Question Paper
Equity: Analysis and Valuation (CFA610): January 2009

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** with respect to the issue of stock dividend and special dividends? <Answer>

(a) Stock dividend represents a recapitalization of the company
(b) Special dividends are sometimes recognized as return of capital by companies
(c) Stock dividends will be a major implication on controlling interest
(d) Special dividends are also known as capital dividends
(e) Special dividends are paid when a company wins any pending litigation.

2. Which of the following would you consider the best indicator of an undervalued firm? <Answer>

(a) A firm with a P/E ratio lower than the industry P/E
(b) A firm with a P/E ratio lower than the average P/E ratio for the firm's peer group
(c) A firm with a P/E ratio lower than its peer group and a lower expected growth rate
(d) A firm with a lower P/E ratio than its peer group, a higher expected growth rate and lower risk
(e) A firm with a lower P/E ratio than its peer group, a lower expected growth rate and lower risk.

3. The capital employed by the Shristi Industries is Rs.180 lakh. The weighted average cost of capital for the firm is 14.45%. The net profit made by the company during the year is Rs.36 lakh. The Economic Value Added of the firm according to the residual income method is <Answer>

(a) Rs. 5 lakh
(b) Rs.10 lakh
(c) Rs.15 lakh
(d) Rs.18 lakh
(e) Rs.20 lakh.

4. Which of the following statements is **not true** about the moving average? <Answer>

(a) Technical analysts observe moving averages more for crossovers than for the changes in direction
(b) When the moving average rises above the price line, a reversal in bullish trend is signaled
(c) The price line that falls below a rising moving average only indicates a secondary reaction and not a trend reversal
(d) A moving average represents a smoothened trend and therefore does not act as a support/resistance line
(e) 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.

5. Which of the following statements is/are **true** with respect to the financial markets? <Answer>

I. Money market is the market for short term funds while capital market is the market for long term funds.
II. Primary market is the market for new issues while the secondary market is for buying and selling of instruments after issue.
III. Money market and capital market are parts of the financial market.
IV. Money market is a place where banks, FIs and NBFCs purvey short, medium, and long term loans to corporates and individuals.

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

6. On December 29, 2008 scrip of Renuka Sugar Ltd. opened at Rs120.75. Mr. Mukesh, who is having 100 shares of Renuka Sugar Ltd. placed a Stop-Loss order to sell 100 shares at Rs116.00. At the end of the trading on the same day, the loss that Mr. Suresh will suffer if the price of the scrip drops to Rs111.50 will be <Answer>

(a) Rs.262.00
(b) Rs.375.00
(c) Rs.475.00
(d) Rs.535.00
(e) Rs.545.00.

7. Other things remaining the same, if the standard deviation of the returns on the market index increases by 25%, the standard deviation of the returns on security 'X' increases by 20%, and the covariance between the security 'X' and the market index decreases by 15%, the systematic risk of the security <Answer>

(a) Increases by 46%
(b) Increases by 54%
(c) Decreases by 46%
(d) Decreases by 54%
(e) Remains the same.

8. Which of the following statements is/are **not true** with respect to Symmetrical Triangles? <Answer>

I. Symmetrical triangles are formed when, in a series of rallies, each succeeding one peak at a lower level than the preceding peaks, and the bottoms of the intervening relations are progressively high.
II. Volumes increase as the triangle narrows towards the apex.
III. A triangle cannot be said to be in a continuation pattern or a reversal pattern before the breakout.
IV. When prices breakout of a symmetrical triangle, the reversal is generally sharp.

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

9. Which of the following is **not** considered as bad delivery in case of shares? <Answer>

(a) Transfer deed is mutilated with the signatures of the transferor, witness, directors and officer of the company overwritten/defaced
(b) Transfer deeds with correction in the material portion like erasure, overwriting, alteration or crossing out by transferor/authorized signatory but under their full signatures
(c) Transfer deeds signed under the Power of Attorney where the power given is subject to conditions
(d) Transfer deed signed by an authorized signatory of a custodian and the Power of Attorney registration number is not mentioned on face or the reverse of transfer deed
(e) Transfer deeds in respect of joint holdings bearing the signatures of all the joint holders but not in order.

10. The unsystematic risk of a stock is 60% of its systematic risk and the variance of its returns is $225(\%)^2$. If the variance of the market return is $125\ (\%)^2$, beta of the stock is <Answer>

(a) 0.73
(b) 0.96
(c) 1.06
(d) 1.21

(e) 1.37.

11. Which of the following assumptions is common between CAPM and APT? <Answer>

(a) A single period investment horizon
(b) The investors can freely borrow and lend at risk-free rate
(c) The investors select portfolios based on expected mean and variance of return
(d) There are no taxes
(e) Investors have homogeneous expectations and are expected-utility-of-wealth maximizers.

12. Which of the following are major advantages of a Free-float Index? <Answer>

I. A Free-float Index reflects the market movements better.
II. It is considered as a global best practice in index construction.
III. It improves index flexibility and the resultant market coverage and sector coverage.
IV. It avoids the undue influence of any closely held large capitalization stock on the index movement.

(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.

13. Which of the following statements is **not true** with regard to Reverse Stock Split? <Answer>

(a) It reduces the number of stockholders
(b) A new share with a higher par value is created in exchange of the fractions of old shares
(c) It will have an implication on the proportion of individual stakes in the company
(d) Generally markets react negatively to reverse stock split
(e) It can be used as an anti takeover defense.

