

Question Paper Security Analysis (211): July 2005
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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.

< Answer >

- 1.** Which of the following is/are **true** if a firm has a required rate of return equal to the ROE?
- I. The amount of earnings retained by the firm does not affect market price or the P/E ratio.
 - II. The firm can increase market price and P/E ratio by increasing the growth rate.
 - III. The P/E ratio is inversely proportional to the ROE of the firm.
- (a) Only (I) above (b) Both (I) and (II) above
(c) Both (I) and (III) above (d) Both (II) and (III) above
(e) (I), (II) and (III) above.

< Answer >

2. Which of the following measures the sensitivity of duration to change in the interest rates?
- (a) Interest rate elasticity (b) Modified duration
(c) Convexity (d) Current yield (e) Yield to maturity

< Answer >

3. According to Security Market Line (SML)
- I. The steeper the slope of the ex-ante SML, the more averse investors are to assume additional risk.
 - II. The steeper the slope of ex-ante SML, the less averse investors are to assume additional risk.
 - III. Underpriced securities plot above ex-post SML.
 - IV. Overpriced securities plot below ex-post SML.
- (a) Both (I) and (III) above (b) Both (II) and (III) above
- (c) Both (III) and (IV) above (d) (I), (III) and (IV) above
- (e) (II), (III) and (IV) above.

< Answer >

- 4.** Price-Earnings ratio of a firm has increased. Which of the following statements supports this fact?
- I. Growth rate of earnings has increased.
 - II. Dividend payout ratio has decreased.
 - III. Standard deviation of growth rate in earnings has increased.
- (a) Only (I) above (b) Both (I) and (II) above
(c) Both (I) and (III) above (d) Both (II) and (III) above
(e) (I), (II) and (III) above

< Answer >

5. Which of the following is/are **true** if a bond is selling at its face value?
- I. The change in the price of the bond is more when yield decreases by 1% than the change in the price of the bond if yield increases by 1%.
 - II. YTM of the bond is equal to its coupon rate.
 - III. YTM of the bond is equal to its reinvestment rate.
- (a) Only (I) above (b) Only (II) above
(c) Both (I) and (II) above (d) Both (I) and (III) above
(e) (I), (II) and (III) above.

< Answer >

6. Which of the following principles is **true** while analyzing trend line penetrations?
- (a) The smaller the number of peaks/troughs that touch a trend line, the greater is its significance
 - (b) The breadth of a trend line indicates whether a penetration is significant or not
 - (c) A steep trend line is easily violated by small sideward movements in the price chart, and is not particularly useful in identifying reversals
 - (d) Penetration of a steep trend line results in a corrective movement after which the new trend starts.
 - (e) When the peaks of rallies penetrate the trend line and then return, the recurrence of this tendency indicates that the trend “obeys” the trend line.

7. Which of the following is **true** if a firm has a market to book value ratio that is equivalent to the industry average and an ROE that is less than the industry average? < Answer >
- The firm is more profitable than other firms in the industry
 - The firm is more likely to avoid insolvency in the short run than other firms in the industry
 - The firm has a higher P/E ratio than other firms in the industry
 - The firm is utilizing its assets more efficiently than other firms in the industry
 - None of the above.
8. During periods of inflation, the use of FIFO (rather than LIFO) as the method of accounting for inventories causes < Answer >
- Higher inventory turnover
 - Higher reported sales
 - Lower ending inventory
 - Higher income taxes
 - Lower profits.
9. Which of the following statements is **true** regarding impact cost? < Answer >
- It is defined as the percentage difference between the executed price and the best buying price
 - It is defined as the percentage difference between the executed price and the best selling price
 - It is defined as the percentage difference between the executed price and either the best buying or the best selling price
 - It is defined as the percentage difference between the executed price and the difference between the best buying price and the best selling price
 - It is defined as the percentage difference between the executed price and the mean of the best buy and the best sell prices.
10. Which of the following statements is/are **true** regarding fundamental analysis? < Answer >
- 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.
 - Single estimate of intrinsic value of a stock is forecasted by the analyst.
 - The intrinsic value of a stock is estimated by discounting the shareholder's prospective dividend stream.
- Only (I) above
 - Only (II) above
 - Both (I) and (III) above
 - Both (II) and (III) above
 - (I), (II) and (III) above.
11. Which of the following statements is/are **true** about 'gaps'? < Answer >
- The lowest price of the period after the gap is higher than the highest price of the preceding period.
 - The lowest price of the period after the gap is lower than the highest price of the preceding period.
 - A series of runaway gaps is an indication of exhaustion gap.
 - The highest price of the period after the gap is lower than the lowest price of the preceding period.
- Only (I) above
 - Both (I) and (II) above
 - Both (II) and (III) above
 - (I), (III) and (IV) above
 - (I), (II), (III) and (IV) above.
12. According to the Efficient Market Hypothesis (EMH) < Answer >
- Stocks with smaller beta will be consistently overpriced.
 - Stocks with higher beta will be consistently underpriced.
 - Positive alphas on stocks will not remain for a longer period.
- Only (I) above
 - Only (III) above
 - Both (I) and (II) above
 - Both (II) and (III) above
 - (I), (II) and (III) above.

13. Consider the following data about two securities A and B:

< Answer >

Particulars	Security A	Security B
Expected Return (%)	15	18
Standard deviation of returns (%)	18	22
Beta	0.90	1.40

Variance of returns on the market index is 225 (%²). The correlation coefficient between the returns on securities A and B is 0.75.

The systematic risk of a portfolio consisting of these two securities in equal proportions is

- (a) 24.63 (%²) (b) 125.78 (%²) (c) 297.56 (%²)
 (d) 606.73 (%²) (e) 802.40 (%²).

14. A portfolio holding 90 percent of its assets in CNX Nifty stocks in proportion to their market capitalisation and 10 percent in treasury bills is more sensitive to

< Answer >

- (a) Systematic risk (b) Unsystematic risk
 (c) Interest rate risk (d) Index risk
 (e) Both (c) and (d) above.

15. Which of the following statement(s) is/are **true**?

< Answer >

- I. A unique characteristic line is plotted for each security.
 II. For a characteristic line, the X-axis represents betas for different securities.
 III. The slope of the characteristic line is the difference between the market returns and risk-free returns.

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

16. The earnings per share of a company registered an increase in the year 2004-2005. Which of the following arguments most seriously weakens this statement?

