FINAL EXAMINATION

(REVISED SYLLABUS - 2008)

GROUP - III

Paper-11 : CAPITAL MARKET ANALYSIS & CORPORATE LAWS

Section I : Capital Market Analysis

Q. 1. In each of the cases given below one out of four is correct. Indicate the correct answer and give your workings/ reasons briefly.

(i) The ex-post SML for a pharmaceutical company is given by the equation :

$N(\bar{r}_i) = 8 + b_i 8$

If beta of the company's security is 1.5 and actual return on the security is 18%, the security's ex-post alpha (a) is

A. – 4.0%

B. – 2.0%

C. + 1.5%

D. + 2.0%

(ii) The expected earnings per share of Ideal Ltd. at the end of the year 2010-2011 is Rs. 18.00. The earnings per share for the year 2009-2010 is Rs. 16.00. The required rate of return is 25% p.a. and the dividend pay-out 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 2010-2011 is

A. Rs. 72.00

B. Rs. 43.20

C. Rs. 38.40

D. Rs. 21.60

(iii) If spot rates on 1 year, 2 year and 3 year GOI securities are 7%, 8% and 9% respectively, then one year forward rate for the 3rd year is equal to :

A. 9.26%

B. 11.03%

C. 10%

D. 9%

(iv) Consider the following information related to a bond :

Par value	**Rs. 1,000**
Time to maturity	**20 years**
Coupon rate (interest payable annually)	**10%**
Current market price	**Rs. 851**
Yield to maturity (YTM)	**12%**

Other things remaining the same, if the bond starts paying interest semi-annually, then the change in the market price of the bond will be approximately

A. – 0.2%

B. – 0.1%

C. + 0.1%

D. + 0.2%

(v) A convertible bond with a face value of Rs. 1,000 has been issued at Rs. 1,350 with a coupon rate of 1.5%. The conversion rate is 14 shares per bond. The current market price of the bond is Rs. 1,475 and that of stock is Rs. 80. The premium over conversion value is

A. 24.06%

B. 33.33%

C. 31.70%

D. 37.25%

(vi) Consider the following date of Growth Mutual Fund (income plan) :

Particulars	*Rs. In crores*
Value of investments	**2,084.52**
Receivables	**162.88**
Accrued income	**47.74**
Other current assets	**573.23**
Liabilities	**488.56**
Accrued expenses	**112.92**

If the number of outstanding units is 160 crore and sales charge is 2.5% on the NAV, the public offering price is

A. Rs. 14.17

B. Rs. 14.53

C. Rs. 15.58

D. Rs. 15.98

(vii) Closing prices of the stock of Global Ltd. are given below :

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

The relative strength of the stock is

A. 0.9952

B. 1.0366

C. 1.0925

D. 1.1125

(viii) Interest rate sensitivity for bonds with embedded options is most accurately measured by :

A. Convexity

B. Effective duration

C. Modified duration

D. Macaulay duration

(ix) As the business cycle enters the initial phase of economic recovery the stock prices generally :

A. Decline

B. Maintain the same trend as before

C. Rise

D. Rise to an extent and then take a downturn

(x) Which of the following is/are true in respect of demat shares?

A. Shares once dematerialized cannot be rematerialized again

B. The registrar of the company concerned extinguishes the certificates and intimates the same to NSDL.

C. DPs are accountable to NSDL only

D. Shares held in electronic form cannot be hyphothecated

Answer 1.

(i) **B.** – 2.0%

In the ex-post SML, average historical rates of return for securities are plotted against their betas for a particular time period.

Ex-post SML is given by the equation –

$N(\bar{r}_i) = r_0 + r_i b_{im}$

Where,

r_0 = Intercept of ex-post SML, and

r_i = Slope of SML, and

Alpha, a_i, the securities abnormal return, is calculated as

$a_i = \bar{r}_i - N(\bar{r}_i)$, where r_i is the actual return, and $N(\bar{r}_i)$ is the required return according to SML. In the given case $N(\bar{r}_i) = 8 + 1.5 \times 8 = 20\%$

As actual return is 18%, alpha a_i is 18% – 20% = – 2%

(ii) **B.** Rs. 43.20

$$\text{Current value of the share} = \frac{\text{Expected dividend one year hence}}{\text{Required rate of return} - \text{Growth rate in dividends}}$$

In the given case, dividend a year hence = EPS × Dividend pay-out

18 × 0.3 = Rs. 5.4

Required rate of return = 0.25

Growth rate (as pay-out ratio remains constant)

= Growth rate in EPS = $\frac{18}{16} - 1$ = 12.50%

Value of the share = $\frac{5.40}{0.25 - 0.125}$ = Rs. 43.20

(iii) **B.** 11.03%

$(1 + r_n) = [(1 + r_1)(1 + f_2)(1 + f_3)]^{1/n}$

$1 + r_3 = [(1 + r_1)(1 + f_2)(1 + f_3)]^{1/3}$

Therefore, $f_3 = \{(1 + r_3)^3 / [(1 + 0.07)(1 + 0.09)]\} - 1$

$= \{(1 + 0.09)^3 / [(1 + 0.07)(1 + 0.09)]\} - 1$

= 0.1103 or 11.03%

Working notes :

Forward rate denoted by f_2 can be determined from the equation

$(1 + r_2) = [(1 + r_1)(1 + f_2)]^{1/2}$

i.e. $1 + f_2 = (1 + r_2)^2 / (1 + r_1)$ or

$f_2 = [(1 + 0.08)^2 / (1 + 0.07)] - 1$

$= 1.09 - 1 = 0.09$

(iv) **A.** – 0.2%

The equation expressing the relationship between market price of the bond and YTM is as follows :

$P_0 = C_0 \times PVIFA_{(k,n)} + F \times PVIF_{(k,n)}$

Substituting the given value in the equation, we get

$P_0 = 50 \times PVIFA_{(6\%,40)} + 1{,}000 \times PVIF_{(6\%,40)}$

$= 50 \times 15.046 + 1{,}000 \times 0.097 = 849.30$

Therefore, the change in market price = (849.30 – 851.00)/851 = – 0.199% = – 0.2%

(v) **C.** 31.70%

Conversion rate is 14 shares per bond

Market price per share is Rs. 80

Conversion value = Rs. (80 × 14) = Rs. 1,120

Market price of the bond = Rs. 1,475

Therefore, premium over conversion value = $\frac{355}{1{,}120} \times 100$ = 31.70%

(vi) **B.** Rs. 14.53

$$\text{Public offering price} = \frac{\text{NAV}}{1 - \text{Sales Charge}}$$

$$= \frac{(2{,}084.52 + 162.88 + 47.74 + 573.23 - 488.56 - 112.92)/160}{1 - 0.025}$$

$$= \frac{14.168}{0.975} = \text{Rs. } 14.53$$

(vii) **B.** 1.0366

$$\text{Relative strength of the stock} = \frac{\text{Average of upclosing prices}}{\text{Average of downclosing prices}}$$

$$= \frac{\frac{235.50 + 225.10 + 230.10}{3}}{222.10}$$

$$= \frac{230.23}{222.10} = 1.0366$$

(viii) **B.** Effective duration

This is useful to measure the sensitivity of a bond to the changes in interest rates. Here a pricing model is used to determine the market prices when there is a change in the interest rates. This measure makes it possible to arrive at negative duration and durations longer than the maturity of the asset both of which are not possible with Macaulay or Modified duration. Another important feature of effective duration is that it takes into account the changes in cash flows of the bond when yield changes, and also those due to the embedded options in the bond.

(ix) **A.** Decline

As the business cycle enters the initial phase of economic recovery the stock prices decline.

(x) **B.** The registrar of the company concerned extinguishes the certificates and intimates the same to NSDL.

An investors who wants to hold his securities in electronic form has to approach a DP will then intimate the NSDL about the investor's intention through the systems and then submits the share certificate to the Registrars and Transfer agents. The registrar after confirmation of the genuineness of the certificates destroy them and send the confirmation of Dematerialization of shares to NSDL.

Q. 2. (a) Write Short notes on Rolling Settlement.

(b) Mr. B. Basak, a high income and high net worth investor is evaluating the following three alternatives with a view to park his surplus funds for medium to long-term period :

I. Secured, redeemable, non-convertible bonds issued by Andhra Pradesh Infrastructure Development Corporation (APIDC) as per the following terms :

Face value : Rs. 1,000
Coupon : 13.75% payable annually
Current yield : 13.96%
Redemption : At par in two equal installments at the end of 4th and 5th year

II. DSP Merrill Lynch Bond Fund (Open-ended)

NAV as on April 1, 2010 : Rs. 11.37

NAV as on April 1, 2011 : Rs. 11.59 (Ex. Dividend)

Dividend : Re. 0.91 per unit (post-tax)

III. Bank fixed deposits

Rate of interest : 12.0% per annum

Maturity : 3-5 years

The rate of income tax applicable to Mr. Basak is 30%

You are required to :

(i) Find out the post-tax YTM and the post-tax duration of the bonds issued by APIDC.

(ii) Evaluate the above alternative investments for Mr. Basak based on returns, risk and tax implications.

Answer 2. (a)

The rolling settlement was introduced by SEBI on January 10, 2000. Ten stocks were selected initially and SEBI has announced a list of 156 stocks which was included in rolling settlement made by the first fortnight of May 2000. In a rolling settlement of a T+5 period trades are settled 5 days from the date of transaction. If an investor purchases 500 shares of RIL and sells 400 shares on Monday he would be asked to settle the net outstanding of 100 shares on the following Monday. This means all open positions are squared up on the fifth or sixth day from the trading date.

In the T+2 rolling settlement, trades are settled on the second working day. For example, trades taking place on Monday are settled on Wednesday, etc.

In a Rolling Settlement, trades executed during the day are settled based on the net obligations for the day. Say for example, if the trades pertaining to the rolling settlement are settled on a T+2 day basis where T stands for the trade day. Hence, trades executed on a Monday are typically settled on the following Wednesday (considering 2 working days from the trade day). The funds and securities pay-in and pay-out are carried out on T+2 day.

Answer 2. (b)

(i) The post-tax YTM of the bonds issued by APIDC is calculated as follows :

Year	Coupon	Redemption	Total payments	Tax on coupon @ 30%	Post-tax cash flow
1	137.50	—	137.50	41.25	96.25
2	137.50	—	137.50	41.25	96.25
3	137.50	—	137.50	41.25	96.25
4	137.50	500	637.50	41.25	596.25
5	68.75	500	568.75	20.62	548.13

Year	Post-tax cash flow	PV @ 10%	PVCF	PV @ 12%	PVCF
1	96.25	0.909	87.49	0.893	85.95
2	96.25	0.826	79.50	0.797	76.71
3	96.25	0.751	72.28	0.712	68.53
4	596.25	0.683	407.24	0.636	379.21
5	548.13	0.621	340.39	0.567	310.79
			986.90		921.19

Therefore, Current, Market Price $= \frac{\text{Coupon payment}}{\text{Current yield}} = \frac{137.50}{0.1396} = 984.96$

YTM (Post-tax) = 10 + 0.059 or 10.06%

Post-tax duration

Year (1)	Post-tax cash flow (2)	Present value @ 10.06% (3)	Present value flow (PVF) (4)	PVF proportion (5)	(6) = (1) × (5)
1	96.25	0.908	87.39	0.089	0.089
2	96.25	0.825	79.41	0.081	0.162
3	96.25	0.750	72.19	0.073	0.219
4	596.25	0.681	406.05	0.412	1.648
5	548.13	0.619	339.29	0.345	1.725
			984.33	1.000	3.843

Duration = 3.84 years

Hence, the duration of the bond issued by APIDC is 3.84 years.

(ii) There are three investment avenues for Mr. Basak :

I. Secured, redeemable, non-convertible bond issued by APIDC

II. DSP Merrill Lynch Bond Fund (open-ended)

III. Bank fixed deposit.

I. The post-tax YTM of the bond issued by APIDC is 10.06% with a duration of 3.84 years [as found in part (i) of the question].

II. If we assume an investment of Rs. 1,000 in the Merrill Lynch Bond Fund in April 1, 2010 then the number of units that he will buy will be :

No. of units bought = 1,000/11.37 = 88 units

Dividends received = 88 x 0.91 = Rs. 80.08 (tax-free)

Capital gains, if he sells at the end of the year will be :

Capital gains = (11.59 – 11.37) × 88 = Rs. 19.36

Tax on capital gains = 19.36 × 0.2 = 3.87

Post-tax returns = Rs. 80.08 + Rs. 15.49 = Rs. 95.57

% return = 9.56% (appx.)

III. If we assume an investment of Rs. 1,000 in the bank fixed deposits the return after 3 years will be :

1,000 (1.12) = Rs. 1,120

Post-tax returns = 120 × 0.7 = 84

Return (%) = 8.4%

Hence, on the face of it plan (I) is more lucrative to Mr. Basak as its YTM (return) is 10.06% (post-tax)

I. While investing in the bond issued by APIDC, one should bear in mind that investing in a bond exposes to price risk and interest rate risk. The interest rate may change which will affect the YTM. The bond's price may quote at discount to face value which exposes one to price risk. But if the

duration of the bond matches with the investment horizon of Mr. Basak these risks are nullified. One should also remember that duration of bond is not fixed and varies with the passage of time. Moreover, the tax liability of Mr. Basak will be high if he wants to come out of the investment before maturity, especially if the bond sells at premium to face value; in that case he will have to pay capital gains tax.

II. The investment in bond fund by DSP Merrill Lynch is a more liquid avenue of investment. Moreover, these funds are professionally managed which means that they have a better chance of outperforming the market. These funds are exposed to market risk and their performance depends upon the performance of the fund managers. Since these funds are more liquid, these funds are relatively safe to liquidate at short notice.

III. The third alternative, that is, investment in banks is less risky i.e. it does not have market risk, and interest rate risk especially if it is invested in fixed deposits. But one has to bear the purchasing power risk arising due to inflation. Moreover, interest income through banks is taxed on the same rate in the tax bracket that he falls in.

Thus, the APIDC bond scores high on returns.

Q. 3. (a) Complete the blanks in the following table, assuming the relevant equilibrium model in the CAPM with unlimited borrowing and lending at the riskless rate of return.

Stocks	*Expected return*	*Standard deviation*	*Beta*	*Residual variance*
A	**0.18**	**—**	**1.50**	**0.12**
B	**0.15**	**0.50**	**0.75**	**0.05**
C	**—**	**—**	**0.60**	**0.14**

(b) A new equity based mutual fund collected Rs. 50 crores through the New Fund Offer at Rs. 10 a unit. On the first day when the NAV was to be released, the following stock purchases were made. The balance was parked in reverse repo for a day at 6% yield. The initial expense is 6% and is expected to be amortized over 5 years. The total recurring expenses which would be deducted on a daily basis (which also includes investment and advisory fees for this fund size) is 2.5% per annum. Assume recurring expenses is charged on opening balance of net assets. Find 1st day NAV for this fund.