14. In which of the following stage of an industry life cycle, the product penetrates the market place and becomes more commonly used? <Answer>

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

15. Which of the following is/are the application of ex-ante SML? <Answer>

I. Test of asset pricing theories.
II. Test of market efficiency.
III. Evaluating the performance of a portfolio manager.
IV. Identifying undervalued securities.

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

16. In over-the-counter market, financial instruments are traded through a dealer network. Which of the following statements is **not true** for OTCEI? <Answer>

(a) OTCEI was established to have faster transaction, greater liquidity in the market and a transparency in transactions
(b) Companies with an issued capital ranging from Rs.3 lakh to less than Rs.3 crore are eligible to list their shares under OTCEI
(c) OTCEI is first screen-based trading exchange in India
(d) OTCEI permits trading of equity and debentures
(e) OTCEI permits two way quotes.

17. The holding period return for a stock is equal to <Answer>

(a) The real yield minus the inflation rate
(b) The dividend yield plus the capital gains yield
(c) The capital gains yield minus the tax rate
(d) The capital gains yield minus the dividend yield
(e) The nominal yield minus the real yield.

18. In a portfolio consisting of two securities, in which funds have been invested in equal proportions, one of the securities is a risk-free security and the other one is a risky security. The standard deviation of the portfolio will be equal to <Answer>

(a) The standard deviation of the risky security
(b) Half the standard deviation of the risky security
(c) One-fourth of the standard deviation of the risky security
(d) Twice the standard deviation of the risky security
(e) Zero.

19. The shares of Xavier Metals Ltd. are currently trading at Rs.560.45. During the month of August 2008 and September 2008 number of positive price changes in the stock is 21, while the number of negative price changes in the stock is 15. To conclude that the prices are random or independent of each other, or otherwise, the standard error is estimated to <Answer>

(a) 2.87
(b) 3.22
(c) 4.58
(d) 5.96
(e) 6.59.

20. The profitability of an industry decreases if <Answer>

(a) Entry barriers are high
(b) Switching cost is higher for the customer
(c) More information is available regarding suppliers and customers
(d) Industry growth is higher
(e) Increased differentiation of its products with respect to available substitutes.

21. Which of the following statements is **not true** with respect to rising and falling wedges? <Answer>

(a) Wedges are characterized by prices fluctuating between two converging boundary lines
(b) In case of rising wedge, the boundary lines slope upward with the upper line being at a steeper angle than the lower line
(c) Trading volume in a wedge diminishes as prices move towards the apex of the wedge
(d) When prices break through the lower line of a rising wedge, they usually fall intensely
(e) When prices break from the upper boundary of a falling wedge, they tend to move sideways for a certain period before they begin to rise.

22. A convertible bond with a face value of Rs.1,000 had been issued at Rs.1,250 with a coupon rate of 12%. The conversion rate is 18 shares per bond. The premium over conversion value is 25%. If the current market price of stock is Rs.70, current market price of bond is <Answer>

(a) Rs.1,400
(b) Rs.1,450
(c) Rs.1,500
(d) Rs.1,575
(e) Rs.1,625.

23. Which of the following forms of market efficiency suggests that conclusion and opinions drawn by analysts based on publicly available information is also reflected in stock prices? <Answer>

(a) Weak form
(b) Semi-strong form
(c) Near strong form
(d) Super strong form

(e) In between weak and semi strong form.

24. Computerized trading systems basically follow two different approaches namely price/quote-driven and order–driven systems. Which of the following statements is **false** with respect to the aforesaid systems? <Answer>

(a) A call auction market is an order-driven market as all the traders openly post their orders and the transaction price is derived through equilibrating the demand and supply of the stock
(b) In order-driven market the trader submits the order
(c) In price-driven market, the dealer has the risk of being picked off due to the danger in placing the order because of the absence of well developed markets
(d) The quote-driven system allows the market maker to buy a limit order at the bid price and sell it at the offer price
(e) In price-driven market the dealer posts a firm quote and provides free option.

25. Which of the following statements is **false** regarding fundamental analysis? <Answer>

(a) Market price and intrinsic value can differ from time to time, but eventually investors will recognize the discrepancy and act to bring the two values together
(b) The intrinsic value of a stock is estimated by discounting the shareholder's prospective dividend stream
(c) Fundamental analysts view investments as short term decisions
(d) One of the end objectives of fundamental analysis is to avoid the risk of loss from buying an overpriced security and selling an underpriced security
(e) It serves as a guide to an investor in stock selection.

26. Consider the following particulars of Melanin Ltd. <Answer>

Growth rate in first 4 years	16%
Growth rate after 4 years	10%
Required rate of return	12%
Payout ratio in the first 4 years	30%
Payout ratio after 4 years	48%

If the return on equity is 15%, Price/Book value ratio (P/BV) will be

(a) 0.85
(b) 1.25
(c) 1.48
(d) 1.45
(e) 1.61.

27. Which of the following is **true** regarding the weak form of efficient market? <Answer>

(a) All historical and publicly available information will be instantly discounted by the market
(b) All the insider information will be discounted by the market instantly
(c) All historical information relating to share prices will be discounted by the market
(d) Technical analysis will yield abnormal returns
(e) It is impossible to earn abnormal returns.

28. The market is said to be liquid only when a buyer/seller can find a seller/buyer. Which of the following statements is **not true** with respect to the market dimensions? <Answer>

(a) The situation wherein buy and sell orders are available at the quoted price for the desired quantity is referred to as depth of the market
(b) The number of orders or the number of transaction determines the breadth of the market
(c) If the buy and sell orders are not available at the quoted price, the market is known as thin
(d) The response to orders to the change in price reflects the resilience of the market
(e) The variation in price of the share from one trading day to another also determines the liquidity of the share.