< Answer >

- I. Book value of equity has increased.
 II. Debt to net worth ratio has declined.
 III. Preference capital to net worth ratio has increased.
 IV. Corporate tax rate has declined.
 V. Rate of return on capital employed and its spread over the interest rate has increased.

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

17. The average daily price change in coffee futures contract is Rs2.50 per kg and the standard deviation of the price changes is Re 0.50. If the size of the contract is 1000 kg the initial margin required is

< Answer >

- (a) Rs.1,000 (b) Rs.2,000 (c) Rs.3,000 (d) Rs.4,000 (e) Rs.5,000.

18. A company has issued warrants which entitle the investors to purchase 100 shares of the company at Rs.65 each. The current market price of the stock is Rs.40 per share and the warrants are trading at Rs.20each. The warrant premium is

< Answer >

- (a) Rs.20 (b) Rs.25 (c) Rs.40 (d) Rs.50 (e) Rs.60.

19. On 20/06/05 scrip of Jayarampur Sugar Ltd. opened at Rs143.75. Mr. Suresh who is having 100 shares of Jayarampur Sugar Ltd. placed a Stop-Loss order to sell 100 shares at Rs140.00. 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 Rs138.50 will be

< Answer >

- (a) Rs.262.00
 (b) Rs.375.00
 (c) Rs.525.00
 (d) Rs.535.00
 (e) Data not sufficient.

< Answer >

20. In which of the following situations, the company profits are inflated?
- Switching from straight line method of depreciation to written down value method during later years of the life of the asset.
 - Writing off miscellaneous expenses over a period of time instead of capitalizing the expenses.
 - Switching from LIFO to FIFO method of inventory valuation during decreasing prices.
- (a) Only (I) above (b) Only (III) above
(c) Both (I) and (III) above (d) Both (II) and (III) above
(e) (I), (II) and (III) above.

< Answer >

21. 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
- (a) Rs.88.74 (b) Rs.93.57 (c) Rs.100.00 (d) Rs.103.93 (e) Rs.104.26.

< Answer >

22. Biogenerics Ltd. has paid a dividend of Rs.3.50 per share on a face value of Rs.10.00 in the financial year ended 31st March, 2005. The relevant data regarding the company and the market are as under:

Current market price of share	=	Rs.75
Growth rate of earnings and dividends	=	7.5%
Beta of share	=	0.95
Average market return	=	12.5%
Risk free rate	=	6%

The intrinsic value of the stock is

- (a) Rs.60.00 (b) Rs.80.48 (c) Rs.89.00 (d) Rs.94.26 (e) Rs.104.25.

< Answer >

23. A financial institution has recently issued a bond of face value Rs1,000 maturing 10 years hence and bears a coupon rate of 10% p.a. payable semi-annually. Which of the following statements is/are sufficient to determine the realized yield on the bond, if the bond is held till maturity?

- Yield to maturity on the bond is 10%.
 - The coupon interests are reinvested at 12%.
- (a) Statement (I) alone is sufficient to answer the question but statement (II) alone is not sufficient
(b) Statement (II) alone is sufficient to answer the question but statement (I) alone is not sufficient
(c) Either Statement (I) or Statement (II) alone is sufficient to answer the question
(d) Both the statements taken together are sufficient to answer the question
(e) Data not sufficient.

< Answer >

24. The current price of a 11% coupon bond yielding 10.25 % is Rs.103.24. If the yield decreases by 25 basis points, the price of the bond changes to Rs.104.36 whereas, if the yield on the bond increases by 25 basis points the price of the bond changes to Rs.102.15. The approximate duration (in years) of the bond is

- (a) 2.253 years (b) 5.452 years (c) 4.719 years (d) 10.255 years (e) 12.566 years

< Answer >

25. The expected earnings per share of Crayon Ltd. at the end of the year 2005-2006 is Rs.18.00. The earnings per share for the year 2004-2005 is Rs.16.00. The required rate of return is 25% p.a. and the dividend payout ratio is 30% and is expected to remain constant. If the earnings are expected to grow at the historical growth rate, the value of the share of the company at the beginning of 2005-2006 is

- (a) Rs.72.00 (b) Rs.43.20 (c) Rs.38.40 (d) Rs.21.60 (e) 27.45.

< Answer >

26. Consider the following information:

Stock	Return	Variance	Weight in the portfolio
Stock 1	16%	484 ($\%^2$)	0.5
Stock 2	13%	256 ($\%^2$)	0.5

If the variance of the portfolio is 132 ($\%^2$), the co-efficient of correlation between the stocks is

- (a) -0.68 (b) -0.60 (c) -0.30 (d) -0.02 (e) +0.30.

< Answer >

27. Consider the following data for the stock of Delta Computers Ltd.:

Normal growth rate	=	4%
Current abnormal growth rate	=	8%
Current dividend per share	=	Rs.3.00

If the time period during which the current abnormal growth rate will become normal growth rate is 6

years, and the required rate of return is 12.5%, the premium on the stock due to abnormal growth rate is

- (a) Rs.3.34 (b) Rs.4.24 (c) Rs.8.37 (d) Rs.9.16 (e) Rs.10.33.

28. Which of the following can be a form of utility function at expected security return ranging between 10% – 12%?

< Answer >

[U(r) is the expected utility of the investor at the level of return r].

- (a) $U(r) = 72r + 3r^2$
 (b) $U(r) = 3r - 10r^2$
 (c) $U(r) = 25r - r^2$
 (d) $U(r) = 6r - 7r^2$
 (e) Both (b) and (d) above.

29. 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.

30. Consider the following data of a mutual fund scheme:

< Answer >

	Rs. in crore
Value of investments	2056.25
Receivables	158.25
Accrued income	25.75
Other current assets	325.26
Liabilities	449.56
Accrued expenses	52.92

If the number of outstanding units is 200 crore and sales charge is 1.5% on the NAV, the public offering price is

- (a) Rs.10.21 (b) Rs.11.75 (c) Rs.12.45 (d) Rs.10.47 (e) Rs.12.29.

END OF SECTION A

Section B : Problems (50 Marks)

This section consists of questions with serial number 1 – 6.

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. Consider the following information relating to the returns from two stocks and the market index in different economic scenarios:

Scenario	Probability of scenario	Return (%)		
		Stock A	Stock B	Market
Boom	0.25	19.5	26.0	17.0
Slow growth	0.35	11.0	18.5	13.0
Stagnation	0.25	-3.5	7.0	5.5
Recession	0.15	4.0	5.5	-4.5

From the above information, you are **required** to:

- a. Calculate the proportion of unsystematic risk in the total risk for the two stocks.
 b. Determine the alpha of the two stocks and comment on the same if SML holds good. Assume a risk free rate of interest of 6.5%.