Name of the stock	*Qty.*	*Cost*	*Closing price*
BHEL	**2500**	**1968.00**	**1968.25**
Infosys	**3000**	**1600.00**	**1630.20**
TCS 2500	**2500**	**928.45**	**928.45**
ITC 25600	**25600**	**169.00**	**164.55**
Reliance Communication	**16500**	**265.00**	**258.20**

Answer 3. (a)

From the information we have for securities A and B, we know the risk premium accorded the market portfolio must be :

$$(R_m - T) = \frac{(R_A) - (R_B)}{\beta_A - \beta_B} = \frac{0.18 - 0.15}{1.50 - 0.75} = \frac{0.03}{0.75} = 0.04$$

Knowing thus, we can use the information we have for stock A to find the risk-free rate :

$$R_A = T + (R_m - T)b_A$$

$$T = R_A - (R_m - T)b_A$$

$$= 0.18 - (0.04)(1.5) = 0.18 - 0.06 = 0.12$$

We can now find the expected return for Stock C :

$R_C = 0.12 + (0.04)(0.6) = 0.14.$

The information given for stock B allows us to estimate the variance of returns to the market

$$\sigma^2_B = b^2_B \sigma^2_m + \sigma^2_{eB}$$

$$\sigma^2_m = \frac{\sigma^2_B - \sigma^2_{eB}}{\beta^2_B} = \frac{(0.50)^2 - (0.05)}{(0.75)^2} = 0.36$$

The standard deviation of securities A and C can now be found :

$\sigma^2_A = (1.50)^2 (0.36) + 0.12 = 0.93$

$\sigma_A = (0.93)^{0.5} = 0.96$

$\sigma^2_C = (0.60)^2 (0.36) + (0.14) = 0.2696$

$\sigma_C = 0.52$

The complete table should be :

Stocks	Expected return	Standard deviation	Beta	Residual variance
A	0.18	0.96	1.50	0.12
B	0.15	0.50	0.75	0.05
C	0.14	0.52	0.60	0.14

Answer 3. (b)

Fund collection : 50.00000 crores

Stock purchases : 2.07389 crores

Balance corpus : 47.92611 crores

Income – repo (47,92,61,100 × 0.06) × (1/365) = 78,783

Unrealized loss : - 1,34,895

Initial expenses (0.06 × 50 crores) ÷ (5 × 365) = 16,438 [amortised over five years]

Recurring expenses (0.025 × 50 crores) ÷ 365 = 34,247

Name of the stock	Qty	Cost	Closing price	Total cost	Unrealized gain/loss
BHEL	2,500	1,968	1,968.25	49,20,000	625
Infosys	3,000	1,600	1,630.20	48,00,000	90,600
TCS	2,500	928	928.00	23,20,000	0
ITC	25,600	169	164.55	43,26,400	-1,13,920
Reliance Communication	16,500	265	258.20	43,72,500	-1,12,200
				2,07,38,900	**-1,34,895**

First day's NAV of equity based fund

$$= \frac{\text{Balance Corpus} + \text{Income} + \text{Stock Purchases} - \text{Unrealised Loss} - \text{Expenses}}{\text{Outstanding Number of Units}}$$

=

= Rs. 9.9979.

Q. 4. (a) Write a brief note on Book Building and Reverse Book Building.

(b) The equity share of Maruti Ltd. is currently selling at Rs. 100. Find the value of 6 months maturity put option, strike price Rs. 101, risk free rate of interest 12% p.a. Over 3 months period, it is expected to go up by 10% or go down by 10%. Over next 3 months period, it is expected to go up by 8% or go down by 6%.

(c) A company invested in a 5-year bond issue of another company in 2010 carrying a coupon rate of 10% p.a. The interest payable at half-yearly rests and the principal repayable after 5 years in 2014 end. The current market yield has fallen to 9% during 2011. The investor-company wanted to take advantage of the fall in market yield by selling the bond to any willing buyer. Compute the value of the bond at the end of 2011. Assume par value of each bond Rs. 1,000.

Answer 4. (a)

Book Building :

(i) It is a method of Initial Public Offer (IPO) to raise capital, whereby the Company offers its shares for subscription at an indicative price range.

(ii) The investors are to subscribe at a price within the range offered by the Company.

(iii) The price at which shares will finally be allotted will be based on criterion under law.

Reverse Book Building :

(i) It is method of buy-back of securities. It is an efficient price discovery process adopted when the Company aims to buy the shares from the public and other shareholders.

(ii) This is generally done when the Company wishes to delist itself from the trading exchanges.

Answer 4. (b)

P = = 0.65

Probability pricing going up by 10% over 3 months time = 0.65

Probability pricing going down by 10% over 3 months time = 0.35

If at the end of 3 months the price is 110 :

$$P = \frac{113.30 - 103.40}{118.80 - 103.40} = 0.6429$$

Probability pricing going up by 8% over 3 months time = 0.6429

Probability pricing going down by 6% over 3 months time = 0.3571

If at the end of 3 months the price is 90 :

$$P = \frac{92.70 - 84.60}{97.20 - 84.60} = 0.6429$$

Probability pricing going up by 8% over 3 months time = 0.6429
Probability pricing going down by 6% over 3 months time = 0.3571

Four possibilities regarding possible prices :

Possibilities	Possible price	Probability
Up by 10% in first three months and again up by 8% in next 3 months	100 × 1.10 × 1.08 = 118.80	0.65 × 0.6429 = 0.4179
Up by 10% in first six months and down by 6% in next 3 months	100 × 1.10 × 0.94 = 103.40	0.65 x 0.3571 = 0.2321
Down by 10% in first three months and up by 8% in next 3 months	100 × 0.90 × 1.08 = 97.20	0.35 x 0.6429 = 0.2250
Down by 10% in first three months and again down by 6% in next 3 months	100 × 0.90 × 0.94 = 84.60	0.35 x 0.3571 = 0.1250

Computation of value of European Put Option:

Price on maturity	Gain	Probability	Expected gain
118.80	Not exercised	0.4179	0
103.40	Not exercised	0.2321	0
97.20	3.80	0.2250	0.855
84.60	16.40	0.1250	2.05
			2.905

Expected value of put on the date of maturity = Rs. 2.905
Value of option on the date of its writing = 2.905/1.06 = 2.7406.

Answer 4. (c)

Par value of each bond = Rs. 1,000
Coupon rate = 10% p.a.

Interest payable at half-yearly rests
Duration of bond maturity = 5 years

Value of bond as at the end of year 2011 is equivalent future cashflow stream till the end of year 2014.
Therefore, present value of half-yearly interests for year 2012, 2013 and 2014 and the principal amount accrued at the end of year 2014 equals to the present value of bond at the end of year 2011.
Value of bond at the end of year 2011 :

$$= \frac{50}{1.045} + \frac{50}{(1.045)^2} + \frac{50}{(1.045)^3} + \frac{50}{(1.045)^4} + \frac{50}{(1.045)^5} + \frac{50}{(1.045)^6} = \text{Rs. } 1,025.79$$

Q. 5. (a) On Monday, August 14, you ask your broker to buy 200 shares of ABC at market using the 50% allowed initial margin. The broker charges a commission of 2% and the brokerage firm has a 30% maintenance margin. The broker later calls you and says that the trade was executed at Rs. 70 per share (Note that August 15 is not a business day.)

(i) Why might you use a market order as opposed to a limit or stop order?

(ii) On what date must you pay the brokerage firm ? How much must be paid?

(iii) Since the stock was bought on margin, below what stock price will a margin call be required?

(iv) If the stock falls to Rs. 40 and you intend to deposit more cash into the account to bring it back to the maintenance margin, how much cash must you deposit?

(v) If the stock falls to Rs. 40 and you intend to sell stock to repay some of the debt to bring it back to the maintenance margin, how many shares must you sell?

(b) An investment home offers a one-year investment yielding either 12% or half of ABC Index 100 % appreciation, whichever is greater. The current ABC Index 100 is 2,000 and one year interest rates are 15%.

(i) Beyond what value of the ABC Index 100 does the stock-appreciation based return exceed the guaranteed minimum return?

(ii) How could the fund be constructed?

(iv) What is the price of the implicit option?

Answer 5. (a)

(i) A market order assures that a trade takes place at the existing best price. A limit order would be transacted only if prices are at the limit price or better. A stop order specifies a price at which the trade becomes a market order.

(ii) The settlement day on which cash is paid and securities received is five business days after the trade date. Since August 15 is a business holiday, settlement will take place on August 21. At that time you will pay :

Value of securities bought	(200 × Rs. 70)	= Rs. 14,000
Add : Commission	Rs. 14,000 × 0.02	= Rs. 280
	Total	= Rs. 14,280
Less : Margin loan	0.50 × Rs. 14,000	= Rs. 7,000
	Net due	= Rs. 7,280

(iii) Maintenance margin $= \dfrac{\text{Security value - Loan}}{\text{Security value}}$

$$0.30 = \frac{(P \times 200) - \text{Rs. } 7{,}000}{P \times 200}$$

$$P = \text{Rs. } 50$$

(iv) Maintenance margin $= \dfrac{\text{Security value - Loan} + \text{Cash}}{\text{Security value} + \text{Cash}}$

$$0.30 =$$

$$\text{Cash} = \text{Rs. } 2{,}000$$

(v) Maintenance margin =

$$0.30 = \frac{\text{Rs. } 40 \times (200 - N) - (\text{Rs. } 7{,}000 - \text{Rs. } 40 \times N)}{\text{Rs. } 40\,(200 - N)}$$

$N = 116.23$ shares (117 actually)

Answer 5. (b)

(i) A rise in the ABC Index 100 to 2480 would provide a 240 index point return for the investor. The 240 amounts to 15%. Beyond an index level 2480 the index-based return would exceed 12%.

(ii) The institution providing the investment needs to provide 12% plus half of any index increase beyond 2480. Depositing 80% of the fund at 15% p.a. would yield a return equal to 12% of the whole fund. A call option with a strike price of 2480, and relating to half the size of the fund, would provide a return equal to half the index rise above 2480.

(iii) Eighty percent of the fund needed to be deposited in order to generate the guaranteed 12% return on the whole fund. The interest return on the remaining 20% can be used to purchase the option. This interest return amounts to 3% of the total fund. The present value of this sum can be used for the option premium, and amounts to about 6% of the sum to which the option initially related (strictly speaking the present value of that 6%).

So the implicit premium is Rs. 3/(1.15) for every Rs. 100 of the original investment.

Q. 6. (a) Write short note on Alpha.

$$\frac{\text{Security value - New Loan}}{\text{New Security value}}$$

(b) You are thinking about investing your money in the stock market. You have the following three stocks in mind: Stock X, Y and Z. You know that the economy is expected to behave according to the following table. You believe the likelihood of each scenario is identical (all states of nature have equal probabilities). You also know the following about your two stocks.

State of the economy	R_X	R_Y	R_Z
Depression	-20%	5%	-5%
Recession	10%	20%	5%
Normal	30%	-12%	5%
Boom	50%	9%	-3%
Expected return	17.5%	5.5%	0.5%
Standard Deviation	25.86%	11.5%	4.56%

Portfolio	XY	XZ	YZ
Correlation	-0.1639	-0.1098	+0.2441

(i) If you have to form a portfolio consisting of two stocks, which two stocks would you put in your portfolio in terms of risk reduction?

(ii) What is the expected return of a portfolio with equal investment in stock Y and Z?

(iii) What is the covariance between the returns of the portfolio in part (ii) and those of stock X?

(iv) Based on your previous answer, does it make sense to add stock X to the portfolio? Why?

(v) Calculate the expected return of a portfolio with equal investments in stock X and in the portfolio from part (ii)?

(vi) What is the total risk of this portfolio?

(vii) How can you tell that you have improved your risk-return tradeoff relative to the individual investments in X, Y and Z?

Answer 6. (a)

Meaning :

(i) The difference between the investment's actual expected return and its fair return (as per CAPM) is known as the investment alpha (i.e. a).

(ii) Alpha is an absolute measure, which is the return on the Portfolio in excess of the CAPM predicted return.

(iii) It measures the relative value addition provided by an Asset Manager compared to a market index, given a Portfolio's market risk.

(iv) Alpha can also be interpreted as the deviation from the SML in the CAPM.

Features :

(i) Alpha is appropriate, when the investment represents one of the many investments held by a client.

(ii) Alpha enables to evaluate how well a Manager has performed, when accounting for the level of risk undertaken on to achieve their returns.

Value :

(i) **Positive Alpha :** A positive alpha indicates that the expected return from this stock is higher than the return under CAPM, to the extent of the Alpha value. Hence stocks with positive alpha should be considered as under-valued stocks and hence should be bought.

(ii) **Negative Alpha :** A negative Alpha value indicates that expected return from the stock is less than the return under CAPM, to the extent of the alpha value. Hence stocks with negative alpha should be considered as over-valued stocks and should be sold.

Answer 6. (b)

(i) Stocks X and Y should give you the biggest diversification benefit because their correlation is the lowest. Lower correlation stocks always give better diversification. This is because any rise or fall in one stock would be offset by a fall or rise in the other stock, when correlation coefficient is negative. More the negative, better is the diversification.

(ii) $E(R_{P(Y,Z)}) = 0.5 \times 0.055 + 0.5 \times 0.005 = 0.03\ (3\%)$

(iii) First find the returns on the portfolio for each state of nature :

$E(R_{P(Y,Z)}$ – Depression) = $0.5 \times 0.05 + 0.5 \times -0.05 = 0.00\ (0\%)$

$E(R_{P(Y,Z)}$ – Recession) = $0.5 \times 0.2 + 0.5 \times 0.05 = 0.125\ (12.5\%)$

$E(R_{P(Y,Z)}$ – Normal) = $0.5 \times -0.12 + 0.5 \times 0.05 = -0.035\ (-3.5\%)$

$E(R_{P(Y,Z)}$ – Boom) = $0.5 \times 0.09 + 0.5 \times -0.03 = 0.03\ (3\%)$

Find the covariance between these returns and the returns for investment X :

$COV(R_X, R_{P(Y,Z)}) = 0.25 \times (-0.2 - 0.175) \times (0.0 - 0.3) + 0.25 \times (0.1 - 0.175) \times (0.125 - 0.03) + 0.25 \times (0.3 - 0.175) \times (-0.035 - 0.03) + 0.25 \times (0.5 - 0.175) \times (0.03 - 0.03)$

$= -0.001$

(iv) It only makes sense to add stock X if the correlation between X and the portfolio is negative.

$$r_{X, YZ} = \frac{\sigma_{XYZ}}{\sigma_X \sigma_{YZ}}$$

To calculate the correlation coefficient between the portfolio of Y and Z and stock X, we need to have the total risk of the portfolio with Y and Z (s_{YZ}) first :

$SD(R_{P(Y,Z)}) = [0.25 \times (0.0 - 0.03)^2 + 0.25 \times (0.125 - 0.03)^2 + 0.25 \times (-0.035 - 0.03)^2 + 0.25 \times (0.03 - 0.03)^2]^{0.5}$

$= 0.0595$

$CORR(R_X, R_{P(Y,Z)}) = -0.001/(0.2586 \times 0.0595) = -0.065$

Negative sign indicates that adding stock X should definitely further diversify the portfolio.