29. Which of the following price pattern represents a pause in a rally or reaction before prices continue in their course? <Answer>

(a) Saucers and Rounding Tops
(b) Flags
(c) Triangles
(d) Double Tops and Bottoms
(e) Head shoulders.

30. Penguin Ltd. which is experiencing constant growth rate, has generated earnings per share of Rs.18.50 and Rs.24.00 in the previous and current year respectively. The company follows a dividend pay out ratio of 28%. If the required rate of return is 35% p.a., the price of the share should be <Answer>

(a) Rs.127.27
(b) Rs.149.78
(c) Rs.155.50
(d) Rs.165.42
(e) Rs.184.93.

END OF SECTION A

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Section B : Problems/Caselet (50 Marks)

- This section consists of questions with serial number 1 – 6.
- Answer all questions.
- Marks are indicated against each question.
- Detailed workings/explanations should form part of your answer.
- Do not spend more than 110 - 120 minutes on Section B.

1. Lyka Labs, manufactures and markets all the necessary equipment for mid range and super specialty hospitals. The company had reported earnings per share of Rs.1.50 in 2008, on which it paid no dividends. It had revenues of Rs.7.89 per share in 2008. It had capital expenditures of Rs.0.38 per share in 2008 and depreciation of Rs.0.16 per share in the same year. Earnings and revenues are expected to grow at 20% a year during the high growth period, which will remain constant for next five years. The earnings growth rate is expected to decline linearly over the following five years to a rate of 5% in 2018 and then stabilize at that rate. During the high growth and transition periods, capital spending and depreciation are expected to grow at the same rate as earnings, but are expected to offset each other when the firm reaches steady state. The working capital was 65% of revenues in 2008 and the working capital to revenue ratio is expected to remain the same till 2018. The debt ratio for the company is 10%. <Answer>

The stock is expected to have a beta of 1.45 for the high growth period (2009-2013), and it is expected to decline to 1.10 by the time the firm goes into steady state (in 2018). The risk-free rate is 7.5%, and the market return is 12%.

You are **required** to estimate the present value per share, using the Three-Stage FCFE model.

(12 marks)

2. Consider the following daily stock prices of Unity Infra Projects listed on the Bombay Stock Exchange of India: <Answer>

(Rs.)

Trading Days	High	Low	Close
1	417.00	408.10	410.45
2	415.00	400.25	401.95
3	408.90	403.05	405.00
4	406.85	401.00	402.00

5	408.80	398.00	399.35
6	405.95	395.30	397.90
7	405.00	391.50	403.45
8	406.65	400.55	403.70
9	406.75	401.05	403.45
10	408.95	401.00	402.20
11	404.45	398.55	399.95
12	405.00	398.10	399.25

You are **required** to

a. Calculate the % K stochastics for 6-day periods and the % D stochastics for 4-day simple moving average of % K stochastics. **(5 marks)**

b. Calculate the Relative Strength Index of the company using the above prices and explain the significance of the index calculated if the benchmarks for overbought and oversold positions are 80 and 20 respectively. **(4 marks)**

<Answer>

3. Following is the information pertaining to three stocks; IPL, HPL and BBM.

Stock	Expected Return (%)	σ_i(%)	$\rho_{i,m}$	Systematic Risk $(\%)^2$
IPL	?	6	?	11
HPL	7	?	1.21	4
BBM	12	?	1.05	15

You are **required** to fill the blanks, considering the variance on the market return to be $12(\%)^2$. **(7 marks)**

<Answer>

4. Mr. Rohit Mishra a regular investor in stock market purchased shares of N.D. Metals Ltd., (NDML). 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 NDML 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%.

You are **required** to calculate:

a. The fair price to book value ratio. **(3 marks)**

b. The increase in return on equity to justify the existing price to book value ratio. **(3 marks)**

Caselet

Read the caselet carefully and answer the following questions:

<Answer>

5. As a result of globalization and competition between international markets, the stock markets all over the world started the process of demutualization of their operations to achieve the desired objectives to maintain competitive position in the present fast changing economic scenario. What is demutualization? Discuss the various advantages of demutualization. **(8 marks)**

<Answer>

6. The demutualization of an exchange has different stages associated and can also lead to different forms. Discuss the various objectives for implementation of demutualization in stock exchanges. **(8 marks)**

The securities market world over introduced large-scale reforms for constitution and operation of stock exchanges. Most of the stock exchanges so far have been formed as “mutual organizations”. It means the trading members besides providing broking services were having a control over the management of the stock exchanges for their mutual benefits. The profits from the stock exchanges were also not distributed amongst the members, these being “not-for-profit organizations”. These stock exchanges were operating for the benefit of its members without bothering much about the interest of the owners. In some cases, there used to be conflict of interests between ownership and management. To avoid any situation of conflict, a need was felt to segregate the management functions from ownership and trading rights through demutualization. As a result of globalization and competition between international markets, all over the world started the process of demutualization of their operations to achieve the desired objectives to maintain competitive position in the present fast changing economic scenario. It is in this context that SEBI initiated a process of corporatization and demutualization with the aim of bringing transparency in the functioning of the stock exchanges in India. By separating ownership and trading rights and creating a good corporate governance structure demutualization of stock exchanges would help them to enter the capital market, to meet their requirements of finance.