(6 + 3 = 9 marks) < Answer >

2. The current EPS of Sunny Machine Tools Ltd. is Rs.9.50 and its dividend payout ratio is 30%. The face value of equity share of the company is Rs.10. The company's earnings were growing at a rate of 20% p.a. for the past 5 years but the growth rate is expected to be 17% p.a. for the next 5 years and stabilize at 8% p.a. thereafter. Dividend payout ratio remains constant. The required rate of return of the equity shareholders is 14%.

The company has made a public issue of convertible debentures of face value of Rs.100 with annual coupon of 12%. Each debenture has two parts – A and B. Part A, 50% of the face value will be converted into one equity share after one year from the date of allotment and Part B, the remaining 50% of the face value, will have a warrant attached to it.

The following are the options available to the investor:

- (i) Exchange Part B and warrant for one equity share at the end of the 3rd year.
- (ii) Retain Part B and let the warrant lapse. In that case, Part B will be redeemed at the end of the 5th year.

Assume that at the end of 5th year the equity shares are traded at their intrinsic value.

Assume that electricity and water charges are not expected to vary greatly from above values.

You are **required** to determine whether it is desirable to invest in the debentures of the company or not and if yes, which option of the bond should be chosen. Assume that the required rate of return on convertible bond is 12% and the investor wants to sell all the equity holdings at the end of the 5th year. (5 marks) < Answer >

5. Nifty futures are traded in multiples of 200. Consider the following quotations of Nifty futures. (11 marks) < Answer >

3. Being a financial analyst you have discovered that an announcement regarding outsourcing contracts of animation films and creation of special effects for Hollywood films has induced a sharp interest in the scrip of Animator Tele in the bourse. To check the market efficiency in semi-strong form in the case, you have collected the following relevant information:

End of Month	Closing Price of Animator Tele (Rs.)	Closing Value of Market Index
May 2004	523.5	2030
June 2004	589.35	2170
July 2004	588.6	2190
August 2004	623.55	2203
September 2004	632.75	2122
October 2004	677.95	2217
November 2004	759.85	2256
December 2004	807.55	2318
January 2005	803.75	2302
February 2005	893.95	2356

Further using the data for 3 previous years, the characteristic line arrived by Mr. Gupta is

$$r_{s,t} = 3.85 + 0.73r_{m,t}$$

Where $r_{m,t}$ is % monthly return on market in any month t

$r_{s,t}$ is % monthly return on Optima stock in the same month t

You are **required** to conduct the residual analysis to test semi-strong form of market efficiency

(9 marks) < Answer >

4. Consider the given data on three similar properties

Date	Open	High	Low	Closing
11-Mar-05	2167.7	2182.1	2148.7	2154
14-Mar-05	2153.8	2164.15	2140.9	2146.35
15-Mar-05	2146.55	2151.35	2122	2128.95
16-Mar-05	2129.35	2158.9	2121.1	2125.55
17-Mar-05	2123.95	2126.55	2090.45	2098.5
18-Mar-05	2097.75	2112.25	2077.2	2109.15
21-Mar-05	2117.95	2124.8	2089.35	2096.6
22-Mar-05	2096.75	2099	2056.5	2061.6
23-Mar-05	2061.2	2067.45	2019.85	2026.4
24-Mar-05	2026.6	2042.45	2007.35	2015.4
28-Mar-05	2015.75	2046.85	2015.25	2029.45
29-Mar-05	2029.4	2032.65	1971.55	1983.85

Mr.Naidu has purchased one futures contract on March 11, 2005. If the initial margin is Rs.20,000 and the maintenance margin is Rs.16,000, you are **required** to determine the daily balances in the margin account and payments on margin calls, if any.

(6 marks) < Answer >

6. Mr. Mukherjee is holding two bonds A and B which pay an annual coupon of 6% and 8% and their terms to maturity are 4 years and 5 years, respectively. The face value and maturity value of the bonds is Rs.1000. Spot rates prevailing in the market as indicated by the yield curve are:

Maturity (Years)	Spot rates
1	4.00%
2	5.00%
3	5.60%
4	6.10%
5	6.75%

You are **required** to calculate

- The expected change in the prices of bonds A and B using the duration concept, for a 0.40% change in yield to maturity.
- The one year holding period return on the bonds assuming that spot rates will rise in twelve month's time by 0.15%, across the maturity spectrum.

(8 + 2 = 10 marks) < Answer >

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.

- Technical analysts always confirm whether the A-D lines has made the final advance by waiting for a downside trendline penetration or a moving average crossover. Breadth of the market is popularly studied using A-D lines. Other techniques are also used along with the A-D lines to measure breadth of the market. Describe briefly the popular methods of measuring the breadth of the market.
- Forecasting economic scenarios is an integral part of the fundamental analysis process. What are the important techniques of forecasting economic scenarios? Discuss.

(10 marks) < Answer >

(10 marks) < Answer >

Suggested Answers Security Analysis (211): July 2005

Section A : Basic Concepts

1. Answer : (e)

[< TOP >](#)

Reason : In a condition such that Required rate of return = ROE,
According to the Dividend discount model

$$P_0 = \frac{D_1}{K_e - g} \quad \text{Where the symbols are in standard use.}$$

$$\frac{P_0}{E_0} = \frac{\frac{D_0}{E_0}(1+g)}{K_e - g} \quad \text{Where, } D_0/E_0 \text{ is the Dividend payout ratio}$$

$$= \frac{(1+g)(1-b)}{K_e - g} \quad \text{Where 'b' is the retention ratio}$$

Since $K_e = \text{ROE}$ and $g = \text{ROE} \times \text{Retention ratio}$

$$\frac{P_0}{E_0} = \frac{(1+g)(1-b)}{\text{ROE} - \text{ROE} \times b}$$

$$\frac{P_0}{E_0} = \frac{(1+g)(1-b)}{\text{ROE}(1-b)}$$

We get

$$\frac{P_0}{E_0} = \frac{1+g}{\text{ROE}}$$

Hence from the above derivations we can conclude that when the growth rate increases, the market price of the share and the price earnings ratio will increase.

- The amount of earnings retained by the firm does not affect market price or the P/E ratio

and

- The P/E ratio is inversely proportional to the ROE of the firm.

Since all the given statements are true the option (e) is the correct answer.