(v) $E(R_{P(X,YZ)}) = 0.5 \times 0.175 + 0.5 \times 0.03 = 0.1025$ (10.25%)

(vi) $SD(R_{P(X,Y,Z)}) = [0.5^2 \times 0.2586^2 + 0.5^2 \times 0.0595^2 + 2 \times 0.5 \times 0.5 \times -0.001]^{1/2}$

$= 0.1308$

(vii) The risk-return trade-off can be calculated as the coefficient of variation (CV). This is defined as risk divided by expected return. A lower value for an investment implies a better risk – return trade-off.

CV(X)	=	0.2586/0.175	=	1.478
CV(Y)	=	0.115/0.055	=	2.091
CV(Z)	=	0.0456/0.005	=	9.12
CV(YZ)	=	0.0595/0.03	=	1.983
CV(XYZ)	=	0.1308/0.1025	=	1.276

Note that the portfolio of Y and Z has improved the risk-return trade-off relative to those of the individual securities in the portfolio. Similarly, the portfolio of X,Y and Z has improved the risk-return trade-off relative to all three individual securities in the portfolio.

Q. 7. (a) "Ratings measure performance and recommend investment." Comment.

(b) Shares of Sachin Ltd. has a beta factor of 1.8. The NIFTY has yielded a return of 17%, 6.75% Rs. 100 Treasury Bills are traded at Rs. 108. Ascertain –

(i) Expected return on shares of Sachin Ltd under CAPM.

(ii) Alpha Factor of shares of Sachin Ltd. if the past 5 years actual return on shares of Sachin Ltd. are – 22.50%, 26.30%, 25.70%, 23.40% and 27.60%.

Answer 7. (a)

Credit rating do not measure the following –

(i) **Investment recommendation** – Credit Rating does not make any recommendation on whether to invest or not.

(ii) **Investment decision** – They do not take into account the aspects that influence an investment decision.

(iii) **Issue Price** – Credit Rating does not evaluate the reasonableness of the issue price, possibilities for capital gains or liquidity in the secondary market.

(iv) **Risk or Repayment** – Ratings do not take into account the risk of prepayment by issuer, or interest or exchange risks.

(v) **Statutory Compliance** – Credit Rating does not imply that there is absolute compliance of statutory requirements in relation to Audit, Taxation, etc. by the issuing Company.

Answer 7. (b)

(i) Expected Return on shares of Sachin Ltd. [$E(R_V)$] (Under CAPM)

Computation of Risk Free Return (R_F)

Particulars	Value
Face value of Treasury Bills	Rs. 100
Return on Face Value (in %)	6.75%
Return on Treasury Bills (in value) [Rs. 100 × 6.75%]	Rs. 6.75
Trading Price of Treasury Bills	Rs. 108
Risk Face Return (R_F) as per Market Expectations [Actual Return Rs. 6.75/Market Price Rs. 108]	6.25%

Expected Return [$E(R_V)$]

$E(R_V)$	$R_F + [b_V \times (R_M - R_F)]$		
Risk free return	R_F	6.25%	[As per above working]
Return on Market Portfolio	R_M	17.00%	[Return on NIFTY]
Beta factor	b_V	1.80	[Given]

$E(R_V) = R_F + [b_V \times (R_M - R_F)]$

$= 6.25\% + [1.80 \times (17.00\% - 6.25\%)$

$= 6.25\% + [1.80 \times 10.75\%]$

$= 6.25\% + 19.35\% = 25.60\%$

(ii) Value of Alpha (a_V) for Return on shares of Sachin Ltd. [$E(R_V)$]

Year	Actual Return	Abnormal Return [$A(R_V)$]
1	22.50%	22.50% - 25.60% = (3.10%)
2	26.30%	26.30% - 25.60% = 0.70%
3	25.70%	25.70% - 25.60% = 0.10%
4	23.40%	23.40% - 25.60% = (2.20%)
5	27.60%	27.60% - 25.60% = 2.00%
Total		**(2.50%)**

$a_V = \sum AR_V \div n = (2.50\%) \div 5 \text{ years} = (0.50\%)$

Inference : Alpha is negative. Therefore, expected return will be less than return under CAPM to the extent to 0.50%.

Q. 8. (a) What do you mean by Bull Spread ? What are its variants?

(b) A bond issued by XYZ Co. is selling presently at the face value of Rs. 110 and pays coupon at the rate of 10% p.a. in arrears and will be redeemed at Rs. 110 after 3 years.

I. The n year spot rate of interest, y_n, is given by $y_n(\%) = 9.0 + \frac{n}{10}$ for n =1,2 and 3.

Assuming the pure expectations theory holds good calculate

(i) The implied one year forward rates applicable at times t = 1 and t =2.

(ii) The value of the bond at time t = 0

II. Assuming the term structure of interest rates is flat calculate :

(i) The duration of the above bond.

(ii) Change in bond price for 5 basis point increase in interest rate.

Answer 8. (a)

Bull Spread is the act of buying and selling options with different strike prices with the same expiry dates. Call Option purchased has a Lower Exercise Price than Call Option written. Similarly, put Option purchased has a higher exercise price than Put Option sold.

Basis :

(i) Investor expects that the price of the underlying asset will rise, i.e. outlook is bullish.

(ii) Investor does not want to take undue risks on such expectation.

Types : There two types of Bull Spreads, Bull Call spread and Bull Put Spread –

Areas	Bull Call spread	Bull Put Spread
Situation	Buy and write a Call Option, with different exercise prices, but same expiry date.	Buy and write a Put Option, with different exercise prices, but same expiry date.
Condition	Exercise price of Call Option bought is Lower than exercise price of Call Option sold.	Exercise price of Put Option bought is Higher than exercise price of Put Option sold.
Maximum profit	Ability to make profit is limited to the difference between the exercise prices, and difference between the option premium.	Maximum gain is limited to difference between the premium collected and paid.
Maximum loss	Loss is limited to difference between the premium paid and collected.	Maximum loss is limited to the difference between the exercise prices, and difference between the Option Premium.

Answer 8. (b)

I. (i) We can find forward rates $f_{1,1}$ and $f_{2,1}$ using the spot rates y_1, y_2 and y_3.

$(1 + y_2)^2 = (1 + y_1)(1 + f_{1,1})$ and

$(1 + y_3)^3 = (1 + y_2)^2(1 + f_{2,1})$

For $f_{1,1}$

$(1.092)^2 = (1.091)(1 + f_{1,1})$

$f_{1,1} = 0.093$ i.e. 9.3%

For $f_{2,1}$

$(1.093)^3 = (1.092)^2(1 + f_{2,1})$

$F_{2,1} = 0.095$ i.e. 9.5%

(ii) The value of the bond at t = 0

$= 10 (PVIF_{9.1\%,1} + PVIF_{9.2\%,2} + PVIF_{9.3\%,3}) + 110 \times PVIF_{9.3\%,3}$

$= 10 (0.9166 + 0.8386 + 0.7658) + 110 \times 0.7658 =$ Rs. 109.45

II. (i) 100 = 10 PVIFA (r, 3) + 110 PVIF (r, 3)

Consider r = 11%

R.H.S. = 10 × 2.4437 + 110 × 0.7312 = 104.869

Consider r = 12%

R.H.S. = 10 × 2.4018 + 110 × 0.7118 = 102.316

Consider r = 13%

R.H.S. = 10 × 2.3612 + 110 × 0.6931 = 99.853

By interpolation, YTM,

$$r = 12 + \frac{102.316 - 100}{102.316 - 99.853} \times 1 = 12.94\% \quad \text{or } 13\%$$

Duration

$$= \frac{r_c}{r_d} \times \text{PVIFA}(r_d, n) \times (1 + r_d) + \left(1 - \frac{r_c}{r_d}\right) \times n$$

$$= \frac{0.10}{0.13} \times 2.3612 \times (1.13) + \left(1 - \frac{0.10}{0.13}\right) \times 3 = 2.74 \text{ years}$$

(ii) $D_{mod} = \frac{D}{1 + \frac{r_d}{f}} = \frac{2.74}{1 + 0.13} = 2.42$ years

$$\frac{\Delta P_o}{P_o} \times 100 = -D_{mod} \times \frac{\Delta BP}{100} = -2.42 \times \frac{50}{100} = -1.21\%$$

i.e. 1.21% fall in bond price.

Therefore, new price = 100 × (1 – 0.0121) = Rs. 98.79.

Q. 9. (a) Suppose an individual invests Rs. 10,000 in a load mutual fund for two years. The load is attributed to initial expenses charged at the rate of 4 percent of the amount invested and is deducted from the original funds invested, which would be amortized over 5 years. In addition, recurring expenses are 2.52 percent. The recurring expenses are charged on the average net asset value invested in the fund and are recorded at the end of each year. Investments in the fund return 5% each year paid on the last day of the year. If the investor reinvests the annual returns paid on the investment, calculate the annual return on the mutual fund over the two year investment period.

(b) The Sharpe's ratio and the Treynor's ratio of Future Fund are 0.20 and 4.50, respectively. The correlation coefficient between returns of the funds and the market index is 0.75. what is the standard deviation of the market index's return?

Answer 9. (a)

Annual return calculation based on present value of investment :

Initial investment in the fund	=	Rs. 10,000
Front-end load of 4.00%	=	Rs. 400
Total investible funds	=	Rs. 9,600
Investment value at end of year one = Rs. 9,600 × 1.05	=	Rs. 10,080.00
Operating expenses based on average NAV = Rs. 9,480 × 0.0225	=	Rs. 221.40
Net investibale funds for year two		Rs. 9,858.60

Average NAV	=	(9,600 + 10,080) ÷ 2	= 9,840
Investment value at end of year two = Rs. 9,858.60 × 1.05			= Rs. 10,351.53
Operating expenses based on average NAV = Rs. 10,105.065 × 0.0225			= Rs. 227.36
Net investment at end of year two			= Rs. 10,124.17

Average NAV = (9,858.60 + 10,351.53) ÷ 2 = 10,105.065

Average annual compound return : Rs. 10,124.17 = Rs. 10,000 $(1 + r)^2$

$r = 0.62\%$

Answer 9. (b)

We know that beta by definition is nothing but the covariance of the stock with market over the variance of the market. Knowing that $r_{Pm} s_m = s_{Pm}$ and simplifying we get,

$$[\text{Beta}] \frac{[\text{Correlation with market x Standard Deviation of Portfolio}]}{[\text{Correlation with market x Standard Deviation of Portfolio}]} = \frac{[\text{Correlation with market x Standard Deviation of Portfolio}]}{[\text{Sandard Deviation of the market}]}$$

Given, Sharpe ratio = 0.2; Treynor ratio = 4.5

We know Sharpe Ratio = $\frac{\text{Portfolio Return} - R_f}{\sigma_P}$ and

Treynor Ratio = $\frac{\text{Portfolio Return} - R_f}{\beta_P}$

Therefore, $\frac{\text{Treynor Ratio}}{\text{Sharpe Ratio}} = \frac{\sigma}{\beta}$ i.e. $\frac{\sigma}{\beta} = \frac{\text{Treynor Ratio}}{\text{Sharpe Ratio}} = 4.5/0.2 = 22.50$

We also know that, $r_{Pm} s_P s_m = s_{Pm}$ and, $b = \frac{\sigma_{Pm}}{\sigma^2_m}$ Therefore, $b = \frac{\rho_{Pm}\, \sigma_P\, \sigma_m}{\sigma^2_m}$

Thus solving, we get Standard Deviation of the market

Substituting we get Standard Deviation of the Market = 0.75 × 22.5 = 16.88%

Q. 10. (a) Current value of stock index is 4,500 and the annualized dividend yield is 4%. A three month future contract on the Sensex can be purchased for price of 4,600. The risk free rate of return is 10%. Can the investor earn abnormal risk free rate of return by resorting to Arbitrage? Assume that 50% of the stocks in the index will pay dividends during the next three months. Ignore transaction costs, margin requirements and taxes.

(b) State briefly the powers of RBI to control advances made by Banking Companies.

Answer 10. (a)

First find the fair value of Index Futures contract

Ft = $St[1 + (r_t)(T/12) – (d_t)(p/100)(T/12)]$

= Fair value + Cost of carry – Dividend

Where T is the number of months, d_t is the % of dividend yield and p is the percentage of stocks distributing dividend.

= 4,500 [1 + 0.1 × 3/12 – 0.04 × 0.5 × 3/12]

= 4,590

The index future which is quoting at 4,600 is obviously overpriced. Thus the arbitrageur can exploit the opportunity.

He will resort to the following now :

(i) Borrow at 10% for 3 months and would buy a portfolio identical to the index [Cash Market].

(ii) He would sell the futures of an equal value, because they are overvalued [Futures Market]

Points to remember :

(i) Arbitrage involves a buy at one end and sell at the other.

(ii) On expiration futures, and cash market converge to same value.

(iii) On the expiration date, he would sell his index and would cover back (buy) his futures position.

(iv) On the expiration date, he squares of both positions.

If the Sensex closed at 4,200 on the expiration date then :

Outflows :

Loss on sale of portfolio [4500 – 4200] × 50		=	15,000
Total (A)		=	15,000
Inflows :			
Profit on squaring up futures	[4590 – 4200] × 50	=	19,500
Dividend received for the portfolio [4500 × 0.04 × 0.5 × 50]		=	4,500
Total (B)		=	24,000
Profit (B – A)		=	9,000

If the Sensex closed at 4800 on the expiration date then :

Outflows :			
Loss on squaring of futures	[4800 – 4590] × 50	=	10,500
Total (A)		=	10,500

Inflows :

Profit on sale of portfolio	[4800 – 4500] × 50	=	15,000
Dividend received for the portfolio	[4,500 × 0.04 × 0.5 × 50]	=	4,500
Total (B)		=	19,500
Profit (B – A)		=	9,000

It is seen that the arbitrageur is in a win-win situation both times.

Answer 10. (b)

Where RBI is satisfied that it is necessary or expedient in the public interest or in the interest of depositories or Banking policy so to do, it may determine the policy in relation to advances to be followed by Banking Companies generally or by any Banking Company in particular. The policy so determined is binding upon the Banking Companies concerned.