The SEBI issued guidelines for adopting the process of demutualization by the stock exchanges. The stock exchanges submitted their reports from time to time to SEBI. The reason was that the process of demutualization was to take place in stages. In the first stage, the members of the exchange were to be allotted shares in proportion to their membership rights, making them legal owners of the organization. This extends the trading and ownership rights into the members hands. For doing this, the stock exchanges were required to comply with the requirements of respective laws, including approval of their members, in its general meeting. After the allotment of shares and filing a return with the Registrar of Companies, the stages of demutualization started. Among the major stock exchanges that have demutualized, the London Stock Exchange (LSE) provides a classic model of a successful demutualized entity.

It can be said that demutualization always leaves a positive impact on the exchanges. It is also true that as an industry continues to consolidate to achieve economies of scale, the eventual winners in the process are the exchanges that provide liquidity to the investors. Thus, it may be commented that demutualization is likely to have its multi-level impact on stock exchanges and economy as a whole at the macro level.

END OF CASELET

END OF SECTION B

Section C : Applied Theory (20 Marks)

- This section consists of questions with serial number 7- 8 .
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 25 -30 minutes on Section C.

7. Identification of support and resistance levels is an important application of trend line. Enumerate the importance of support and resistance lines in technical analysis and also discuss the principles involved while using these for trend analysis. <Answer>

(10 marks)

8. The structure of the leveraged buyout is aimed at optimizing the relationship between a company's capital structure and the equity values realizable by both its current shareholders and prospective future shareholders. Depending on the probable mechanism for debt repayment and the realization of value to equity, explain different types of leveraged buyouts. <Answer>

(10 marks)

END OF SECTION C

END OF QUESTION PAPER

Suggested Answers
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Section A : Basic Concepts

	Answer	Reason	
1.	C	Stock dividend involves issuing of new shares to the existing shareholders on pro rata basis to their existing holdings. The proportional stake of the shareholders in the firm remains unchanged, so there is no implication on controlling interest. Hence, option (c) is not true. Stock dividend involves capitalization of reserves by issuing new shares to the existing shareholders. From accounting point of view, the paid-up equity capital of the company increases and the size of reserves decrease, so the net worth remains constant. A Company declares special dividends to its investors, when it wins any pending litigation related to patents or any windfall gains arising due to court ruling in favor of the firm like tax adjustments related to patents, accounting rules, etc. Sometimes, the companies document these special dividends as return of capital, meaning the company is returning a portion of the money invested by the shareholders. They call these dividends as capital dividends, and these dividends are tax-free.	< TOP >
2.	D	$P/E = \frac{b}{k-g}$ if growth rate is higher then intrinsic value of P/E should be higher. Therefore, a lower P/E indicates under valued firm.	< TOP >
3.	B	EVA of the firm according to the residual income method: $\text{EVA}=\left[\frac{\text{Net profit}}{\text{Total Capital}}\text{-WACC}\right]\text{Total Capital}$ $\text{EVA} = \left[\frac{\text{Rs.36 lakh}}{\text{Rs.180 lakh}} - 0.1445\right] \text{ x Rs.180 lakh} = \text{Rs.9.99 lakh} \approx \text{Rs.10 lakh.}$	< TOP >
4.	D	A moving average represents a smoothened trend and therefore, can act as a support/resistance line. All other statements are true with respect to moving average. Therefore, option (d) is the correct answer.	< TOP >
5.	D	Financial markets are part of financial system. Financial markets consist of Money Market and Capital markets. Short term funds are raised and traded in money markets while long term funds are raised and traded in capital markets. Both money markets and capital markets are further divided into primary markets, where new issues are made and secondary markets, where instruments after issue are bought and sold. Hence, all statements, I, II and III are true. Credit market is a place where banks, FIs and NBFCs purvey short-, medium-, and long-term loans to corporates and individuals. Hence, the answer is option (d).	< TOP >
6.	C	Stop- loss order is an order to sell if price is to fall below a certain specified level. In this case, Mr. Suresh has placed a stop-loss order at Rs116. The order will thus be executed at this price. Therefore, Loss = (120.75 – 116.00) × 100 = Rs.475 Hence, option (c) is the answer.	< TOP >

7. D Systematic risk of a security = $\rho_{i,m}^2 \sigma_i^2$ < TOP >

If σ_i increase by 20%, it can be written as 1.2 σ_i. Similarly if σ_m increases by 25%, it can be written as 1.25 σ_m and if $\sigma_{i,m}$ decreases by 15%, it can be written as 0.85 $\sigma_{i,m}$.

$$\rho_{i,m} = \frac{\sigma_{i,m}}{\sigma_i \sigma_m}$$

After the changes, new $\rho_{i,m} = \frac{\sigma_{i,m}}{\sigma_i \sigma_m} = \frac{0.85\sigma_{i,m}}{1.20\sigma_i \text{ x } 1.25\sigma_m} = 0.567\ \rho_{i,m}$

New systematic risk = $(0.567)^2\ (\rho_{i,m})^2$ x $(1.2)^2(\sigma_i)^2$ = 0.46 x old systematic risk.

i.e., the systematic risk decreases by 54%. Hence, option (d) is the answer.

8. B Volumes reduce as the symmetrical triangle narrows towards the apex. Other statements are true with respect to triangles. < TOP >

Therefore, option (b) is the correct answer.