2. Answer : (c)

[< TOP >](#)

Reason : Interest rate elasticity can be defined as

$$\frac{\text{Percentage change in price for bond in period } t}{\text{Percentage change in yield to maturity for bond } i}$$

$$\text{Modified duration} = \frac{\text{Duration}}{1 + \text{YTM} / f}$$

$$\text{and Current yield} = \frac{\text{Coupon Income}}{\text{Current price of bond}}$$

Hence, (a), (b) and (d) are not correct. Convexity measures the sensitivity of duration to change in the interest rates. Therefore, (c) is

the correct answer.

3. Answer : (d) [< TOP >](#)

Reason : The steeper the slope of the ex-ante SML, the more averse investors are in assuming additional risk. Those securities which plot above the ex-post SML are under priced whereas, overpriced securities plot below SML. Clearly (I), (III) and (IV) are correct, whereas (II) is not correct. Therefore, (d) is the answer

4. Answer : (a) [< TOP >](#)

Reason : As per the Dividend Discount Model,

$$\frac{P_o}{E_o} = \frac{(1+g)(1-b)}{K_e - g}$$

where symbols have been used in their standard notation.

So, P/E ratio can increase only if the dividend payout ratio increases or the earnings growth rate increases. Increase in standard deviation of growth rate will only lead to increased uncertainty and so it will result in a decrease in P/E ratio.

The same is clear from Whitbeck and Kisor Model.

As per the Whitbeck and Kisor model

$$P/E = a + bEG + cDP - dSD$$

Where a = P/E ratio when it is assumed to be unaffected by growth in equity, dividend payment and variability of earnings growth.

EG = growth rate in earnings

DP = dividend pay-out

SD = standard deviation of growth rate in earnings.

From the model it is clear that if dividend payout ratio will decrease and standard deviation of earnings will increase P/E ratio can only decline. Hence only statement I supports the fact that P/E ratio has increased. Hence correct answer is (a).

5. Answer : (e) [< TOP >](#)

Reason : If a bond is selling at its face value YTM of the bond is equal to its coupon rate and its reinvestment rate. The change in the price of the bond is more when yield decreases by 1% than the change in the price of the bond if yield increases by 1%. Therefore, (I), (II) and (III) are correct.

6. Answer : (c) [< TOP >](#)

Reason : a. is not correct as more than number of peaks and trough that touch a trend line greater its significance.
b. is not correct as it is not breadth but the length of the trend line which indicates whether a penetration is significant or not.
d. is not correct as penetration of steep trend line results in a corrective movement after which the previous trend continues.
e. is not correct as the peaks of rallies when penetrate the trend line that indicates shift in trend.

7. Answer : (c) [< TOP >](#)

Reason : It is given that Market value to the Book value is equal to the Industry average, which means the firm is having a good Market value per share.

Also, ROE of the 'firm' is less than ROE of the Industry, which implies that firm is having a low net income because ROE =

$$\frac{PAT}{AverageEquity}$$

having a good market price per share and low $\frac{P}{E}$ earnings implies good $\frac{P}{E}$ ratio.

No information regarding the leverage ratios can be gathered. Hence, the option (b) is incorrect.

Profitability of the firm is low as earnings are less. Hence option (a) is not correct.

No information regarding the efficient utilization of assets can be gathered. Hence option (d) is incorrect.

8. Answer : (d) [< TOP >](#)

Reason : During the periods of inflation the prices of all materials will rise.

In a FIFO method the pricing will be based on the cost of material that was obtained first.

Adopting a FIFO will cause higher closing inventory and lower cost of goods sold leading to higher reported income. Consequently higher income taxes are required to be paid. Hence option (d) is the answer.

Since lower cost of goods sold and higher ending inventory are observed the

Options (a) and (c) are incorrect. No information regarding sales can be extracted from the given information. So, option (b) is also incorrect.

9. Answer : (e) [< TOP >](#)

Reason : Liquidity of a stock is measured in terms of trading frequency and impact cost. Impact cost is defined as the percentage difference between the executed price and the mean of the best buy and sell prices. Hence the option (e) is the correct answer.

The options (a),(b),(c) and (d) are not the appropriate statements regarding the Impact cost.

10. Answer : (c) [< TOP >](#)

Reason : According to fundamental analysis- The intrinsic value of a stock is estimated by discounting the shareholder's prospective dividend stream.

The basic assumption underlying the fundamental analysis is that the 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.

Hence Option (c) consisting of statements (i) and (iii) is the answer. Statement (ii) is not correct because Intrinsic value is estimated in a certain range. Hence it is not a single value. Hence the other options are incorrect.

11. Answer : (d) [< TOP >](#)

Reason : The lowest price of the period after the gap is higher than the highest price of the preceding period is true.

The lowest price of the period after the gap is lower than the highest price of the preceding period is false regarding gaps.

A series of runaway gaps is an indication of exhaustion gap is true.

The highest price of the period after the gap is lower than the lowest price of the preceding period is true.

Hence the option (d) is the correct answer.

Hence the other options (a),(b),(c) and (e) are incorrect.

12. Answer : (b) [< TOP >](#)

Reason : In an efficient market ,no securities are consistently over priced or under priced .While some securities will turn out after any investment period to have provided positive alphas (i.e. risk adjusted abnormal returns) and some negative alphas , these past returns are not predictive of future returns . Hence the option (b) is the correct answer. On contrary it is clear that the other options (a),(c),(d) and (e) are incorrect.