The RBI may also give directions to Banking Companies, either generally or to any Banking Company or group of Banking Companies in particular, as to –

(i) Purposes for which advances may or may not be made.

(ii) Margins to be maintained in respect of secured advances.

(iii) Maximum amount of advances or other financial accommodation which may be made by a Banking Company to any one Company, Firm, Association of Persons or Individual, having regard to the paid-up capital, reserves and deposits of that Banking Company, and other relevant considerations. [This is called Exposure Norms.]

(iv) Maximum amount upto which guarantees may be given by a Banking Company on behalf of any one Company, firm, Association of Persons or Individual [with regard to the considerations given above].

(v) Rate of interest and other terms and conditions on which advances or other financial accommodation may be made or guarantees may be given.

Q. 11. (a) What are the provisions in the Insurance Act relating to new place of Business?

(b) High Growth Company is contemplating conversion of 500 14% convertible bonds of Rs. 1,000 each. Market price of the bond is Rs. 1,080. Bond indenture provides that one bond will be exchanged for 10 shares. Price earning ratio before redemption is 20:1 and anticipating price-earning ratio after redemption is 25:1. Number of shares outstanding prior to redemption are 10,000. EBIT amounts to Rs. 2,00,000. The company is in the 40% tax bracket. Should the company convert bond into shares? Give reasons.

Answer 11. (a)

Place of business includes a branch, a sub-branch, inspectorate, organization office and any other office by whatever name called.

Permission from IRDA :

(i) An insurer can open a new place of business in India or change otherwise than within the same city, town or village, the location of an existing place of business situated in India, only after obtaining the prior permission of IRDA.

(ii) IRDA may grant permission, subject to such conditions as it may think fit to impose either generally or with reference to any particular case.

Consequences of non-compliance :

(i) If IRDA is of the opinion that an insurer has at any time, failed to comply with any of the conditions imposed on him u/s 64VC, it may revoke the permission granted, by making an order in writing.

(ii) The insurer shall be provided a reasonable opportunity to show cause against the action proposed to be taken against him.

Answer 11. (b)

Analysis of Conversion of Bonds into Equity Shares

Particulars	Pre-redemption	Post-redemption
EBIT	2,00,000	2,00,000
Interest @ 14%	70,000	Nil
Taxable income	1,30,000	2,00,000
Less : Tax @ 40% per cent	52,000	80,000
Net income after tax	78,000	1,20,000
Outstanding shares (nos.)	10,000	15,000
EPS (Rs.)	7.80	8.00
P/E ratio	20 :1	25:1
Market price per share (Rs.) (P/E ratio × EPS)	156	200

Comment – The company is suggested to convert the bond into shares and this will benefit both shareholders and debenture holders. The post redemption market price of the equity shares would be Rs. 200 and the debenture/bondholders would receive Rs. 1,560 in stock (i.e. Rs. 156 × 10 shares) in place of receiving cash Rs. 1,080 only.

Q. 12. (a) Dark Ltd. has an expected return of 22% and standard deviation of 40%. Penguin Ltd. has an expected return 24% and standard deviation of 38%. Dark Ltd has a Beta of 0.86 and Penguine Ltd., a beta of 1.24. the correlation coefficient between the return of Dark Ltd. and Penguine Ltd. is 0.72. the standard deviation of the market return is 20%.

Required **:**

(i) Is investing in Penguine Ltd. better than investing in Dark Ltd.?

(ii) If you invest 30% in Penguine Ltd. and 70% in Dark Ltd., what is your expected rate of return and portfolio standard deviation?

(iii) What is the market portfolios expected rate of return and how much is the risk-free rate?

(iv) What is the beta of portfolio if Dark Ltd's weight is 70% and Penguine Ltd.'s weight is 30%?

(b) An investor is considering five securities in the portfolio with following expected return, standard deviation, and beta :

Assets	*Return %*	*Standard Deviation %*	*Beta*
Apple	**30.0**	**25.00**	**1.10**
Orange	**9.00**	**12.00**	**0.40**
Mango	**15.00**	**23.00**	**1.30**
Pineapple	**22.00**	**13.00**	**0.20**
Guava	**35.00**	**21.00**	**1.45**
Banana	**25.00**	**20.00**	**1.20**

The market, with index used as a proxy, is expected to have a standard deviation of 13%. The investor has decided to put 10%, 20%, 15%, 15%, 25% and 15% respectively in Apple, Orange, Mango, Pineapple, Guava, and Banana respectively. Find out the expected return and risk of the portfolio. Of the total risk what risk is attributable to market and what risk is residual in the portfolio?

Answer 12. (a)

Working note :

Particulars	**Dark Ltd.**	**Penguin Ltd.**
Expected return	22%	24%
Standard deviation	40%	38%
Beta	0.86	1.24
Correlation co-efficient	0.72	
Standard deviation of market return	20%	

(i) The expected return of Dark Ltd. is lower and its standard deviation is higher as compared to Penguine Ltd. Therefore, the Dark Ltd. has lower return and carries higher risk than Penguine Ltd. It is suggested to invest in Penguine Ltd.

In case of increasing share market, the price of share of Penguine Ltd. gains more since its beta (1.24 is more than the beta of Dark Ltd. 0.86).

(ii) Calculation of expected rate of return and portfolio standard deviation if investment is made in Penguine Ltd. 30% and in Dark Ltd. 70% :

Expected rate of return r_{DP}

$= (0.22 \times 0.7) + (0.24 \times 0.30)$

$= 0.154 + 0.072 = 0.226$ or 22.60%.

Portfolio standard deviation

$a^2_{DP} = (0.40^2 \times 0.7^2) + (0.38^2 \times 0.3^2) + (2 \times 0.7 \times 0.3 \times 0.72 \times 0.40 \times 0.38)$

$= 0.1374$

$a_{DP} = \sqrt{0.1374} = 0.3706$ or 37.06%

(iii) Calculation of market portfolios expected rate of return and its risk-free rate

Rate of return of Dark Ltd. (R_D)

$22 = R_f + (R_m - R_f)\, 0.86$

Rate of return of Penguine Ltd. (R_P)

$24 = R_f + (R_m - R_f)\, 1.24$

$R_D - R_P = 22 - 24 = -2$

$b_D - b_P = 0.86 - 1.24 = -0.38$

Therefore, $(R_m - R_f) = \dfrac{-2}{-0.38} = 5.26\%$

Calculation of risk-free rate of return (R_f)

$R_D = R_f + 5.26 \times 0.86$

$22 = R_f + 5.26 \times 0.86$

$22 = R_f + 4.5236$

$R_f = 22 - 4.5236 = 17.48\%$

Alternatively,

$R_p = R_f + 5.26 \times 1.24$

$24 = R_f + 5.26 \times 1.24$

$24 = R_f + 6.5224$

$R_f = 24 - 6.5224 = 17.48\%$

Calculation of market rate of return (R_m)

$R_m - 17.48 = 5.26$

$R_m = 5.26 + 17.48 = 22.74\%$

(iv) Calculation of Beta of portfolio if Dark Ltd.'s weight is 70% and Penguine Ltd.'s weight is 30%

$b_{DP} = (b_D \times W_D) + (b_p \times W_p)$

$= (0.86 \times 0.70) + (1.24 \times 0.30) = 0.974$

Answer 12. (b)

The expected return of the portfolio is given by

$R_p =$

$= 0.10 \times 30 + 0.20 \times 9 + 0.15 \times 15 + 0.15 \times 22 + 0.25 \times 35 + 0.15 \times 25$

$= 22.85\%$

To determine the portfolio variance we need to find the portfolio beta. The portfolio beta is the weighted average of the betas of the individual securities constituting it.

The portfolio beta is :

$b_p = \sum_{1}^{n} W_i\beta_i$

$= 0.10 \times 1.40 + 0.20 \times 0.40 + 0.15 \times 1.30 + 0.15 \times 0.20 + 0.25 \times 1.45 + 0.15 \times 1.20$

$= 0.96$

With the market variance given, the systematic risk of the portfolio is :

Systematic risk = $\beta_p^2\sigma_m^2$

$= 0.96^2 \times 13^2 = 154.94$

Unsystematic Risk = $\sigma_i^2 = \sum_{1}^{n} W_i^2\sigma_{ie}^2$

We need to find the residual risk of each of the security as below :

Assets	Return %	Standard deviation %	Beta	Systematic risk*	Residual variance**
Apple	30.0	25.00	1.10	204.49	420.51
Orange	9.00	12.00	0.40	27.04	116.96
Mango	15.00	23.00	1.30	285.61	243.39
Pineapple	22.00	13.00	0.20	6.76	162.24
Guava	35.00	21.00	1.45	355.32	85.68
Banana	25.00	20.00	1.20	243.36	156.64

*Systematic risk is calculated as $\beta^2\sigma_m^2$

** Residual variance = Total variance – Systematic risk

The unsystematic risk is

Unsystematic Risk = $\sigma_i^2 = \sum_1^n W_i^2 e_i^2$

$= 0.10^2 \times 420.51 + 0.20^2 \times 116.96 + 0.15^2 \times 243.39 + 0.15^2 \times 62.24 + 0.25^2 \times 85.68$
$+ 0.15^2 \times 156.64$

$= 26.89$

Total risk of the portfolio (variance)

= Systematic risk + Unsystematic risk

= 154.94 + 26.89

= 181.83

Standard deviation of the portfolio = 13.48%.

Q. 13. (a) The current market price of the equity shares of Andhra Bank Ltd. is Rs. 190 per share. It may be either Rs. 250 or Rs. 140 after a year. A call option qith a strike price of Rs. 180 (time 1 year) is available. The rate of interest applicable to the investor is 9%. Anand wants to create a replicating portfolio in order to maintain his pay off on the call option for 100 shares. Find out (i) hedge ratio, (ii) amount of borrowing, (iii) fair value of the call and (iv) his cash flow position after a year.

(b) Sigma Steel and Chi Cements are listed on the stock exchange for the last several years. The stocks behave in tandem depending upon the state of economy but to varying degrees. An analyst has conducted a study to find out how the interrelationship of the return of the two stock is. He segregated different economic conditions as – Excellent, Good, Normal, and Poor and calculated the returns offered by each firm during such periods. He further estimated that the likelihood of state of the economy for the next 10 years.

Summary of his findings is as follows :

		Past Returns %	
Situation	**Problem**	**Sigma Steel**	**Chi Cements**
Excellent	**0.15**	**20.00**	**15.00**
Good	**0.15**	**15.00**	**12.00**
Normal	**0.50**	**12.00**	**9.00**
Poor	**0.20**	**– 3.00**	**– 1.00**

Find out the following :

(i) The expected return of each of the stock.

(ii) Standard deviation of each stock.

(iii) Convariance and coefficient of correlation between returns of Stock X and Stock Y.

Answer 13. (a)

We need to create a replicating portfolio same as that of the option which we have to find value i.e. call option. Before creating a replicating portfolio, let us see what will be the payoff of the given call option at the two prices given. We have X = 180, and at expiration, the call will be worth Rs. 70 (Rs. 250 – Rs. 180) if the stock price goes up, or zero if the stock price goes down to Rs. 140 (since we would then be indifferent to exercising it).

Our aim now is to create a replicating portfolio of stock (the asset) and borrow/ lend in such a way that we get the same cash flows as that of the option under consideration. Suppose we let D stand for the number of shares we would need to buy and B for the number of rupees we would need to borrow. Then our problem is to find values of D and B such that the following two equations get satisfied simultaneously.

At expiry if the stock price goes to Rs. 250, we have :

$$(250 \times D) - B(1 + 0.09) = 70$$

At expiry if the stock price goes to Rs. 140, we have :

$$(140 \times D) - B(1+0.09) = 0$$

The first equation insures that our stock-cash portfolio has the same return as the option if the stock goes up and the second assures us the returns will also be equal if the stock goes down.

Solving the two equations simultaneously, we get B and D as, B = Rs. 81.73 and D = 0.636.

Therefore, hedge ratio = 0.636 and the borrowed money for a share = Rs. 81.73 or Rs. 8173 for 100 shares.

This would ensure that the portfolio of stock-cash position will deliver same returns as a call. The value of the call will then be :

Fair value of call = $DS - B = 0.636 \times 190 - 81.73$ = Rs. 39.11

Call option price = Rs. 39.11

Verification :

We now verify that cash flow position after the period is same as that of call option of 1 share.

For 1 share	**Cash-flow – now**	**Cash flow at expiry**	
		S = Rs. 250	S = Rs. 140
Call option	– Rs. 39.11	+ Rs. 70	Rs. 0
Replicating portfolio			
Buy DS i.e. 0.636 shares	– Rs. 120.84	+ Rs. 159	+ Rs. 89
Borrow Rs. 81.73	+ Rs. 81.73	– Rs. 89*	– Rs. 89*
Net	– Rs. 39.11	+ Rs. 70	Rs. 0

* - Rs. 81.73 × (1.09) – Repayment of borrowed money at 9%.

We can see that cash flow from replicating portfolio exactly matches with the cash flows of call option.

We now verify that cash flow position after the period is same as that of call option for 100 shares.

For 100 share	**Cash-flow – now**	**Cash flow at expiry**	
		S = Rs. 250	S = Rs. 140
Call option	-Rs. 3911	+ Rs. 7000	Rs. 0
Replicating portfolio			
Buy DS i.e. 0.636 shares	-Rs. 12084	+ Rs. 15900	+ Rs. 8900
Borrow Rs. 81.73	+ Rs. 8173	- Rs. 8900*	- Rs. 8900*
Net	- Rs. 3911	+ Rs. 7000	Rs. 0

* - Rs. 8173 × (1.09) – Repayment of borrowed money at 9%.

Answer 13. (b)

(i) The expected return on the stock is given by sum of probability × returns under each situation.

$$\text{Expected Return} = \sum_{1}^{n} p_i \times r_i$$

X = SS = 0.15 × 20 + 0.15 × 15 + 0.50 × 12 + 0.20 × – 3

= 10.65%

X = CC = 0.15 × 15 + 0.15 × 12 + 0.50 × 9 + 0.20 × – 1

= 8.35%

(ii) Standard Deviation, the square root of sum of squared deviations from the expected value, is computed as below

$$\text{Variance} = \sum_{1}^{n} p_i \times (X - E(X))^2$$

Prob	X	X – E(X)	px (X – E(X))²	Y	Y – E(Y)	px Y – E(Y)²
15%	20.00	9.35	13.11	15.00	6.65	6.63
5%	15.00	4.35	2.84	12.00	3.65	2.00
50%	12.00	1.35	0.91	9.00	0.65	0.21
20%	– 3.00	– 13.65	37.26	– 1.00	– 9.35	17.48
Sum = Variance			54.1275			26.3275
Standard deviation, s (%)			**7.36**			**5.13**

(iii) Covariance and coefficient of correlation reflect the relationship of returns of the two assets and is computed as below :

$$\text{Convariance} = \sum_{1}^{n} p_i \times (X - E(X)) \times (Y - E(Y))$$

Prob	X	Y	X – E(X)	Y – E(Y)	p × X – E(X) × Y – E(Y)
0.15	20.00	15.00	9.35	6.65	9.33
0.15	15.00	12.00	4.35	3.65	2.38
0.50	12.00	9.00	1.35	0.65	0.44
0.20	– 3.00	– 1.00	– 13.65	– 9.35	25.53
Covariance					**37.6725**

Coefficient of correlation = $\text{Cov}(X, Y) / s_x \times s_y$

= 37.67 / 7.36 × 5.13

= 0.9980

Q. 14. Write short notes on :

(i) Block deal

(ii) Money market vs. Capital market

(iii) Derivative Usance Promissory Notes (DUPN)

Answer 14.