9. B In option (b), though there are corrections in the material portion but these changes/ corrections are under their full signatures. Hence this is not a case of bad delivery. In all other cases, it is considered bad. Hence, option (b) is the correct answer. < TOP >

10. C If systematic risk of the stock is x%, unsystematic risk = 0.60x% < TOP >

Total risk = 1.6 x % = 225

Systematic risk x = 140.625

Beta = $\left(\frac{140.625}{125}\right)^{1/2}$ = 1.06

11. E Assumptions mentioned under (a), (b), (c) and (d) are the assumptions specific to CAPM, which APT does not assume. < TOP >

12. E A Free-float Index reflects the market movements better. It is considered as a global best practice in index construction. It improves index flexibility and the resultant market coverage and sector coverage and It avoids the undue influence of any closely-held large-capitalization stock on the index movement. Therefore, all statements are correct and option (e) is the answer. < TOP >

13. C In a reverse stock split, each outstanding share is converted into a fraction of a new share, and stockholders receive certificates representing whole shares and cash in lieu of fractional shares. A new share with a higher par value is created in exchange of the old shares with lower par values. For example, in a 1-for-10000 split, each stockholder who owned less than 10000 shares would receive cash only, each stockholder who owned 10000 shares would receive 1 new share, and each stockholder who owned more than 10000 shares would receive 1 new share for each 10000 shares owned and cash for the remainder of his shares. So, a 1-for-10000 split effectively cashes out holders of less than 10000 shares and reduces the number of stockholders. It will not have any implication on the proportion of individual stakes in the company. So, the alternative (c) is false. < TOP >

14. B During the expansion or consolidation stage, the industry will grow faster then the rest of the economy as the products penetrate and are used more frequently. Hence, option (b) is the answer. < TOP >

15. A The applications of ex-ante SMLs are: < TOP >

I. Identifying undervalued securities.

II Determining the consensus, 'price of risk' implicit in current market prices.

Other statements are the applications of ex-post SML. Hence, option (a) is the answer.

16. B OTCEI was established to have faster transaction, greater liquidity in the market and a transparency in transactions. Companies with an issued capital ranging from Rs.30 lakh to less than Rs. 3 crore are eligible to list their shares under OTCEI. OTCEI is first screen-based trading exchange in India. OTCEI permit trading of equity and debentures. OTCEI permits two way quotes, one for sale other for purchase. So the answer is option (b). < TOP >

17. B Basic equation for a period return < TOP >

$$= \frac{(P_i - P_o) + D_i}{P_o} \quad \text{i.e.,} \quad \frac{P_i - P_o}{P_o} + \frac{D_i}{P_o}$$

i.e., Capital gains yield + Dividend yield.

18. B For a portfolio consisting of two securities: < TOP >

$$\sigma_P^2 = \text{Variance} = W_1^2\,\sigma_1^2 + W_2^2\,\sigma_2^2 + 2\,W_1\,W_2\,\rho_{12}\,\sigma_1\sigma_2$$

Given: $w_1 = w_2 = 0.50$ (equal proportions)

$\sigma_1 = 0$ (risk-free security)

$$\sigma_P^2 = 0 + (0.5)^2\,\sigma_2^2 + 0 = (0.5\sigma_2)^2$$

$\therefore \sigma_p$ = Standard deviation of portfolio = $\sqrt{\sigma_P^2} = 0.5\sigma_2$

= Half the standard deviation of the risky security.

Therefore, option (b) is the answer.

19. A < TOP >

$$\text{Standard Error} = \sigma_r = \sqrt{\frac{2n_1n_2(2n_1n_2 - n_1 - n_2)}{(n_1 + n_2)^2(n_1 + n_2 - 1)}}$$

$$\text{Standard Error} = \sigma_r = \sqrt{\frac{2(21)(15)[(2)(21)\times(15) - 21 - 15)]}{(21+15)^2(21+15-1)}} = \sqrt{\frac{374220}{45360}} = 2.87.$$

20. C High barriers to entry will decrease the number of the company entering into the industry reducing the total number of players and competition in the industry and thereby increasing the profitability of the company which is part of the industry. Again higher switching cost would improve the profitability of the industry as the customers would be finding it costly to switch over to the substitute products. Increased growth and differentiation of the product with respect to the substitute products would increase the profitability of the industry. Only improved information related to suppliers and customers will decrease the profitability of the industry because if more information a competitor company is having, it will reduce the profitability of the company. Hence options (a), (b), (d) and (e) are incorrect and option (c) is the correct answer. < TOP >

21. B In case of rising wedge, the boundary lines slope upward with the lower line being at a steeper angle than the upper line < TOP >

Therefore, option (b) is the correct answer.

22. D < TOP >

$$\text{Premium over conversion value} = \frac{\text{Bond price-Conversion value}}{\text{Conversion value}}$$

Where,

Conversion value = Current market price of the stock × Conversion rate

i.e. 70 x 18 = Rs.1,260

Bond price = (0.25 x 1,260) + 1,260

= Rs.1,575

23. B As per weak form stock price exhibits random walk. Under semi strong form the publicly held information is factored into current stock prices. The super strong form of market efficiency suggests that the confidential information available to select groups like the management, finances and the stock exchange officials is also of no use in obtaining abnormal returns. < TOP >

24. C In price-driven market, the dealer has the risk of being picked off by not updating the quotes. In order driven market, there is a danger in placing the order due to the absence of well developed markets. Therefore, option (c) is not true. All other statements are correct. < TOP >

25. C Fundamental analysis determines the intrinsic value of a security, whereas technical analysis with the help of the price charts predicts the price of a security. It serves as a guide to an investor in stock selection. < TOP >

Fundamental analysis views the investments as long term decisions. One of the end objectives of fundamental analysis is to avoid the risk of loss from buying an overpriced security and selling an underpriced security.

Hence, the answer is option (c).