13. Answer : (c) < TOP >
Reason : The beta of the portfolio consisting of two securities given that money is allotted equally between the two assets = $0.90 \times 0.5 + 1.4 \times 0.5 = 1.15$
The systematic risk of a portfolio = $\beta^2 \sigma_m^2$
Substituting the values, we get
 $(1.15)^2 \times 225 = 297.56(\%)^2$. Hence the correct answer is (c).
14. Answer : (a) < TOP >
Reason : Investing in CNX Nifty stocks in proportion to their market capitalization means investing in the market portfolio. The investment in market portfolio is affected by the market movements. If the markets rise, the portfolio gains and vice-versa. The portfolio will be affected positively or negatively by the market and the portfolio will be more sensitive to systematic risk. Hence the correct answer is (a).
15. Answer : (a) < TOP >
Reason : A characteristic line shows the relationship between returns on market index (y-axis) and the returns on the stock (x-axis). Each stock has a unique characteristic line obtained by regressing the stock returns on the market returns. Hence the correct answer is (a).
16. Answer : (b) < TOP >
Reason : The Earnings Per Share (EPS) is given by the following formula
- $$\text{EPS} = \frac{\left[r(1 + P / NW) + \frac{D}{NW} (r - i) \right] (1 - T) - dP}{N}$$
- This suggests that if EPS has increased, debt to net worth ratio cannot decline as EPS is positively related to this ratio. Other arguments support the statement as can be seen from the formula. Hence the correct answer is (b).
17. Answer : (d) < TOP >
Reason : The margin depends on the price volatility of the underlying. Exchanges generally set this margin equal to
Margin = $\mu + 3\sigma$
Where μ is the average daily absolute change in the value of the contract and σ is the standard deviation of these changes measured over a period of time.
Substituting the given values, we get
Margin = $2.50 \times 1000 + 3 \times 0.5 \times 1000 = 2500 + 1500 = 4000$.
Hence the correct answer is (d).
18. Answer : (a) < TOP >
Reason : The difference between the warrant price and the minimum value of the warrant is called as the warrant premium. If the current market price of the stock P_s is greater than the exercise price P_e , the minimum value is given by $(P_s - P_e) \times N$. When the current market price of the stock is less than the exercise price, the minimum value is zero.
In this case since the current market price of the stock is less than the exercise price, the minimum value of the warrant is zero. Therefore the warrant premium will be Rs 20. Hence the correct answer is (a).
19. Answer : (b) < TOP >
Reason : 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 Rs140. The order will thus be executed at this price.

Therefore, Loss = $(143.75 - 140.00) \times 100 = \text{Rs.}375$. Hence the answer is (b).

20. Answer : (a)

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Reason : The depreciation calculated under the written down value method is higher than that calculated under the straight line method in the initial years of the life of the asset, and is considerably lower under WDV method than under straight line method in the later years. Thus, switching from straight line method to WDV method in the later years will increase the profit figure and vice versa. Hence, (I) is true. The amortization of preliminary expenses and other miscellaneous expenditure of a capital nature offers ample scope for increasing or decreasing the profits. There is no legal rule prescribed for the write-off of such expenditure. When the expenses are written off over a period of time, the profits during those periods will be low and if such expenses are capitalized, the profits will be high. Hence, statement (II) results in lower profits. Under inflationary circumstances, a company may switch over from the LIFO method to FIFO method and increase its profits and switching from FIFO to LIFO during decreasing prices result in increased profits. During decreasing prices, under FIFO method of inventory valuation, the value of stock consumed will be high and profits will be low whereas under LIFO, the stock consumed will be low and profits will be high. Hence, switching from LIFO to FIFO the profits will be decreased and statement (III) is incorrect and the answer is (a).

21. Answer : (d)

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$$\begin{aligned}\text{Reason : } \frac{\Delta P}{P} \times 100 &= -D_{\text{mod}} \times \frac{\Delta BP}{100} \\ \frac{\Delta P}{P} &= [-5.25] \frac{(-100)}{100} \times \frac{1}{100} = 0.0525 \\ \Delta P &= 0.0525P = 0.0525 \times 98.75 = 5.18 \\ \text{New price} &= 98.75 + 5.18 = \text{Rs.}103.93\end{aligned}$$

22. Answer : (b)

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$$\begin{aligned}\text{Reason : Intrinsic Value, } P_0 &= \frac{D_1}{k - g} \\ \text{Using CAPM} \\ K &= R_f + \beta(R_m - R_f) = 6 + 0.95(12.5 - 6) \\ &= 12.175\% \\ P &= \frac{3.5 \times 1.075}{0.12175 - 0.075} = 80.48\end{aligned}$$

23. Answer : (b)

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Reason : The realized yield depends upon the rate at which coupon interests are reinvested. Statement I tells that the YTM on the bond is 10% but doesn't tell anything about the reinvestment rate. Though in the ytm calculation, there is an inherent assumption that coupon interests are reinvested at a rate equal to ytm. However, the reinvestment rate may be different in reality. Statement II tells us that coupon interests are reinvested at 12%. This information can be used to calculate the realized yield. Hence the correct answer is (b).

24. Answer : (c)

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$$\begin{aligned}\text{Reason : } \frac{\Delta P}{P} \times 100 &= -D_{\text{Mod}} \cdot \Delta y = \frac{(104.36 - 102.15)}{103.24} = \frac{-D}{(1 + 0.1025)} \times (-0.005)\end{aligned}$$

$$\text{Duration} = \frac{0.0214 \times 1.1025}{0.005} = 4.719 \text{ years}$$

25. Answer : (b) < TOP >

Reason : Current value of the share =

$$\frac{\text{Expected dividend one year hence}}{\text{Required rate of return} - \text{Growth rate in dividends}}$$

$$\begin{aligned} \text{In the given case, dividend a year hence} &= \text{EPS} \times \text{Dividend payout} \\ &= 18 \times 0.3 = \text{Rs.5.4} \end{aligned}$$

Required rate of return = 0.25

Growth rate (as payout ratio remains constant)

$$= \text{Growth rate in EPS} = \frac{18}{16} - 1 = 12.5\%$$

$$\text{Value of the share} = \frac{5.4}{0.25 - 0.125} = \text{Rs.43.2.}$$

26. Answer : (c) < TOP >

Reason : Variance of the portfolio of two stocks is calculated as

$$\sigma_1^2 w_1^2 + \sigma_2^2 w_2^2 + 2\sigma_1\sigma_2 \rho_{12} w_1 w_2, \text{ where}$$

σ_i is variance of the stock

w_i is weight of the stock

ρ_{ij} is the correlation coefficient of two stocks,

In the given case,

$$484 \times 0.5^2 + 256 \times 0.5^2 + 2 \times \sqrt{484} \sqrt{256} \rho_{12} 0.5 \times 0.5 = 132$$

$$= 121 + 64 + 176 \rho_{12} = 132$$

$$\rho_{12} = \frac{132 - 121 - 64}{176} = -0.3$$

27. Answer : (b) < TOP >

$$\frac{D_0 [(1 + g_n) + H(g_a - g_n)]}{r - g_n}$$

Reason : According to H-model $P_0 =$

$$= \frac{D_0 (1 + g_n)}{r - g_n} + \frac{D_0 H(g_a - g_n)}{r - g_n}$$

= Value based on normal growth rate + Premium due to abnormal growth rate

$$\frac{D_0 H(g_a - g_n)}{r - g_n} = \frac{3.00 \times 3 \times (0.8 - 0.04)}{0.125 - 0.4} = \frac{9 \times 0.04}{0.085} =$$

Rs.4.235.