(i) **Block Deal** – With reference to the stock exchanges in India, a trade, with a minimum quantity of 5,00,000 shares or minimum value of Rs. 5 crores executed through a single transaction is referred to as Block Deal. SEBI permits the stock exchanges to provide a separate trading window for this type of deal. BSE and NSE are operating these types of windows.

In this connection, the SEBI guidelines are as follows :

(a) The window shall remain operative from 9.00 a.m. to 9.35 a.m. (35 minutes)

(b) The orders may be placed in this window at a price not exceeding + 1% from the ruling market price/ previous day's closing price, as applicable.

(c) Every trade executed in this must result in delivery and shall not be squared off or reversed.

(d) The stock exchanges shall disseminate the information on block deals to the general public on the same day, after the market hours.

(ii) **Money market vs. Capital market.**

Money market	Capital market
Money market is that segment of financial market where short-term financial assets are dealt with. In this type of market the funds can be raised as well invested from short-term point of view.	Capital market is that segment of financial market where long-term as well as medium term financial assets are dealt with. In this market the funds can be invested as well as raised from medium/ long-term time horizon.
The instruments of the money market are commercial papers, factoring, bills-discounting, call money etc.	The instruments of capital market are shares, debentures and loans.
There are no segments of money market.	There are two segments of capital market (i) primary market and (ii) secondary market.
RBI is the main regulator of this market.	SEBI is the main regulator of this market.

(iii) Derivative Usance Promissory Notes is an innovative instruments issued by the RBI to eliminate movement of papers and facilitating easy rediscounting.

Features :

(a) DUPN is backed by up to 90 days Usance Commercial bills.

(b) Government has exempted stamp duty on DUPN to simplify and stream line the instrument and to make it an active instrument in the secondary market.

(c) The minimum rediscounting period is 15 days.

(d) DUPN is transferable by endorsement and delivery and hence is liquid.

(e) RBI has widened the entry regulation for bill market by selectively allowing, besides banks and PDs, Co-operative banks, Mutual funds and financial institutions.

DFHI trades in these instruments by rediscounting DUPNs drawn by commercial banks. DUPNs which are sold to investors may also be purchased by DFHI.

Q. 15. (a) Bonds of an Engineering Company, which carries AA rating, with five years to maturity and 16% coupon rate, payable half-yearly, is being traded at Rs. 1,040. You as a Fund Managre of Trust Fund, a 80% Debt Fund, want to ascertain the intrinsic value and take a decision accordingly. Face value of the bond is Rs. 1,000.

Your Asset Management Company has laid down the guideline that for AA rated instruments, discount rate to be applied is 364- Day T Bill rate + 4% (T-Bill rate is 10%)

Required **–**

(i) Intrinsic value of the bond

(ii) Action on bond

(iii) Yield to maturity of the bond

(b) Assume that a market called Utopia consists of large number of securities that have identical risk as specified by standard deviation of 30%. These securities too have an identical coefficient of correlation at 0.40. Find out the risk of the portfolio having equal weights with (i) 10 stocks, (ii) 25 stocks and (iii) 100 stocks. To what level of minimum risk can the portfolio go with increased diversification?

Answer 15. (a)

(i) Computation of intrinsic value

(a) Present value of interest cash flow

Particulars	Value
Face value	Rs. 1,000
Coupon rate	16%
Interest payable	Half-yearly
Period to maturity	5 years
Half-yearly interest amount [16% × Rs. 1,000 x 6 months/ 12 months]	Rs. 80
No. of interest payments for the next five years [5 yrs. × 2 per year]	10
Discount rate	14%
Annuity factor for 10 period at 7% (i.e. half of discount rate)	7.024
Present value of cash flows on account of interest flow	Rs. 562

(b) Present value of maturity proceeds

Particulars	Value
Maturity proceeds = Face Value	Rs. 1,000
PV factor at 7% at the end of 10 periods	0.508
Present value of maturity proceeds	Rs. 508

Note : Since interest is payable half years, present value at the end of 5th year is to be computed based on the half yearly interest rate of 8%, and the number of period as 10.

(c) Intrinsic value :

Intrinsic value = PV of Interest flows + PV of Maturity Proceeds

= Rs. 562 + Rs. 508 = Rs. 1,070

(ii) Action on bond

Particulars	Rs.
Value of bond [Expected Price = Intrinsic value]	1,070
Actual market price per bond	1,040
Evaluation [Actual Price vs. Expected Price]	Actual price is lower
Inference	Bond is underpriced
Action	BUY

(iii) Yield based on Current Market Price

Particulars	Face value	Intrinsic value
Value of bond	Rs. 1,000 [V_1]	Rs. 1,070 [V_2]
Yield percentage [Annualized]	16% p.a. [R_1]	14% p.a. [R_2]

If the present value is Rs. 1,040 [V_M] i.e. between Rs. 1,000 and Rs. 1,070. Current yield [Y] is between 14% p.a. [R_2] and 16% p.a. [R_1]. Therefore by interpolation, current yield is 14.85% p.a. or 7.43% [Half yearly].

Yield to maturity [Y] = $R_2 + \frac{[V_2 - V_M]}{[V_2 - V_1]} \times [R_1 - R_2]$

= 14% + [(Rs. 1,070 – Rs. 1,040) / (Rs. 1,070 – Rs. 1,000)] × [16% - 14%]

= 14% + [Rs. 30/Rs. 70] × 2%

= 14% + 0.43 × 2%

= 14% + 0.86% = 14.86%.

Answer 15. (b)

(i) The standard deviation of the portfolio of 10 securities is given by :

$\sigma_p^2 = \frac{1}{n}\sigma^2 + \frac{n-1}{n}\rho\sigma^2 = \frac{30^2}{10} + \frac{9}{10}$ 0.4 × 30^2 = 30^2 × 0.46

or s_p = 30 × 0.68 = 20.34%

(ii) The standard deivation of the portfolio of 25 securities is given by ;

$\sigma_p^2 = \frac{1}{n}\sigma^2 + \frac{n-1}{n}\rho\sigma^2 = \frac{30^2}{25} + \frac{24}{25}$ 0.4 × 30^2 = 30^2 × 0.424

or s_p = 30 × 0.65 = 19.5%

(iii) The standard deviation of the portfolio of 100 securities is given by :

$\sigma_p^2 = \frac{1}{n}\sigma^2 + \frac{n-1}{n}\rho\sigma^2 = \frac{30^2}{100} + \frac{99}{100}$ 0.4 × 30^2 = 30^2 × 0.406

or s_p = 30 × 0.64 = 19.2%

The minimum risk that can be achieved through diversification is given by :

$\sigma_p^2 = \rho\sigma^2 = 0.4 \times 30^2$ or $\sigma_p = 30\sqrt{0.4} = 18.97\%$

Q. 16. (a) Mr. Desikan is keen to purchase HCL if the stock gives a return more than that of the market. He has gathered the price movement of HCL and Sensex (Index) for the past 6 months recorded on the last trading day of each month. Use Sensex data as proxy for market portfolio and advise Mr. Desikan, if we hold CAPM to be true.

Date	Share price of HCL	SENSEX
January 31	404	6000
February 28	409	6015
March 29	422	6250
April 30	418	6215
May 31	415	6160
June 28	404	6000

(b) What are Support levels and Resistance Levels? How do they affect the market behavior?

Answer 16. (a)

Regression formula :

We use the regression formula for calculation of beta (b)

$$\text{Beta} = \frac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (\sum X)^2}$$

Where X in the return on market portfolio (independent variable), Y is the return on security (a dependent variable). N – is the total number of observations [Note to use the dependent & independent variable correctly].

Y is calculated as = $\frac{409 - 404}{404}$ = 1.24% & X is similarly calculated. We complete our calculations as given in the table below :

Date	Share price of HCL	SENSEX	HCL annual returns Y	SENSEX annual X	returns XY	X^2
January 31	404	6000				
February 28	409	6015	1.24%	0.25%	0.00003	0.00001
March 29	422	6250	3.18%	3.91%	0.00124	0.00153
April 30	418	6215	-0.95%	-0.56%	0.00005	0.00003
May 31	415	6160	-0.72%	-0.88%	0.00006	0.00008
June 28	404	6000	-2.65%	-2.60%	0.00069	0.00067
		Total	**0.00100**	**0.0012**	**0.00207**	**0.00232**

Therefore Beta = $\frac{5\times 0.00207 - 0.0012\times 0.00100}{5\times 0.00232 - (0.0012)^2} = 0.90$

The share of HCL has a historical beta of 0.90. Betas measure the relative volatility of the stocks with respect to market. The average stocks beta is 1.0. since HCL's beta is 0.90, signifies that the stock's return would be less than the market's return. If we hold CAPM to be true, we would not recommend investment in HCL by Mr. Desikan.

Answer 16. (b)

Support Levels – When the Index/Price rebounds after reaching a trough subsequently, the lowest value reached becomes the support level.

Resistance Levels – Represents the peak value from which the index or price goes down.

Applications and Market behavior :

Price band : Price is expected to move between these two levels.

Market behavior :

(i) If the price approaches the resistance level, there is a selling pressure because all investors who failed to sell at the high would be keen to liquidate.

(ii) Whenever the price approaches the support level, there is a buying pressure as all those investors who failed to buy at the lowest price would like to purchase the share.

Prices outside the support level and resistance level : Breach of these levels indicates a distinct departure from status quo, and an attempt to set newer levels.

Q. 17. (a) A 3 day repo is entered into on July 10, 2007 on an 11.99% 2011 security, maturing on April 7, 2011. The face value of the transaction is Rs. 3 crores. The price of the security is Rs. 116.42, if the repo rate is 7%, what is the settlement amount on July 10, 2007 and settlement amount on July 14, 2007? Assume that PNB has let securities in the first leg to RBI. What PNB has paid for this 3-day repo? [Use 360 day convention].

(b) You are required to compute the annualized cost of fund to XYZ Bank, Given :

Face value of certificate of deposits	**-**	**Rs. 15 lakhs**
Issue price	**-**	**Rs. 14,45,000**
Tenure	**-**	**5 months**
Stamp duty	**-**	**Rs. 0.25% of face value.**

Answer 17. (a)

In the first leg PNB lends securities and receives money from RBI.

Stage I

Govt. Sec. pays bi-annual coupons :

Govt. Sec. maturity on April 7, 2011;

Last interest paid on April 7, 2007;

Days elapsed from April 8, 2007 till July 10, 2007 = 23 + 31 + 30 + 9 = 93 days

Accrued interest : 3 crores × 0.1199 × 93/360 = Rs. 9,29,225

Transaction value = Rs. 3 crores × 116.42/100 = Rs. 3,49,26,000

Total settlement amount = Rs. 3,58,55,225 = Money received by PNB from RBI.

Stage II

After 3 days, securities returned to PNB & RBI receives money with repo interest

Accrued interest : 3 crores × 0.1199 × 96/360 = Rs. 9,59,200

Repo interest = Interest on borrowed amount = Rs. 3 crores × 0.07 × 3/360 = Rs. 17,500

Transaction value = Rs. 3 crores × 116.42/100 = Rs. 3,49,26,000

Total settlement amount = 17,500 + 9,59,200 + 3,49,26,000 = Rs. 3,59,02,700 = Money received by RBI from PNB.

Cost of 3-day repo to PNB

Repo interest = Rs. 17,500

3 day interest on Govt. Sec. = 9,59,200 – 9,29,225 = Rs. 29,975

Total = Rs. 47,475.

Answer 17. (b)

Face value = Rs. 15 lakhs

Issue price = Rs. 14,45,000

To find the annualized rate we first find the inherent rate for 5 months and compound the same to find the annualized rate. The five month rate is given by r which satisfies the following equation.

$D = 1 \times \frac{r}{100} \times \frac{n}{365}$, where D = Rs. 55,000 for an investment of Rs. 15 lakhs i.e. Rs. 3.67 for an investment of Rs. 100. Thus, we get r as follows :

$3.67 = 100 \times \frac{r}{100} \times \frac{5}{12}$ which implies r = 8.8%

A certificate deposit paying 8.8% p.a. would pay monthly 8.8%/12 = 0.733%

This when compounded 12 times we get annualized rate :

Amount = $1000 \times (1 + 0.00733)^{12}$ = Rs. 1,091.59

i.e. 9.16% on an investment of Rs. 1,000.

Cost of funds to the bank = Effective interest rate + Stamp duty

= 9.16% + 0.25%

= 9.41%

Q. 18. (a) Assume you can buy or sell the call or the put option, with a strike price of Rs. 35. The call option has a premium of Rs. 3 and the put option has a premium of Rs. 2. Which of these option contracts can be used to form a long straddle ? What is the payoff if the stock price closes at Rs. 38 on the option expiration date? What is the payoff if the stock price closes at Rs. 28 on the option expiration date?

(b) Mr. Akash holds 10,000 shares of IOC bought at Rs. 35. He is of the opinion that his portfolio needs protection on the downside. He has the following options short listed :

(i) To write covered calls at a strike price of Rs. 45 (January expiry) which are priced at Rs. 3 per share (each contract underlies 1,000 shares of IOC).

(ii) To buy protective puts at a strike price of Rs. 35 (January expiry) which are priced at Rs. 3 per share (each contract underlies 1,000 shares of IOC).

(iii) To establish a "Collar" with these call & put.

(iv) Which of these would be advised to Mr. Akash? How you rank them?

Answer 18. (a)

To form a long straddle both the Rs. 35 call and Rs. 35 put options are purchased (long positions). The total cost is Rs. 5 per straddle (the Rs. 3 premium on the call option and the Rs. 2 premium on the put option). If the stock price is Rs. 38 per share at the option expiration date, then there is a net loss of Rs. 2 per long straddle (a Rs. 3 profit on the call option less than the Rs. 5 premium). If the stock price is Rs. 28 per share at the option expiration date, then there is a net profit of Rs. 2 per long straddle (a Rs. 7 profit on the put option less than the Rs. 5 premium).