26. D < TOP >

$$\frac{P_0}{BV_0} = ROE\left[\frac{\text{payout ratio}(1+g)\left(1-\frac{(1+g)^n}{(1+r)^n}\right)}{r-g} + \left[\frac{\text{payout ratio}_n(1\text{-}g)^n(1+g_n)}{(r\text{-}g_n)(1+r)^n}\right]\right]$$

$$= 0.15 \times \left[\frac{(0.3)(1.16)\left(1-\frac{(1.16)^4}{(1.12)^4}\right)}{0.12-0.16} + \left[\frac{0.48(1-0.16)^4(1.10)}{(0.12-0.10)(1.12)^4}\right]\right]$$

$= 0.15 \times (1.311 + 8.353) = 1.45$

27. C As market efficiency in the weak form is not considering the publicly held information discounting by market. Option (a) is not correct. < TOP >

As privately held information is discounted by market in the strong form of efficiency. Option (b) is not correct.

As weak form of efficiency supports random walk model where technical analysis is not of any help. Option (d) is not correct

As a person can earn abnormal return by fundamental analysis and insider trading. Option (e) is not correct

As all historical information relating to share prices will be discounted by the market. Hence, option (c) is the answer.

28. C Option (c) is incorrect. If the buy and sell orders are not available at the quoted price, it is known as shallow market and if the market does not have large number of transactions, then the market is nown as thin. < TOP >

29. B Flags represent a pause in a rally or reaction before prices continue in their course. Hence, option (b) is correct. < TOP >

30. D DPS = EPS × dividend payout ratio < TOP >

Current year DPS = 24 × 0.28 = 6.72

Previous year DPS = 18.50 × 0.28 = 5.18

Growth rate = (6.72 – 5.18)/5.18 = 29.73%

$$P_0 = \frac{D_0(1+g)}{k_e - g} = \frac{6.72\ (1.2973)}{0.35 - 0.2973} = \text{Rs. } 165.42$$

Equity: Analysis & Valuation (CFA610): January 2009

Section B : Problems/Caselet

1. Value of the stock = PV of FCFE in high growth phase + PV of FCFE in transition phase + PV of terminal price at the end of transition period. < TOP >

FCFE = Earnings – (Capital Expenditure – Depreciation) (1 – d) – (Change in working capital) (1- d)

Where, d = debt ratio

High Growth Period					
	1	2	3	4	5
Year	2009	2010	2011	2012	2013
Earnings	1.8	2.16	2.59	3.11	3.73
Cap Exp - Depreciation (a)	0.26	0.32	0.38	0.46	0.55
Change in working capital (b)	1.03	1.22	1.48	1.77	2.13
(c) = (a) + (b)	1.29	1.54	1.86	2.23	2.68
(c) (1- d)	1.16	1.39	1.67	2.01	2.41
FCFE	0.64	0.77	0.92	1.10	1.32
PV Factor	0.877	0.7691	0.6744	0.5915	0.1587
PV	0.56	0.59	0.62	0.65	0.68

Transition Period					Stable growth
	6	7	8	9	10
Year	2014	2015	2016	2017	2018
Growth rate	17%	14%	11%	8%	5%
Earnings	4.36	4.98	5.52	5.96	6.26
Cap Exp - Depreciation (a)	0.64	0.73	0.81	0.88	0
Change in working capital (b)	2.17	2.09	1.88	1.50	1.02
(c) = (a) + (b)	2.81	2.82	2.69	2.38	1.02
(c) (1- d)	2.53	2.54	2.42	2.14	0.92
FCFE	1.83	2.44	3.10	3.82	5.34
beta	1.38	1.31	1.24	1.17	1.10
PV Factor	0.4561	0.4022	0.3557	0.3154	
PV of FCFE	0.83	0.98	1.11	1.20	

FCFE in terminal year	Rs.5.34
Terminal Value at the end of 2017*	Rs.71.68
PV of Terminal Value (a)	Rs.20.11
Cost of equity	12.45%
Total of cash flow of growth phase (b)	Rs.3.10
Total of cash flow of transition phase (c)	Rs.4.12
Value of the stock (a+b+c)	Rs.27.33

*Cost of equity:

High Growth Period = 7.5 + 1.45(12-7.5) = 14.03%

Transition Period: Year 6 = 7.5 + 1.38(12-7.5) = 13.71%

Year 7 = 7.5 + 1.31(12-7.5) = 13.40%

Year 8= 7.5 + 1.24(12-7.5) = 13.08%

Year 9 = 7.5 + 1.17(12-7.5) = 12.77%

Year 10 = 7.5 + 1.10(12-7.5) = 12.45%

*Terminal value at the end of year 2018 = 5.34/(0.1245-0.05) = Rs.71.68

$$\text{*PV of terminal value} = \frac{71.68}{(1.1403)^5(1.1371)(1.134)(1.1308)(1.1277)(1.1245)} = \text{Rs.}20.11$$

Computation of Change in working capital:

Year	Revenue Per Share	working capital (0.65 x Revenue)	Change in W.C
2008	7.89	5.13	
2009	9.47	6.16	1.03
2010	11.36	7.38	1.22
2011	13.63	8.86	1.48
2012	16.36	10.63	1.77
2013	19.63	12.76	2.13
2014	22.97	14.93	2.17
2015	26.19	17.02	2.09
2016	29.07	18.90	1.88
2017	31.39	20.40	1.50
2018	32.96	21.42	1.02

2.a.