28. Answer : (c) < TOP >

Reason : Utility function is always an increasing function of r but at a decreasing rate. Therefore, a utility function's first derivative with respect to r should be positive whereas second derivative should be negative

$$\text{i.e. } \frac{\delta_u(r)}{\delta_r} > 0 \quad \frac{\delta_u^2(r)}{\delta r^2} < 0$$

For a normal level of return of 10 – 12% range, utility function given in option (c) only satisfies the above criteria.

29. Answer : (c)

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Reason : If systematic risk of the stock is X%, unsystematic risk = 0.60X%

Total risk = 1.6 X % = 225

Systematic risk X = 140.625

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

30. Answer : (d)

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Value of Investments + Receivables + Accrued Income
+ Other current Assets – Liabilities – Accrued expenses

Reason : = $\frac{\text{Number of outstanding units}}{\text{Number of outstanding units}}$

$$= \frac{2056.25 + 158.25 + 25.75 + 325.26 - 449.56 - 52.92}{200}$$

$$\text{NAV} = \frac{2063}{200} = \text{Rs.10.32}$$

$$\text{Public offer price} = \frac{10.32}{(1 - 0.015)} = \text{Rs.10.47.}$$

Section B : Problems

1.

RM	Pi	RM Pi	RM - E(RM)	[RM - E(RM)] ²	[RM - E(RM)] ² *Pi
17	0.25	4.25	7.5	56.25	14.0625
13	0.35	4.55	3.5	12.25	4.2875
5.5	0.25	1.375	-4	16	4
-4.5	0.15	-0.675	-14	196	29.4
Total		9.5			51.75

Return 9.5

Variance 51.75

Standard Deviation 7.193747

R _A	P _i	R _A P _i	R _A - E(R _A)	R _M - E(R _M)	R _A - E(R _A) ²	R _A - E(R _A) ² *P _i	[R _A - E(R _A)]*[R _M - E(R _M)]	[R _A - E(R _A)]*[R _M - E(R _M)]*P _i
19.5	0.25	4.875	11.05	7.5	122.1025	30.525625	82.875	20.71875
11	0.35	3.85	2.55	3.5	6.5025	2.275875	8.925	3.12375
-3.5	0.25	-0.875	-11.95	-4	142.8025	35.700625	47.8	11.95
4	0.15	0.6	-4.45	-14	19.8025	2.970375	62.3	9.345
Total		8.45				71.4725	201.9	45.1375

Return 8.45

Variance 71.4725

Standard Deviation 8.454141

Covariance between stock A and the market index 45.1375

RB	P _i	RB P _i	RB – E(RB)	R _M – E(R _M)	RB – E(RB) ²	[RB – E(RB)] ² *P _i	[RB – E(RB)]*[R _M – E(R _M)]	[RB – E(RB)]*[R _M – E(R _M)]*P _i
26	0.25	6.5	10.45	7.5	109.2025	27.300625	78.375	19.59375
18.5	0.35	6.475	2.95	3.5	8.7025	3.045875	10.325	3.61375
7	0.25	1.75	-8.55	-4	73.1025	18.275625	34.2	8.55
5.5	0.15	0.825	-10.05	-14	101.0025	15.150375	140.7	21.105
Total		15.55				63.7725	263.6	52.8625

Return 15.55
 Variance 63.7725
 Stand Deviation 7.985769
 Covariance between stock B and the market index 52.8625

$$\text{Beta}_A = \frac{\text{Cov}_{AM}}{\text{Var}_M} = \frac{[(R_A - E(R_A))][R_M - E(R_M)]P_i}{\text{Var}_M} = \frac{45.1375}{51.75} = 0.872$$

$$\text{Beta}_B = \frac{\text{Cov}_{BM}}{\text{Var}_M} = \left\langle \frac{52.8625}{51.75} \right\rangle = 1.021$$

$$\text{Unsystematic Risk} = \text{Total Risk} - \text{Systematic risk} = \sigma^2 - \beta^2 \sigma_M^2$$

$$\text{Stock A} = 71.4725 - (0.872)^2 \times 51.75 = 32.10257 (\%)^2$$

$$\text{Stock B} = 63.7725 - (1.021)^2 \times 51.75 = 9.7736 (\%)^2$$

Proportion of unsystematic risk

$$\text{Stock A} = \frac{32.10257}{71.4725} = 44.92\%$$

$$\text{Stock B} = \frac{9.7736}{63.7725} = 15.33\%$$

b. $R_A = R_f + \beta_A (R_M - R_f)$
 $= 6.5 + 0.872 (9.5 - 6.5)$
 $= 9.117 \%$

$$\alpha_A = E(R_A) - \text{Required return}$$

$$= 8.45 - 9.117 = -0.667$$

As alpha is negative, Stock A is overvalued

$$R_B = 6.5 + 1.021 (9.5 - 6.5)$$

$$= 9.564\%$$

$$\alpha_B = 15.55 - 9.564 = 5.986\%$$

As alpha is positive, Stock B is undervalued.

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2. Intrinsic value of equity at the end of 5th year:

$$\frac{D_6}{k-g_n} = \frac{9.5 \times 0.3 \times 1.17^5 \times 1.08}{0.14-0.08} = \frac{6.749}{0.06} = \text{Rs.}112.47$$

OPTION I : Exchange part B and warrant at the end of 3rd year.

Year	Cash flow	Total flow Rs.
1.	Interest of 100 x 0.12 = Rs.12	12.00
2.	Interest = 50 x 0.12 = Rs.6 Dividend = 9.5 x 0.3 x 1.17 ² = Rs.3.91	9.91
3.	Interest = 50 x 0.12 = Rs.6 Dividend = 9.5 x 0.3 x 1.17 ³ = Rs.4.56	10.56
4.	Dividend = 2 [9.5 x 0.3 x 1.17 ⁴] = 10.69	10.69
5.	Dividend = 2 [9.5 x 0.3 x 1.17 ⁵] = 12.49 Sale = 2 x 112.47 = Rs.224.94	237.43

$$\text{Present value of the total cash flow} = \frac{12}{1.12} + \frac{9.91}{(1.12)^2} + \frac{10.56}{(1.12)^3} + \frac{10.69}{(1.12)^4} + \frac{237.43}{(1.12)^5}$$

$$= \text{Rs.}167.65$$

OPTION II: Retain Part B and let the warrant lapse

Year		
1.	Interest = 12	12
2.	Interest of Rs.6 + Dividend of Rs.3.91	9.91
3.	Interest of Rs.6 + Dividend of Rs.4.56	10.56
4.	Interest of Rs.6 + Dividend of Rs.5.35	11.35
5.	Interest of Rs.6 + Dividend of Rs.6.24 + Redemption of Rs. 50 + Sale of share Rs.112.47	174.71

$$+ + + + = \text{Rs.}132.48$$

As the intrinsic value of Bond I in Option I is more than FV of Rs.100, investment should be made in the bond and exchange part B and warrant at the end of third year.