Answer 18. (b)

(i) By writing covered call options. Akash collects premium income of Rs. 30,000. If the price of the stock in January is less than or equal to Rs. 45, he will have his stock plus the premium income. The stock will be called away from him if its price exceeds Rs. 45. The payoff structure is :

Stock price	Portfolio value
Less than Rs. 45	10,000 times stock price + Rs. 30,000
More than Rs. 45	Rs. 4,50,000 + Rs. 30,000 = Rs. 4,80,000

(ii) BY buying put options with a Rs. 35 exercise price, Akash will be paying Rs. 30,000 in premiums to insure a minimum level of Rs. 35 × 10,000 – Rs. 30,000 = Rs. 3,20,000. This strategy allows for upside gain, but exposes Akash to the possibility of a moderate loss equal to the cost of the puts. The payoff structure is :

Stock price	Portfolio value
Less than Rs. 35	Rs. 3,50,000 – Rs. 30,000 = Rs. 3,20,000
More than Rs. 35	10,000 times stock price – Rs. 30,000

(iii) A collar can be established by holding shares of an underlying stock, purchasing a protective put and writing a covered call on that stock. In other words, one collar equals one long put and one written call along with owning 100 shares of the underlying stock. The primary concern in employing a collar is protection of profits accrued from underlying shares rather than increasing returns on the upside. In the present case the net cost of the collar is zero. (This is because, the income received by writing a call will be used to pay premium of the put option). The value of the portfolio will be as follows :

Stock price	Portfolio value
Less than Rs. 35	Rs. 3,50,000
Between Rs. 35 and Rs. 45	10,000 times stock price
More than Rs. 45	Rs. 4,50,000

If the stock price is less than or equal to Rs. 35, the collar preserves the Rs. 3,50,000 in principal. If the price exceeds Rs. 45 Akash gains up to a cap of Rs. 4,50,000. In between, his proceeds equal 10,000 times the stock price.

(iv) The best strategy in this case would be (iii) since it satisfies the two requirements of preserving the Rs. 3,50,000 in principal while offering a chance of getting Rs. 4,50,000. Strategy (i) seems ruled out since it leaves Akash exposed to the risk of substantial loss of principal. The ranking would be (iii), (ii) and (i), in that order.

Section II : Corporate Law & Corporate Governance

Q. 19. Choose the most appropriate one from the stated options and write it down (only indicate A,B,C,D as you think correct) :

(i) A 'Statement in lieu of prospectus' must be filed before the allotment of the shares with the Registrar of Companies by

A. A private company

B. A guarantee company

C. A public company which issues the prospectus to the pubic

D. A public company which does not issue the prospectus to the public

(ii) Dividend can be declared out of

A. Capital reserve

B. Revaluation reserve

C. Debenture redemption reserve

D. Earlier year's reserve brought forward

(iii) Quorum for a general meeting of a public company is

A. 5 members present in person or by proxy

B. 3 members personally present as required by the Articles of Association of the company

C. 5 members personally present

D. 2 members personally present

(iv) An extraordinary general meeting may be convened by

A. Board of directors

B. Requisitionists

C. Company law board / Tribunal

D. All of the above

(v) A model form of Articles contained in table 'A' relates to a company limited by

A. Shares

B. Guarantee

C. Shares and guarantee

D. None of the above

Answer 1. (a)

(i) D

(ii) D

(iii) C

(iv) D

(v) A

Q. 20. (a) Amal buys 500 shares in a company from Bimal on the faith of a share certificate issued by the company. Amal tenders to the company a transfer deed, duly executed, along with Bimal's share certificate for transferring the shares in his name. The company discovers that the certificate in the name of Bimal has been fraudulently obtained and refuses to register the transfer. Advise Amal. Is Amal entitled to get the shares transferred in his name?

(b) Immediately upon conducting the last general meeting held in August, the Chairman went overseas for medical treatment. Accordingly, the minutes of the said meeting could not be signed by him. To meet the requirements of the law, he sent a letter of authority to the Secretary authorizing the latter to sign the minutes of the former's behalf. Can the Secretary act on the letter of authority? If not, what procedure should be followed?

(c) ABC Co. Ltd. wants to make a contract with a partnership. Four of the five directors of the company are partners of such partnership. How can the contract be executed?

Answer 20. (a)

The facts of the problem are similar to the case of Re, Otto Kopie Diamond Mills (1893) 1 Ch. 618.

In this case "A" bought from "B" 4,000 shares in a company on the faith of share certificate issued by the company. 'A' tendered to the company a transfer deed from B to himself duly executed, together with the share certificate. The company discovered that the certificate in the name of 'B' had been fraudulently obtained and refused to register the transfer. It was held that although the certificate was not a warranty of title upon which 'A' could maintain an action against the company, it stopped the company from disputing 'A's right to be registered. 'A' could claim damages from the company to the extent of the value of the shares at the time of the refusal to register the transfer.

Thus, in the given problem as the circumstances are similar to the case cited above, Amal is entitled to get the shares registered in this name and claim damages from the company to the extent of the value of shares at the time of the refusal to register the transfer by the company.

Answer 20. (b)

According to section 193 (1) of the Companies Act, 1956, minutes of the proceedings of a general meeting are required to be signed and dated by the Chairman of the same meeting, within 30 days from the holding of that meeting. The section further specifies that, in the event of death or inability of the Chairman within the specified period to authenticate and date the same, a Director can be authorized by the Board to sign and date the same.

The Company Secretary cannot carry out the said function, although he had been authorized by the Chairman and a letter of authority was issued to him by the Chairman for the said purpose.

It is, therefore, necessary for the Secretary to get a Board resolution authorizing a director to sign the minutes of General meeting. Resolution of the Board may be passed through circulation in accordance with the provisions of section 289.

Answer 20. (c)

The given problem relates to a situation where a director is interested in a contract. An interested director must not vote on any contract or arrangement in which he is interested. Moreover, interested director is not counted towards quorum. In the present case, since four out of five directors are interested directors, unless Articles permit otherwise (i.e. Articles may even allow interested directors to attend and vote), valid meeting of the Board cannot take place regarding the contract in question. However, it should be noted that there is no ban on a company to enter into a contract in which a director or directors are interested. Section 299 of the Companies Act only requires the interest to be disclosed. Thus, in the present case the Board of directors having been rendered incompetent, the contract can be executed by the general body of shareholders by passing an ordinary resolution.

Q. 21. (a) What are the transactions to which Section 372A does not apply ?

(b) The paid up share capital and free reserves of ABC Co. Ltd., a Public Company is Rs. 100 crores as on 1.4.2011. The shareholders of the company at their general meeting held on 4.4.2011, by a resolution authorized the Board of Directors of the Company to borrow money "exceeding the Paid Up Share Capital and Free Reserves of the Company, to the extent required by the board of Directors". The Board of Directors as a result borrowed money to an extent of Rs. 130 crores, including Rs. 20 crores as Temporary Loan for financing the construction of a building of the Company. Examine the validity of the following –

(i) The board's exercising the powers for borrowing money to an extent of Rs. 130 crores.

(ii) What would be your answer in case the Company's Paid Up Share Capital and Fre Reserves increased to Rs. 150 Crores and the Board of Directors borrow money to an extent of Rs. 140 Crores which neither include any short term loan nor temporary loan for financing of the construction of a building of the company ?

(c) Shyam is a Contributory of Bharat Ltd., which is being wound-up. Bharat Ltd. owes Rs. 24,000 to Shyam (who is also a creditor of the company), and Shyam is liable to pay Rs. 36,000 towards unpaid amount on his shares. Can Shyam claim set-off of the debt due to him and pay the balance of Rs. 12,000 to the company, in the course of its winding-up?

Answer 21. (a)

Transactions excluded : Section 372A is not applicable to –

1. Loan/Guarantee/ Security/ Investment made/ given by -
   (i) A Banking Company, or
   (ii) An Insurance Company, or
   (iii) A Housing Finance Company, or
   (iv) A Company established with the object of financing industrial enterprises or providing infrastructural facilities,
   (v) A Company whose principal business is the acquisition of shares, stock, debentures or other securities
   (vi) A Private Company, unless it is a subsidiary of a Public Company.
2. Investment made in shares allotted u/s 81(1)(a), i.e. Right Shares
3. Loan made by a Holding Company to its wholly-owned subsidiary.
4. Guarantee given or security provided by a Holding Company, in respect of loan made to its wholly owned subsidiary, or
5. Acquisition by a Holding Company by way of subscription, purchase or otherwise, the securities of its wholly-owned subsidiary.

Answer 21. (b)

Section 293 (1) (d) limits the directors' power to borrow to the aggregate of the paid-up capital of the company and its free reserves. It reads :

"The Board of directors of a public company or of a private company which is a subsidiary of a public company, shall not, except with the consent of such public company or subsidiary in general meeting borrow moneys where the moneys to be borrowed, together with the moneys already borrowed by the company (apart from temporary loans obtained from the company's bankers in the ordinary course of business) will exceed the aggregate of paid-up capital of the company and its free reserves, that is to say, reserves not set apart for any specific purpose".

The term 'temporary loans' means loans (i) repayable on demand, or (ii) repayable within 6 months from the date of the loan such as short term, cash credit arrangements, the discounting of bills, or (iii) other short term loans of a seasonal character. The term, however, does not include loans raised for the purpose of financing expenditure of a capital nature.

Situation 1 :

Total borrowings of Rs. 130 crores is analysed as under –

(i) Rs. 20 crores – Short term loan – assumed repayable within 6 moths – not considered in ceiling limit for Sec 293 (1) (d) purposes.

(ii) Rs. 25 crores – Temporary loan but for capital purpose – included for sec. 293 (1)(d) purposes.

(iii) Rs. 85 crores – Other Loans – included for Sec. 293 (1)(d) purposes.

Loans above ceiling limit – Total Borrowings u/s 293 (1)(d) = Rs. 110 crores, exceed the aggregate of paid up capital and reserves of the company Rs. 100 crores. Hence approval in General Meeting specifying the amount of borrowing is required, to make the borrowing valid.

Here, the resolution is defective since it does not specify the amount that may be borrowed by the company. So, the management of the company should convene an EGM and pass a resolution as required u/s 293 (1)(d), to make the borrowing valid and binding on the company and its members.

Situation 2 :

If the paid up capital and free reserves is increased to Rs. 150 crores, then the borrowings of Rs. 140 crores is within the powers of the Board and hence the same is valid. Shareholders' approval is not required in such case.

Answer 21. (c)

A member may be a creditor of the Company for unpaid dividend or otherwise. Any such money due to a Member from the Company cannot be set-off against any claim of the Company against such member. So, a Member-Contributory has no right of set-off, where he is also a creditor of the company. The basic principle underlying the denial of right of set-off is that when a person entitled to participate in a fund is also bound to make a contribution in aid of that fund, he cannot be allowed to participate, until he has discharged his obligation. [In Re. Peruvian Railway Construction Co. 2 Ch. 442]. Right of set-off is not allowed only between contributory and company. However, any such debt due by the company to the member who is also a creditor, shall be taken into account for the purpose of the final adjustment of the rights of the contributories among themselves.

So, in the given case, Shyam can not claim set-off of the debt due to him and pay the balance to the Company.

Q. 22. (a) A Ltd. & B Ltd. both dealing in Fertilisers have entered into an agreement to jointly promote the sale of their products. A complaint has been received by the Competition Commission of India (CCI) stating that the agreement between the two is anti-competitive and against the interest of other in the trade. Examine what are factors the CCI will take into account to determine whether the agreement in question will have any appreciable adverse effect on competition in the market.

(b) "Corporate Governance sans (without) ethics is bound to be failure" – Explain.

(c) In the context of Court rulings in the matter of merger, answer the following :

(i) Whether exchange ratio approved by shareholders of merging companies can be questioned by a small group of dissenting shareholders?

(ii) Whether transferor company is justified in excluding assets held on lease and licence arrangement, from those transferred to the transferee company?

(iii) Whether there was contravention of section 393(1)(a) inasmuch as the fact that the chartered accountant entrusted with the valuation of the shares was also a director of the amalgamating company, had not been disclosed?

Answer 22. (a)

For determining whether a Combination would have the effect of or is likely to have an appreciable adverse effect on competition in the relevant market, the CCI shall have due regard to all or any of the following factors –

(i) Actual and potential level of competition through imports in the market.

(ii) Extent of barriers to entry into the market.

(iii) Level of combination in the market.

(iv) Degree of countervailing power in the market.

(v) Likelihood that the combination would result in the parties to the combination being able to significantly and sustainably increase prices or profit margins.

(vi) Extent of effective competition likely to sustain in market.

(vii) Extent to which substitute are available or are likely to be available in the market.

(viii) Market share, in the relevant market, of the persons or enterprise in a combination individually and as a combination.

(ix) Likelihood that the combination would result in the removal of a vigorous and effective competitor (s) in the market.

(x) Nature and extent of vertical integration in the market.

(xi) Possibility of a failing business.

(xii) Nature and extent of innovation.

(xiii) Relative advantage, by way of the contribution to the economic development, by any combination having or likely to have appreciable adverse effect on competition.

(xiv) Whether the benefits of the combination outweigh the adverse impact of the combination, if any.

Answer 22. (b)

Good Corporate Governance requires the application of some ethical principles. Without an ethical foundation no Corporate Governance can be successful. An ethical model of Corporate Governance has been suggested from time to time with a view to making it more effective. Corporate Governance cannot be successful for protecting the interest of the stakeholders unless it is built on a strong ethical foundation. Any good practice by management calls for the application of ethics. If the corporate management, including the Board of Directors and CEO does not act in ethical way, the Corporate Governance is bound to be a failure. Therefore any good Corporate Governance should be based on sound ethical practices. In short, we can say that ethics is the core of good Corporate Governance. Therefore, the statement that "Corporate Governance sans (without) ethics is bound to be failure" is absolutely correct.

Answer 22. (c)

The answers are as follows :

(i) No; in Hindustan Lever Employees' Union v. Hindustan Lever Ltd. [1994] 4 Comp. L.J. 228 (Bom.), the Bombay High Court held that where the exchange ratio has been approved by an overwhelming majority of shareholders and there is no basis to doubt their judgement and the valuation having been also confirmed to be fair by the firm of auditors, the objections of the same cannot be sustained.

(ii) Yes; the Supreme Court in Hindustan Lever Employees' Union v. Hindustan Lever Ltd. [1995] 83 Comp. Cas. 30 held that the leasehold assets and properties held by a company were neither transferable nor heritable; they are in the nature of a personal privilege. Accordingly, the transferor-company was justified in excluding them.

(iii) No; the Supreme Court in the aforesaid case explained that the interest contemplated under section 393 is material interest for consideration of the scheme by the shareholders, where both the amalgamating companies repose confidence in the professional skill of a professional, the chartered accountant, in the given case. The non disclosure of the fact that he was also director of the amalgamating company cannot be said to affect the amalgamation schemes in any way. This was also held as not amounting to suppression of any material interest of a director in the scheme.

