an important factor affecting the performance of the industry.

The attitude of the government towards the industry:

It is imperative for an analyst that he should be well aware of the various Government policies and regulations with reference to an industry in which investment is considered. The government policies like deregulating an industry by allowing foreign investment, imposing high tariffs on imports and restrictive legislation have a bearing on their

performance. Some of the legal restrictions result in the profits being very low for a particular industry. Thus an analyst, for that matter, an investor should be thorough with various government regulations and their implications and should be able to predict, at least broadly, the changes likely to take place in the regulations in the near future.

Labor conditions within the industry:

This is an important factor to be considered in industries which are labor intensive .An analyst should examine the various provisions of the labor laws and also go into the possible reasons that may halt the production process and its fallout on the profits of the industry .In case of a prolonged strike ,a labor intensive firm will not only lose its customers and goodwill but also may not be able to cover its fixed costs in certain cases.

Competitive conditions:

While analyzing this situation, the three general types of barriers that an analyst should concentrate on ,are

- Existence of product differentiation
- Absolute cost advantages
- Advantages rising from economies of scales

The existence of the first barrier assures that a new entrant will not be able to charge as much by the existing firms. Also he has to spend large amounts of money on advertising to capture an acceptable share of the market as this situation is usually found in cases where the customers exhibit a high degree of brand loyalty. By absolute cost advantages, we understand that the existing firms are capable of producing and distributing the products at lower costs than the new entrants irrespective of the volume produced. As a result, they enjoy wider profit margins. This may be due to the fact that the existing firms may have exclusive patents ,own the resources or superior management skills that are not available to new entrants. Economies of scale are usually realized when the production are quite high. A new entrant in this case also has to garner a significant market share so that he can avail the benefits from economies of scale. An analyst or a prospective investor should consider investment in an industry which is well protected.

Industry share prices relative to its earnings

In addition to the above factors an analyst also has to look at the present share prices. In this case an underpriced share would be the best bet. Also an analyst should examine the fact that the share prices are not high due to the overzealous nature of the investors to acquire the shares of the firms in a new industry. Usually the shares of these companies experience high fluctuations depending on the crowd behavior.

[< TOP OF THE DOCUMENT >](#)