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3.

Months (I)	Actual Return on stock (%) (II)	Return on Index (%) (III)	Expected return on Reddy's stock using characteristic line (IV)	Above normal return % (V) = (II) – (IV)
May, 04			–	
June, 04	12.579	6.897	8.884	3.694
July, 04	-0.127	0.922	4.523	-4.650
Aug, 04	5.938	0.594	4.283	1.654
Sept, 04	1.475	-3.677	1.166	0.309
Oct, 04	7.143	4.477	7.118	0.025
Nov, 04	12.081	1.759	5.134	6.946
Dec, 04	6.278	2.748	5.856	0.421
Jan, 05	-0.471	-0.690	3.346	-3.817
Feb, 05	11.222	2.346	5.563	5.659
Σ Above normal return =				10.240

From the above computation we observe that sum of abnormal return is not close to zero. Therefore, we conclude that market is not efficient in semi-strong form.

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4. The net operating income (NOI) for a month, for these properties is as under:

				Net operating Income (Rs.)	
				Per month	Per annum
A	16,000	1,520	600	18,120	2,17,440
B	11,500	1,050	400	12,950	1,55,400
C	6,350	830	330	7,510	90,120

The calculation of capitalization rate is shown below:

Property	NOI	Market Value (Rs.)	Capitalization Rate
A	18,120	2,17,440	7.248%
B	12,950	1,55,400	7.064%
C	7,510	90,120	6.932%

$$\text{Therefore, average capitalization rate} = \frac{7.248 + 7.064 + 6.932}{3} = 7.081\%$$

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- 5.

Year	C.F	P.v. of C.F at 6%	Year x P.V. of C.F
1	60	56.6	56.6
2	60	53.4	106.8
3	60	50.38	151.1
4	1060	839.6	3358
		1000	3673

$$\text{Duration} = \frac{3673}{1000} = 3.673 \text{ years}$$

$$\text{Modified duration} = \frac{3.673}{1+0.06} = 3.465 \text{ years}$$

$$\text{Change in the price of the bond} = -3.465 \times 0.40 = -1.386\%$$

Price of the bond A will change by 1.386%.

Price of the bond B

$$P = \frac{80}{(1.04)^1} + \frac{80}{(1.05)^2} + \frac{80}{(1.056)^3} + \frac{80}{(1.061)^4} + \frac{1080}{(1.0675)^5}$$

$$= 76.923 + 72.562 + 67.936 + 63.129 + 779.08$$

$$= 1059.63$$

Yield to maturity of the bond B

$$1059.6 = \frac{80}{(1+k)^1} + \frac{80}{(1+k)^2} + \frac{80}{(1+k)^3} + \frac{80}{(1+k)^4} + \frac{1080}{(1+k)^5}$$

$$K = 6.56\%$$

Duration of the Bond B

Year	C.F	Present value of cash flow at (6.56%)	Year x PVCF
1	80	75.075	75.0751
2	80	70.453	140.907
3	80	66.116	198.348
4	80	62.046	248.184
5	1080	786.05	3930.27
		1059.7	4592.79

$$\text{Duration} = \frac{4592.79}{1059.7} = 4.334 \text{ years}$$

$$\text{Modified duration} = \frac{4.334}{1+0.0656} = 4.067 \text{ years}$$

$$\text{Change in the price of the bond} = -4.06727 \times 0.40 = -1.6268\%$$

Therefore, price of the bond B will change by 1.6268%.

b. Price of the bonds after one year

Bond A

$$\frac{60}{(1+k)^1} + \frac{60}{(1+K)^2} + \frac{1060}{(1+K)^3}$$

$$57.609 + 54.267 + 896.32 = \text{Rs.}1008.2$$

$$\text{One year holding period return on bond A} = \frac{1008.2 - 1000 + 60}{1000} = 6.82\%$$

Bond B

$$\frac{80}{(1+k)^1} + \frac{80}{(1+k)^2} + \frac{80}{(1+k)^3} + \frac{1080}{(1+k)^4}$$

$$= 76.812 + 72.355 + 67.647 + 847.44 = 1064.3$$

$$\text{One year holding period return} = \frac{1064.3 - 1059.7 + 80}{1059.7} = 7.98\%$$

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Section C: Applied Theory

7. Breadth of the market is popularly studied using A-D lines. Other techniques are also used along with the A-D lines by technical analysts. The four popular methods are

- i. Stocks in positive trends
- ii. Percentage of stocks over a moving average
- iii. Diffusion indexes
- iv. High-Low statistics

i. Stocks in Positive Trends

A stock which rallies after a decline to reach a new high is said to be in an uptrend; a stock that reacts to reach a new low is said to be in a downtrend. The percentage of stock in an uptrend to the total stock traded is computed and plotted on a graph. A rising market is expected to have an increasing percentage of uptrend stock. Reversal is signaled when stock in positive trend begin to diminish.

ii. Percentage of Stock Over a Moving Average

A specific moving average for a number of stocks is first computed, and the percentage of the number that is above the average is ascertained. The percentage of stocks over a moving average increases in a bull market, and generally moves along with the positive trend index computed in (i) above. When the percentage of stocks over a moving average reaches an extreme of 90-100 percent or 10-15 percent, it indicates that a substantial proportion of the prevailing move has taken place and that reversal is imminent. When the percentage index reverses direction, the reversal in market trend is almost immediate.

iii. Diffusion Index

A diffusion index momentum index is computed by calculating the rate at which a certain group of stocks change price over a given period of time. It is generally calculated on either a wide number of stocks, or a number of industry indexes. Also called the momentum index, a rise in the index signals the onset of a bull market and vice versa.

iv. High-Low Statistics

Technical analysts also study the high-low statistics to confirm market trends. A rising market should be accompanied by a healthy number of net new highs. A graph of a net new highs can be plotted to be read along with a market index. If net new highs trace a series of declining peaks while the index continues to rise, a reversal is imminent. Similarly, a graph of net new lows can be expected to signal the end of a bear market, when it does not confirm the new trough reached by the market index. This is because, a declining number of stocks reaching new lows implies that larger number of stocks are resisting the downtrend in the market index, and thus signifies the end of a bear market.