Q. 23. (a) Niladri Ghosh, Managing Director of RIL Ltd. is also a Director of ABC Ltd. On coming to know that the latter Copnay will issue Bonus Shares shortly, he persuaded the Board of Directors of RIL Ltd. to invest in Equity Shares of ABC Ltd. to the extent of Rs. 10 lakhs at the rate of Rs. 700 per shares by passing a Board resolution on 30th July 2011. Will Mr. Ghosh be liable under the SEBI even though he has not directly dealt in Equity Shares of ABC Ltd. Examine.

(b) Amal applies for share on the basis of a prospectus which contains mis-statement. The shares are allotted to him, who afterwards transfers them to Bimal. Can Bimal bring an action for a rescission on the ground of mis-statement? Decide under the provisions of the Companies Act, 1956.

(c) Is a sick industrial company bound to repay, after its revival or rehabilitation, the amount of the Fund utilized for its revival or rehabilitation?

Answer 23. (a)

Insider means any person who, is or was deemed to have been connected with the Company, and who is reasonably expected to have access to unpublished price sensitive information (UPSI) in respect of securities of a company or who has received or has had access to such UPSI.

"Price Sensitive Information" means any information which relates directly or indirectly to a Company and which if published, is likely to materially affect the price of securities of the Company. The following shall be deemed to be Price Sensitive Information –

(i) Periodical financial results of the company.

(ii) Intended declaration of dividends, both interim and final.

(ii) Amalgamations, mergers or takeovers.

(iv) Any major expansion plans or execution of new projects.

(v) Issue of securities or buy-back of securities.

(vi) Any significant changes in policies, plans or operations of the company.

(vii) Disposal of the whole or substantial part of the undertaking.

Under section 15G of SEBI Act, 1992, any insider who –

(i) Either on his own behalf or on behalf of any other person deals in securities of a body corporate listed on any Stock Exchange on the basis of any UPSI, or

(ii) Communicates any UPSI to any person, with or without his request for such information except as required in the ordinary course of business or under any law, or

(iii) Counsels, or procures for any other person to deal in any securities of any body corporate on the basis of UPSI.

Will be liable to a penalty of Rs. 25 crores, or 3 times the amount of profits made out of such act/failure/practices, whichever is higher.

So in the given case, Mr. Ghosh will be liable to penalty under section 15G.

Answer 23. (b)

An investor has a right to rescind the contract to take shares if he subscribes to the shares on the basis of a false or untrue statement contained in the prospectus, i.e. where the prospectus is a mis-leading prospectus.

Condition for rescission :

(i) Prospectus has been issued by or on behalf of the company.
(ii) There must be a representation of fact.
(iii) The representation must be false.
(iv) The false representation of fact must be material.
(v) The investor must have relied and acted on the prospectus, i.e. he subscribed for shares after being influenced by the mis-statement in prospectus.
Thus, a person who purchases shares from the secondary market cannot claim any remedy against the company (Peek v Gurney)
(vi) The false representation must have induced the investor to purchase shares.
(vii) The investor rescinds the contract within a reasonable time.

To sum up, if mis-statement of a material fact in a prospectus has induced an investor to purchase shares, he has a right to rescind the contract within a reasonable time.

In the given case, Bimal is not an original allottee of shares, since he obtained the shares by way of transfer from Amal. Since, Bimal did not subscribe for shares on the faith of a misleading prospectus, he cannot claim damages from the company.

Answer 23. (c)

Recovery of amount form the company after it is revived or rehabilitated [Section 441 G(1)] – Where the fund has been applied by the tribunal for any of the purposes specified in clauses (a) to (d) of section 441D, such amount of fund shall be recovered from the company after its revival or rehabilitation or out of sale proceeds of its assets after discharging the statutory liabilities and payments of dues to creditors.

Manner of recovery of the amount [Section 441G(2)] – The amount referred to in sub-section (1) shall be recovered in the manner as the Tribunal may direct.

Q. 24. (a) Why Corporate Governance is important?

(b) "Stock exchanges registered under the Companies Act, 1956 can carry a provision in their articles empowering directors to expel any member of the company under any of the given conditions". Discuss.

(c) Answer the following explaining the relevant provisions of the Companies Act, 1956.

(i) Whether the companies being amalgamated must be companies registered under the Companies Act, 1956?

(ii) Whether the object clause of the Memorandum of Association of the Companies seeking sanction of the court for a scheme of amalgamation must have specific power to amalgamate?

Answer 24. (a)

The shareholders nominate and elect directors, who run the enterprise on their behalf. The directors are the stewards of the resources of the business and demonstrate their accountability to the shareholders, in the form of regular financial account and directors' reports. The shareholders also appoint independent auditors to report that these accounts show a true and fair view of the state of affairs of the company, regular shareholders' meetings provide an opportunity for the directors to report and clarify shareholders' doubts or answer their questions.

Companies need to be governed as well as managed. Corporate governance is concerned with this need. The board of directors is central and its structure and processes are fundamental; so are the board's relationships with the company's shareholders, regulators, auditors, top management and other legitimate stakeholders.

There is no uniform scope or content of corporate governance. Some focus on the link between shareholders and the company; some concentrate on the formal structures of the board, codes of board practice and corporate effectiveness; yet others believe the focus should be on the social responsibilities of corporations to a wider set of stakeholders. Corporate governance is a useful umbrella term to cover the exercise of power over and within the company, for the good of all concerned.

Answer 24. (b)

The Department of Company affairs following the judgement in the case of *Bajaj Auto Ltd.* v. *N.K.Firodia* [1971] 41 Comp. Cas. 338 has expressed the view that the company cannot by amending the Articles of Association give itself a power to expel a member. Such an amendment of Articles of Association is opposed to the fundamental principles of the companies' jurisprudence and is ultra vires the company. Such a provision is repugnant to the various provisions in the Companies Act pertaining to the rights of a member in a public limited company and cuts across the scheme of the Act as it has the effect of rendering nugatory the very powers of the Central Government (now the Company Law Board) under section 111 of the Companies Act, 1956 and the powers of the courts under sections 107 and 395 of the Act and is, therefore, void by the operation of the provisions of section 9 of the Act.

However, it seems permissible for a company limited by guarantee or a company governed by section 25 of the Companies Act to include a provision for expulsion of a member from the company, if his conduct or action is considered detrimental to the interest of the company.

Answer 24. (c)

(i) For effecting amalgamation of two or more companies, an application shall be made to the court under section 391 (Section 394). The benefit of section 394 is available only if the transferee company (i.e. new company) is a company within the meaning of Companies Act, 1956. However, the transferor company may be any body corporate, whether a company within the meaning of the Companies Act, 1956 or not. As such, a foreign company can be a 'transferor company' but not a 'transferee company'. Therefore, a scheme of amalgamation may provide for transfer of foreign companies to Indian companies. Thus, it is not necessary that the companies being amalgamated must be companies registered under the Companies Act, 1956; it is sufficient if the amalgamated company is a company registered under the Companies Act, 1956.

(ii) The memorandum of association explains the scope of operations of a company beyond which the company cannot go. Anything done by a company outside the objects clause of memorandum is ultra vires the company.

However, to amalgamate with another company is a power of the company, and not an object of the company. Therefore, no power to amalgamate is required in the memorandum of a company before making an application to the Court for effecting amalgamation. Also, the power to amalgamate has been given by the statute under section 394. Since there is a statutory provision dealing with amalgamation of companies (which does not require that such a provision must be present in the memorandum or articles of the company), no special power in the objects clause of the memorandum is necessary for its amalgamation with another company. Section 394 is a complete code which gives full jurisdiction to the court to sanction amalgamation of companies even though there may be no power in the objects clause of memorandum. [United Bank of India v United India Credit & Development Co Ltd.].

Q. 25. (a) Bharat Motor Pvt. Ltd. is a company in which there are eight shareholders. Can a member holding less than one-tenth of the share capital of the company apply to the Company Law Board for relief against oppression and mismanagement?

(b) A prospectus issued by a company contained a promise of subscription of a substantial amount by some persons so as to induce the public to subscribe. The plaintiff who was allotted 15 shares alleged material misrepresentation. Decide.

(c) A company served a notice of a general meeting upon its members. The notice stated that a resolution to increase the share capital of the company would be considered at such meeting. A shareholder complains that the amount of the proposed increase was not specified in the notice. Is the notice valid?

Answer 25. (a)

Section 399 provides for the persons who can make a valid application to the CLB for relief against oppression and mismanagement. With respect to the members/ shareholders who can apply, section 399 states that in the case of a company having share capital a valid application may be made by 100 members or 10 per cent of its total members, whichever is less. In the alternative, application may be made by members holding 10 per cent of the issued share capital. Thus in the present case, since Bharat Motor Pvt. Ltd. has only 8 shareholders, 1/10th thereof will mean one or more member. The requirement of such member being the holder of 1/10th of the issued share capital is not relevant.

Accordingly, application by even one member holding less than 1/10th of the share capital of the company shall be valid, in the given case.

Answer 25. (b)

The Companies Act charges the company as well as every officer who may be guilty of inducing the members of the public to subscribe for its shares or debentures by including material misrepresentation as to a matter of fact. In such cases not only the party defrauded shall have a right to return the shares and claim his money back but damages can also be claimed. Besides these civil remedies, section 63 imposes criminal liability on every person who authorizes the issue of such a prospectus. Liability under this section may be imprisonment up to 2 years or fine up to Rs. 5,000 or both. Further, section 68 imposes a penalty on every person responsible for inducing public to subscribe for the shares or debentures of a company by making false statements. Under section 68, the liability may be punishment with imprisonment for a term up to 5 years or with fine up to Rs. 10,000 or with both.

In the present case, representation that substantial amounts were promised to be subscribed by some persons may be taken to induce the public if this happens to be untrue. Thus, those responsible for making such a statement shall be held liable for the above listed consequences.

Answer 25. (c)

Section 173 of the Companies Act, 1956 requires a company to annex an explanatory statement to every notice for a meeting of company, at which some 'special business' is to be transacted. This explanatory statement is to bring to the notice of members all material facts relating to each item of special business. Section 173 further specifies that all business in case of any meeting other than the annual general meeting is regarded as special business. Thus, the objection of the shareholders is valid since the details on the item to be considered are lacking. The information about the amount is a material fact with reference to the proposed increase of share capital. The notice is, therefore, not a valid notice under section 173 of the Companies Act, 1956.

Q. 26. (a) M, who was appointed as an additional director of a public limited company for the first time, filed his consent with the company by way of a letter. He also signed his consent in Form No. 29 and gave it to the company for filing with the Registrar of Companies. Due to inadvertence the aforesaid consent was not filed within the prescribed period of one month. What will be the state of M as director?

(b) Best Ltd. , whose year ended on 31st March, held its annual general meeting on 30th September. However, as the accounts were not ready, the meeting transacted all other businesses except accounts and adjourned the meeting to 20th December for consideration of accounts. The Registrar of Companies issued show cause notice for violation of section 210 of the Companies Act, 1956. Advise.

(c) As on 31st March, 2011 Sunshine Ltd. has an authorized capital of Rs. 10,00,000 and its paid up share capital is Rs. 3,00,000. On 1st April, 2011, the Board of Directors of the company allotted 50,000 shares of Rs. 10 each to Anand who had given an unsecured loan of Rs. 5,00,000 which the company was not in a position to repay.

Ms. Preti, a shareholder, alleges that further allotment of shares has affected her voting power. Discuss.

Answer 26. (a)

Section 264 which deals with filing of consent by a director has two parts. Under the first part covered under sub-section (1), it is provided that every person proposed to be a candidate for the office of a director of a public company shall sign and file with the company, his consent in writing to act as a director, if appointed.

In the given situation, this requirement has been duly complied with.

The second part covered under sub-section (2) requires that a person shall not act as a director of the company unless he has within 30 days of his appointment signed and filed with the Registrar his consent in writing to act as such director. An additional director is exempted to file such consent incase of his appointment as a director or re-appointment as additional director. But, in the given case appointment being for the first time, non-filing of the consent within 30 days shall result in non-compliance of section 264(2). However, failure to file the consent with the Registrar, in the opinion of the Department of Company Affairs shall not result in the vacation of the office as director. The only consequence shall be that penalty under section 629A would become attracted. Such consent may be filed after the expiry of 30 days on payment of additional fee as contemplated under section 611 (2).

Answer 26. (b)

As per section 166(1) of the Act, every company must hold its first annual general meeting within 18 months of its incorporation and subsequently one in each calendar year. Not more than 15 months shall elapse between the two annual general meetings. Powers are vested in the Registrar to grant extension of time up to 3 months for holding an annual general meeting for genuine reasons (Accounts not being ready is considered as a valid reason for this extension).

Section 210(3)(b) provides that every company should lay before every subsequent annual general meeting its annual accounts within six months or the extended period for holding annual general meeting, if any, granted by the ROC, from the date of closure of the accounts.

In the given case, Best Ltd. convened and held the annual general meeting within six months from date of closure of the accounts, but failed to lay the accounts within the six months and it had also not obtained permission for extension of time for holding annual general meeting under second proviso to sub-section (1) of section 166 from the Registrar. Hence, it has violated the provisions of section 210 of the Act and the ROC was justified in issuing the show-cause notice.

Answer 26. (c)

Variation which affects the enjoyment of the rights of the shareholders, without modifying the rights itself is not a variation within the meaning of that expression in section 106 of the Act- Hindustan General Electric Corporation [1959].

Rights attached to ordinary equity shares include a right to vote, right to receive dividend, right to maintain its face value and right to transfer the shares to others without restrictions. Unless such rights are altered or varied by the company by resolution of shareholders in accordance with the provisions of section 106, no action lies under section 107.

Merely because the company has by resolution decided to increase its share capital within the limit of authorized capital which in turn has diminished the voting power of an existing shareholder, it does not amount to variation of the rights of shareholder. In a bona fide exercise of the right by following the due procedure and within limits of the authority the conversion of loans of an ex-director into shares does not violate the provisions of section 106 relating to variation of class rights even if voting power of other shareholders would be affected – Girish Kumar Kharia v Industrial Forge Engineering Co. Ltd. (2002) (Patna).

Q. 27. (a) The plaintiffs contracted with a director of the defendant company and gave him a cheque under the contract. The director could have been authorized under the company's articles, but was not in fact so authorized. The plaintiffs had not seen the Articles. The director misappropriated the cheque and the plaintiffs sued the company.

Is the company liable?

(b) Mr. Bose, the chairman of a company, borrowed Rs. 7 lakhs from the State Bank of India, under a promissory note. A suit was filed for the recovery of debts on the basis of the promissory note executed by the chairman. The company refused to accept the liability on the plea that the chairman had borrowed funds without authorization from the company. Will the company succeed? Explain.