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Trading Day	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Closing price (C)	397.90	403.45	403.70	403.45	402.20	399.95	399.25
Lowest price during the six-day period (L)	395.30	391.50	391.50	391.50	391.50	391.50	391.50
Highest price during the six-day period (H)	417	415	408.90	408.80	408.95	408.95	408.95
(C-L)	2.6	11.95	12.2	11.95	10.7	8.45	7.75
(H-L)	21.7	23.5	17.4	17.3	17.45	17.45	17.45
%K = (C-L)/(H-L)	0.12	0.51	0.70	0.69	0.61	0.48	0.44

Trading Day	**6**	**7**	**8**	**9**	**10**	**11**	**12**
%D				0.51	0.63	0.62	0.56

As the formula indicates, %K line is the fast moving line and generates faster signals than the %D line. But %D line is more important as it gives buy and sell signals. As %K move below the %D line, therefore, it is a sell signal at the end of 12th trading day.

b. Relative Strength Index (RSI) = 100 – 100/(1+RS)

Where,

RS = Average of up close prices / Average of down close prices

Average of up close prices = (405 + 403.45 + 403.7)/3 = 404.05

Average of down close prices =

(401.95 + 402 + 399.35 + 397.9 + 403.45 + 402.2 + 399.95 + 399.25)/8 = 400.76

RS = 404.05/400.76 = 1.0082

RSI = 100 – 100/ (1+ 1.0082) = 100 – 49.80 = 50.20.

Since the RSI is close to 50, the stock of Unity Infra is neither in an overbought or oversold position.

3. Systematic risk=$\beta_i^2\sigma_m^2$

$$\beta_i^2 = \frac{\text{Systematic risk}}{\sigma_m^2}$$

$$\beta_{IPL}^2 = \frac{11}{12}$$

$$\beta_{IPL} = 0.96$$

Similarly,

$$\beta_{HPL}^2 = \frac{4}{12} \Rightarrow \beta_B = 0.58$$

$$\beta_{BBM}^2 = \frac{15}{12} \Rightarrow \beta_B = 1.12$$

According to the CAPM,

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

$R_{HPL} = R_f + 0.58\ (R_m - R_f)$ …………. (1)

$R_{BBM} = R_f + 1.12\ (R_m - R_f)$ ………….. (2)

(2) – (1) will give

$12 – 7 = (1.12 – 0.58)\ (R_m - R_f)$

$(R_m - R_f) = 9.26\%$

Substituting in (1),

$7 = R_f + 0.58 \times 9.26$

$R_f = 1.63\%$

$R_{IPL} = 1.63 + 0.96\ (9.26) = 10.52\%$

Again Systematic risk can be expressed as $\rho_{im}^2\sigma_i^2$

$$\sigma_{HPL}^2 = \frac{\text{Systematic risk}}{\rho_{im}^2}$$

$$= \frac{4}{(1.21)^2} = \frac{4}{1.4641} = 2.73$$

σ_{HPL} =1.65%

$$\sigma_{BBM}^2 = \frac{15}{(1.05)^2} = \frac{15}{1.1025} = 13.61$$

σ_{BBM} =3.69%

$$\rho_{im} = \sqrt{\frac{\text{Systematic risk}}{\sigma i^2}} = \frac{11}{36} = 0.55$$

Stock	Expected Return (%)	σ_i (%)	$\rho_{i,m}$	Systematic Risk $(\%)^2$
IPL	10.52	6	0.55	11
HPL	7	1.65	1.21	4
BBM	12	3.69	1.05	15

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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 × pay out ratio × (1+g)]/(k-g)

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$= [0.2106 \times 0.3091 \times 1.075]/(0.125 - 0.075)$
$= 1.40$

b. The P/BV ratio given with the current market price
$= 210.19/130.55 = 1.61$
Since, P/BV ratio = [ROE × pay out ratio × (1+g)]/(k-g)
ROE = [P/BV × (k-g)]/payout ratio × (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.

5.Demutualization

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The demutualization is a process of converting a stock exchange from a "non-profit" member-owned organization to a "for-profit" shareholders' organization. Thus, demutualization means the segregation of ownership and management rights from trading rights of the members of a recognized stock exchange in accordance with a scheme approved by the SEBI.

Advantages of Demutualization

Following are some of the major advantages:

- It will have more opportunities for growth and to remain a viable corporate entity.
- It can have improved valuations as a "Going Concern."
- Securities firms/members can gain access as trading participants without the need for capital contribution.
- Existing members will be able to sell off their shares, while still retaining their trading rights.
- To raise funds through multiple sources as a corporate entity.

Participate in Mergers and Acquisitions to obtain economies of scale and scope for further development and growth.

6.Traditionally, there was limited competition among the exchanges and this resulted in localized and focused approach with homogeneous interest. The emergence of greater competition has led to divergent interests among the exchanges. In order to address them, a new phenomenon came into the picture known as demutualization. This structure helped the exchanges to be more transparent in its functions and the interests of owners were assigned to that of the exchanges. Thus, the demutualized exchange became accountable to its shareholders, which became a primary motive for the exchange to be demutualized.

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Demutualization makes the exchange to be profit-oriented in nature due to its accountability to shareholders. Today's competitive environment demands the exchanges to be responsive in their operations because of their liability to outside parties such as stakeholders, participating organizations, listing companies, institutional and retail investor, etc. Separating ownership will results in more profits and reduces conflict of interest for the exchanges.

The objectives of demutualization are:

To segregate the ownership, trading rights and management. The reason was that the stock exchanges owned by members tend to work towards the interest of the members alone which could be detrimental to the rights of other stakeholders.

To cope with competitive environment, the stock exchanges required funds. The publicly-owned stock exchanges can only access the capital markets for their finances.