Breadth of the market, thus, is an important indicator of the depth of the prevailing trend, and is of immense utility to the analyst in identifying trend reversals

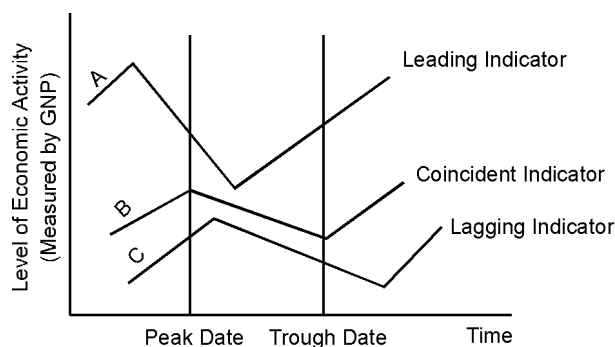
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8. The important forecasting techniques are:

a. Leading Indicator approach

The lead indicator approach attempts to forecast the general economic conditions by identifying economic indicators that turn ahead of the change in the general level of economic activity. Economic indicators are

nothing but time series which tend to turn up or down in advance of or concurrent with, or after the economic upturn or downturn. From figure given below, we find that indicator A turns ahead of the peak and trough of the business cycle whereas indicators B and C turn in unison with or after the peak and trough of the cycle.



So, to forecast the change in the economic conditions, we will be obviously interested in leading indicators because they provide advance signals of the turning points in the economic activity.

While identifying a lead indicator for the purposes of forecasting, the analyst must ensure that the lead indicator fulfills the following criteria as closely as possible: (1) It should move smoothly from one period to another as it rises or falls and should turn sharply at its peaks and troughs. If a series zigzags during its upward or downward swings, it becomes difficult to know whether the 'zig' is a genuine turning point or a temporary reversal of trend. (2) An ideal lead indicator should always lead turning points of general business activity by the same number of months with no 'false' leads. (False leads are predictions of business turning points which do not materialize). (3) It should lead by enough time to permit the user to make necessary alterations in his plans, but do not lead by a long- time interval that will make him disbelieve the indicator. (4) The indicator should fit logically with the business cycle theory. The more logical it appears that a particular series will turn ahead of economic conditions, the more assured the user can be that its historical lead relationship will continue in the future.

Some of the leading economic indicators are the utilization of manufacturing capacity, residential construction, corporate profits, and of course the general level of stock prices. Since the movement in the general level of stock prices is what we are ultimately interested in forecasting, we should look for that leading indicator which would act as a lead to the leading indicator under consideration.

The lead indicator approach is most valuable in suggesting the direction of change in economic activity. But it does not convey any information on the magnitude and duration of the change. The other important limitation of this approach is that the signals provided by the different lead indicators can be mixed. In other words, some of the leading series might signal a turn while the others might not, resulting in a serious problem of interpreting the same for the purpose of arriving at a forecast.

This limitation can of course be resolved by shortlisting only such lead indicator(s) that satisfy the criteria mentioned above. The diffusion index approach discussed in the next section partly attempts to resolve the problem of mixed signals.

b. Diffusion Indices

A diffusion index (as the name implies) is a measure of how widespread (diffused) a phenomenon is. We can set up a diffusion index for leading indicators by counting the number of indicators that rise during a particular period and expressing it as a proportion of the total number of lead indicators and more desirably in a percentage form. If five out of, say, ten leading indicators rise during a particular month, the diffusion index for that month will be 50 percent. If, in the next month, seven rise (not necessarily including all the five which rose in the previous month), the index for that month will be 70 percent. The user must interpret the diffusion index relative to the levels of the index in the past. Certainly a rise from 50% to 70% in the index is a stronger confirmation of a period of economic advance.

c. Econometric Model Building Approach

As far as short-term economic forecasting is concerned, an approach based on econometric methods has the advantage of providing a magnitude and direction to the dependent variable (unlike the lead indicator approach), say GNP. However, the user must understand that a precise estimate of the dependent variable (forecast value for GNP) obtained from the econometric model need not be an accurate one, because accuracy of the forecast will ultimately depend upon the quality of data input, the validity of the assumptions underlying the model, and above all upon the model builder's understanding of the underlying economic theory.

Further, as stated in the Indian context it must be noted that, an econometric model for forecasting GNP in a planned economy may not have much of a practical relevance because the planning priorities may change significantly, besides the likely changes in government regulation, fiscal policy, and the control mechanisms of money, credit, prices and wages. Econometric models can be meaningful for future projections if and only if the estimated co-efficients (like the intercept 'a' and slope 'b' in a linear regression model) are found to be

acceptable in respect of their stability over time.

d. GNP Model Building Approach

The GNP model building approach forecasts GNP in the short-run by estimating the magnitudes of the various components constituting GNP. If GNP is defined as $C + I + G + X - M$ where C, I, G, X and M stand for their standard definitions, then forecast for GNP under this approach is determined by estimating the likely values of C, I, G, X and M. To estimate these components, the forecaster relies extensively on the budget estimates of the Central and State Governments, the socio-economic surveys carried out by the Government and private agencies, and the field data collected for this purpose.

Once the forecaster estimates these major components, he adds them together to come up with his estimate of the GNP. He tests the forecast for internal consistency because of the interrelatedness of the GNP accounts. For example, a given level of consumption implies a certain level of savings, which affects business investments which in turn affects production activities, and thus affects income and savings.

While these circular effects take place, other factors like interest rates and inflation will also be affected. So, the forecaster must ensure that his estimates for the different components take care of such interlinkage. Apart from testing the forecast for internal consistency, the forecaster also examines it for external consistency by comparing it with forecasts obtained under other methods like the econometric model building approach.

The major advantage of this approach is its versatility. Since the GNP forecast is adjusted for all anticipated changes and tested for internal consistency, it is likely to be a reliable one. But the approach is data demanding and calls for a vast deal of judgment and ingenuity. The approach has been succinctly described by Lewis and Turner as 'an effort to build a view of the short-run business outlook that is comprehensive, that is as quantitatively precise as the state of our knowledge permits, that is internally consistent, that draws upon rather than sidesteps all the pertinent insights of modern aggregative economics but, at the same time, does not make a fetish of the theoretical rigor. Instead, the technique seeks to exploit any and all evidences of business prospects that may come to hand. It is particularly distinguished from pure econometric model building by its heavy use of data concerning the advance plans and commitments of certain spending groups, and it retains a sizeable place for judgment and free-hand adjustments'.

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