To manage the stock exchanges more professionally and for creating greater transparency in dealings, accountability and market discipline.

To enhance the flexibility of management.

To implement good corporate governance practices in the exchanges.

To change the "not-for-profit" character of the company into a "for-profit" entity.

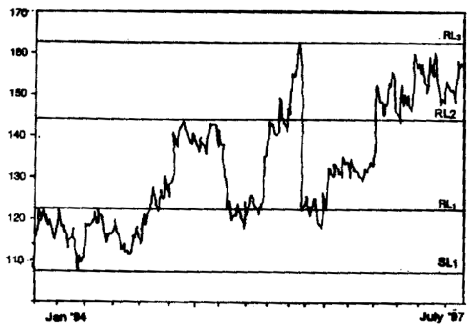
To make the stock exchanges as viable corporate entities.

Section C: Applied Theory

7. Support and Resistance < TOP >

An important application of trendlines is in identification of support and resistance levels. Resistance is defined by Edward and Magee as 'Selling, actual or potential, sufficient in volume to satisfy all bids and hence stop prices from going higher for a time period'. Support is defined as 'Buying, actual or potential, sufficient in volume to halt a downtrend in prices for an appreciable period'.

A support zone is formed when the demand supply balance tilts in favor of buyers, resulting in a concentration of demand. A resistance zone similarly represents a concentration of supply. The concepts of support and resistance can be illustrated with the help of an example. Consider the following figure which shows the price chart.



The behaviour of prices during January-May does not throw up any price pattern, but the range within which the prices are found to be fluctuating warrants attention. On almost 6 occasions, prices have climbed to the level of Rs.122, and returned. Prices can be observed to face resistance at this level, as every time they reach there, they fail to climb further, but fall back. A trendline drawn to represent this level is called a resistance line (designated RL_1 in the figure).

Similarly, prices have not fallen beyond a level of Rs.110, most of the times they returned from the resistance line. It can be said that a support level exists at which prices have shown a tendency to climb up again, rather than continue to fall. The maximum fall registered is at Rs.106, represents the level at which support has almost invariably occurred. Line SL_1 represents this line of support.

Support and resistance lines are, therefore, trendlines drawn to indicate the ranges a trend can be expected to take, using the past behavior as a reference point. These lines throw up further interesting inferences. When the prices pierce the resistance level RL_1, it is an indication that buyers have succeeded in breaking the resistance, and prices can be expected to climb up. The new high reached would represent a new level of resistance (represented as RL_2). Prices now are found to fluctuate between the old RL_1, and the new RL_2. The point to be noted is that the old resistance line is the new support line, as price receive support at a level almost equal to RL_1. Similarly prices can be observed to reach a new resistance level RL_3, and find support at the previous RL_2.

The support and resistance levels are important tools in confirming a reversal, in forecasting the course of prices, and in making appropriate price moves. The following principles are to be applied while using support and resistance lines for trend analysis:

i. Support and resistance lines are only approximations of the levels prices may be expected to 'obey'. They should therefore be drawn using judgments, and clues from the past price behavior.

ii. Penetration of a support or resistance line, also confirmed by an underlying price pattern, is a fairly sure indication of a strong ensuing move in the same direction. New highs are reached after a resistance line is penetrated and new lows follow penetration of a support line.

iii. Prices are said to remain in a 'congestion zone' as long as they fluctuate in narrow ranges within a support and resistance level. The direction of breakout from a congestion zone cannot be predicted in advance.

iv. The higher the volume accompanying the confirmation of a support or resistance level, the more its significance.

v. The speed and extent of the previous move determines the significance of a support or resistance level. Prices penetrate support (resistance) level generally after slowing down from a previous low (high) and hovering around a level for sometime.

vi. Support and resistance levels repeat their effectiveness time and again, even if separated by many years.

8. Leveraged buyouts can be divided into three categories depending on the probable mechanism for debt repayment and the realization of value to equity. They are: < TOP >

BUST-UP LBOs:

LBOs of this kind depend on the sale of assets of the acquired company to generate returns for the equity investors. This type of LBO is usually seen in acquisitions of diversified public companies where the equity markets may not fully value the various sub-entities of the company. In such cases, the acquirer seeks a relatively short-term return based upon a rapid sale of the individual parts of the firm to exploit the markets' failure to recognize the full value of a diversified business.

The finances of the bust-up transaction depend upon the values of the assets of the various individual units. The greater the value of these assets, the less equity is required to accomplish the transaction as the acquirer can subsequently sell off the various sub-entities to generate cash required to retire the debt. These forms of leveraged buyout transaction are very rare.

CASH FLOW LBOs:

Cash Flow LBOs are a second category of leveraged buyout, which is most common in management-led transactions that require repayment of acquisition financing through the operating cash flows. Equity investors receive the returns through the replacement of debt capital with equity and also through any increase in the total market value of the company. This type of LBO is similar to the purchase of a real estate property with mortgage financing and equity. Returns are obtained when the value of the property increases with an increase in rent (operating income) and when the debt is replaced by equity as debt is retired from the income from property.

SELECTIVE BUST-UP/CASH FLOW LBOs (HYBRID):

The third type of leveraged transaction is a hybrid of a bust-up and cash flow techniques. It involves the purchase of a fairly diversified company and the subsequent divestiture of selected units to retire a portion of the acquisition debt. The acquirer gets the control of a smaller group of assets, which are best suited for longer term leverage and have captured a premium on the assets which have been sold. The remaining assets form the operations of a cash flow leveraged buyout.

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