(c) What is the role of SEBI in promoting Corporate Governance?

Answer 27. (a)

The problem relates to the protection that the outsider may claim against lack of authority on the part of the officers of the company. The rule commonly known as the Doctrine of Indoor Management, was first laid down in the case of The Royal British Bank v. Turquand. However, it has been held that the rule Indoor Management cannot be invoked in favour of a person who had no knowledge of the Articles of the company. It is because, in such a case the person cannot assume that the power (of which he has no knowledge) has been rightly exercised. In Rama Corporation v. Proved Tin & General Investment Co., on which the problem in question is based, it was held that the plaintiffs could not rely on the rule of indoor management because they did not know the existence of the power to authorize the director.

Thus, in the present case, company shall not be held liable by the act of the director who has transacted beyond the scope of his authority. A principal can be held liable for the frauds of his agent only to the extent they are committed within the scope of the authority conferred upon him.

Answer 27. (b)

The facts given in the question are based on the case of Kumar Krishna Rohatgi v State Bank of India [1980] 50 Comp Cas. 7222. In this case, the company borrowed an amount of Rs. 5 lakhs from the State Bank of India under a promissory note guaranteeing the repayment by executing a guarantee in favour of the company. The promissory note was renewed from time to time. In suit for the recovery, the company contended that the promissory note was executed by the chairman without Board resolution authorizing him to execute the promissory note as required under section 292(1)(c) of the Companies Act, 1956. The

Patna High Court held that in cases where the directors borrowed funds without proper authorization from the company and the amount borrowed was utilized for the benefit of the company, the company cannot then repudiate its liability to repay, since general law implied a promise to be paid by the principal when the money so borrowed by a agent had gone into the coffins of the principal. Hence, the principal had taken the benefits of the amount borrowed. Hence, the company's contention was rejected by the Patna High Court. Accordingly, the decision shall apply to the case in question mutadis mutandis.

Answer 27. (c)

Good Governance in capital market has always been high on the agenda of SEBI. This is evident from the continuous updation of guidelines, rules and regulations by SEBI for ensuring transparency and accountability. In the process, SEBI had constituted a Committee on Corporate Governance under the Chairmanship of Shri Kumar Mangalam Birla.

Based on the recommendations of the Committee, the SEBI had specified principles of Corporate Governance and introduced a new clause 49 in the Listing agreement of the Stock Exchanges in the year 2000. These principles of Corporate Governance were made applicable in a phased manner and all the listed companies with the paid up capital of Rs. 3 crores and above or net worth of Rs. 25 crores or more at any time in the history of the company, were covered as of March 31, 2003.

SEBI, as part of its endeavour to improve the standards of corporate governance in line with the needs of a dynamic market, constituted another Committee on Corporate Governance under the Chairmanship of Shri N. R. Narayana Murthy to review the performance of Corporate Governance and to determine the role of companies in responding to rumour and other price sensitive information circulating in the market in order to enhance the transparency and integrity of the market.

With a view to promote and raise the standards of Corporate Governance, SEBI on the basis of recommendations of the Committee and public comments received on the report and in exercise of powers conferred by Section 11(1) of the Securities and Exchange Board of India Act, 1992 read with section 10 of the Securities Contracts (Regulation) Act 1956, revised the existing clause 49 of the Listing agreement vide its circular SEBI/MRD/SE/31/2003/26/08 dated August 26, 2003. It clarified that some of the sub-clauses of the revised clause 49 shall be suitably modified or new clauses shall be added following the amendments to the Companies Act 1956 by the Companies (Amendment) Bill/Act 2003, so that the relevant provisions of the clauses on Corporate Governance in the Listing Agreement and the Companies Act remain harmonious with one another.

Q. 28. (a) In respect of The Right to Information Act, give the definition of the following :

(i) Competent Authority

(ii) Appropriate Government

(b) Can a limited liability company become a partner of a partnership firm?

(c) X holds the office of managing director of a private company for life. The Company's Article of Association empower him to appoint a person to be the managing director in succession to him. X, therefore, in the exercise of his power appoints, by will Y as the managing director to hold office after the former's death. Some members of the company challenge the provisions of the Articles of Association and question the validity of the appointment of Y on the ground that X's action amounts to 'Assignment of Office'. Examine the validity of the contention of the members.

Answer 28. (a)

(I) "Competent Authority" means—

(i) the Speaker in the case of the House of the People or the Legislative Assembly of a State or a Union territory having such Assembly and the Chairman in the case of the Council of States or Legislative Council of a State;

(ii) the Chief Justice of India in the case of the Supreme Court;

(iii) the Chief Justice of the High Court in the case of a High Court;

(iv) the President or the Governor, as the case may be, in the case of other authorities established or constituted by or under the Constitution;

(v) the administrator appointed under article 239 of the Constitution

(II) "Appropriate Government" means in relation to a public authority which is established, constituted, owned, controlled or substantially financed by funds provided directly or indirectly

(i) by the Central Government or the Union territory administration, the Central Government;

(ii) by the State Government, the State Government.

Answer 28. (b)

A company being a juristic person is capable of contracting in its own name. Since partnership, as per section 4 of the Partnership Act, 1932, is a contractual relationship between persons, there should be no objection to a partnership being created with or by a company. The only doubt that may arise is that the liability of a partner being unlimited, can a limited liability company become a partner? To this the simple reply shall be that it is the liability of the members of a limited company which is limited and not that of the company itself. Thus, there should be no objection to a limited company becoming a partner of a partnership firm. However, the Department of Company Affairs, in this regard has opined that the objects clause must contain a facilitating provision in this regard. Thus, in the opinion of the Department of Company Affairs, a company may become a partner only if the Memorandum of Association thereof specifically allows it.

Answer 28. (c)

Section 312 of the Companies act, 1956 prohibits assignment of office by a director. However in Oriental Metal Pressing v. Bhasker Kashinath Thakoor [1961] 31 Comp. Cas. 143 (SC) on which the facts of the given problem are based, the Supreme Court made a distinction between 'assignment' and 'appointment' and held appointment by will as valid, if the Articles contained such a provision.

Thus, the appointment of Y as the managing director is valid.

Q. 29. (a) The High Court at Delhi appointed the Official Liquidator as the Liquidator of Magnet India Ltd. Some of the creditors have brought to the notice of the Liquidator that though the company is in liquidation for the past several years, nothing worthwhile has been done to speed up the winding-up and no documents have been filed to indicate the progress of liquidation. Examine in this connection the nature and periodicity of returns required to be filed by the Liquidator in terms of the provisions contained in the Companies Act.

(b) Dream Housing Finance Company Ltd. is prepared to give housing loans to the employees of Modern Furniture Ltd. subject to the condition that the loans are guaranteed by Modern Furniture Ltd. Modern Furniture Ltd. Is not a listed company and the company will be exceeding the limits prescribed under the Companies Act, 1956 by providing such guarantee. The Company desires to give the guarantee early as part of employees' welfare measure, without waiting for the next AGM, which is due only after 7 months. Advise the company about the legal requirements under the Companies Act, 1956 to give effect to the above proposal. What would be your advice, if the Company was required to provide security instead of guarantee ?

(c) Write short notes on preservation of books and papers of Amalgamated Co.

(d) Following is the latest audited Balance Sheet of ABC Ltd.

Capital & Liabilities	*Rs.*	*Assets*	*Rs.*
Equity share capital (10,000 shares of Rs. 100 each)	**10,00,000**	**Goodwill**	**1,00,000**
Less Calls unpaid	**10,000**	**Land and buildings**	**10,50,000**
	9,90,000	**Plant and machinery**	**20,25,000**
Preference share capital	**1,50,000**	**Equity shares in A Ltd.**	**1,25,000**
Securities premium a/c.	**1,50,000**	**Preference shares in B Ltd.**	**50,000**
Capital redemption reserve	**2,25,000**	**Debentures in C Ltd.**	**1,00,000**
General reserve	**5,00,000**	**Shares in P Ltd.**	**2,25,000**
Profit & loss a/c	**2,20,000**	**Capital in Z & Co.**	**1,00,000**
Sinking fund reserve	**1,10,000**	**Current assets**	**55,000**
Dividend equalization reserve	**60,000**		
Loan from TICC	**10,00,000**		
Deposits from S Ltd.	**2,00,000**		
Current liabilities	**1,25,000**		
Provision for taxation	**1,00,000**		
	38,30,000		**38,30,000**

The following is the additional relevant information :

(i) Of the equity share capital 3,000 shares have been issued as rights shares and 2,000 shares as bonus shares.

(ii) B Ltd. is subsidiary of ABC Ltd. with 90% shareholding, whereas A Ltd. is wholly owned subsidiary of ABC Ltd.

(iii) Z & Co. is a partnership firm.

The directors seek advice as to whether the following additional investments can be made by a decision taken in a board meeting :

(i) Loan to A Ltd.	**Rs. 10,00,000**
(ii) Debentures in B Ltd.	**Rs. 2,25,000**
(iii) Purchase of shares of Shree Ltd. in the open market. State reasons.	**Rs. 95,000**

Answer 29. (a)

According to section 462(1) of the Companies Act, 1956 read with rule 298 of the Companies (Court) Rules, the Official Liquidator is required to file the accounts of the Company with the court, twice a year, one made up to 31st March and the second up to 30th September, within 3 months of closing the accounts. The accounts should be drawn up in Form No. 144 of the Rules. Further, according to rule 302, the accounts should be audited by a Chartered Accountants appointed by the Court or if the Court so directs by the Examiner of the Local Fund Accounts of the State concerned. A copy of the accounts so filed by the Official Liquidator with the Court is open to inspection by any creditor, contributory or any person interested.

Where the winding-up is not concluded within one year after commencement, the official liquidator is required within 2 months after the expiry of the year and thereafter until the winding up is concluded, once every year to file his statement in the prescribed Form No. 148 (Rule 311) in Court. A copy thereof shall also be filed with the Registrar (Rule 511).

Answer 29. (b)

Special resolution should be passed in a General Meeting if the amount of loan, guarantee, security or acquisition (existing + proposed) exceeds higher of –

(i) 60% of paid-up share capital and free reserves, or

(ii) 100% of its free reserves.

The Board may give guarantee without being previously authorized by a Special Resolution if –

(i) A resolution is passed in the Board Meeting authorizing to give guarantee in accordance with section 372A.

(ii) Due to exceptional circumstances, the Company is prevented from obtaining previous authorization by a special resolution passed in a General Meeting for giving a guarantee, and

(iii) The above Board Resolution is confirmed within 12 months, in the General Meeting of the Company, or AGM held immediately after passing of the Board's resolution, whichever is earlier.

Since the AGM is due to be held in 7 months, the Board may give guarantee without being previously authorized by a special resolution subject to fulfillment of 3 conditions stated. The above exception is only for 'guarantees' and not for 'security'. So, the Company has to obtain prior approval of the shareholders for providing 'security'.

Answer 29. (c)

The books and papers of a Company which has been amalgamated with, or whose shares have been acquired by, another company u/s 390-396, shall not be disposed of without the prior permission of the Central Government. Before granting such permission, that Government may appoint a person to examine the books and papers or any of them, for the purpose of ascertaining whether they contain any evidence of the commission of an offence in connection with the promotion or formation, or the management of the affairs, of the Transferor Company or its amalgamation or the acquisition of its shares.

Answer 29. (d)

Section 372A provides as follows :

No company shall, directly or indirectly –

(i) Make any loan to any other body corporate;

(ii) Give any guarantee, or provided security, in connection with a loan made by any other person to, or to any other person by, any body corporate; and

(iii) Acquire, by way of subscription, purchase or otherwise the securities of any other body corporate,

Exceeding 60% of its paid-up share capital and free reserves, or 100% of its free reserves, whichever is more.

Where the aggregate of the loans and investments so far made, the amounts for which guarantee or security so far provided to in all other bodies corporate, along with the investment, loan, guarantee or security proposed to be made or given by the Board, exceeds the aforesaid limit, no investment or loan shall be made or guarantee shall be given or security shall be provided unless previously authorized by a special resolution passed in a general meeting.

In the given question, the total paid up share capital of the company is equal to

Rs. 9,90,000 (equity) + Rs. 1,50,000 (preference) = Rs. 11,40,000.

The total amount of free reserves available for distribution of dividends work out to Rs. 9,30,000 (comprising of General Reserves; Balance in Profit and Loss A/c; Dividend equalization reserves; and the balance in Security premium a/c.).

The aggregate of paid up share capital and free reserves amount to Rs. 20,70,000.

60% of this amount works out to. Rs. 12,42,000 which is higher than the 100% of free reserves, viz. Rs. 9,30,000.

Accordingly, the company can invest by way of loans and investment in other body corporates upto Rs. 12,42,000 by passing a unanimous resolution at a meeting of Board of directors.

In the present case, the investments already made in other body corporate amount to Rs. 5 lakhs which include equity shares in A Ltd. of Rs. 12,000. A Ltd. being wholly owned subsidiary of ABC Ltd. is exempted from the provisions of section 372A. Accordingly, total investments in other body corporate already made amount to Rs. 3,75,000. The proposed investments include a loan of Rs. 10,00,000 to A Ltd. which being the wholly owned subsidiary to ABC Ltd. shall be exempted; debentures in B Ltd. of Rs. 2,25,000 and shares of Shree Ltd. Rs. 95,000 which amount to Rs. 3,20,000 [Rs. 2,25,000 + Rs. 95,000]. Thus, the aggregate of loans and investments already made and proposed to be made works out to Rs. 6,95,000 [Rs. 3,75,000 + Rs. 3,20,000] which is very much within the permissible ceiling of 60% of paid up share capital and free reserves. Accordingly, the Board of directors shall be within their powers to make the proposed additional investments by passing a unanimous resolution in a meeting of the Board.

Q. 30. (a) In respect of The Industries (Development And Regulation) Act, 1951, give the definition of the following :

i. Existing Industrial Undertaking

(b) Can commission be paid to any person on shares or debentures which are not offered to public for subscription?

(c) The directors of a public company desire to authorize the managing director to invest from time to time surplus funds in the purchase of shares of other companies. State with reasons whether the delegation to the managing director is valid.

(d) From the following information extracted from the balance sheet of Vedanta Ltd. as at 31.3.2011, Board of Directors of the company decide to grant a loan of Rs. 85 crores to another company MN Ltd.

Paid-up share capital :	**Equity share capital**	**Rs. 50 cr.**
	Preference share capital	**Rs. 10 cr.**
General reserves		**Rs. 100 cr.**
Debentures		**Rs. 5 cr.**
Debenture redemption reserves		**Rs. 5 cr.**

The company has already given loans to the following companies –

Dickens Ltd.	**Rs. 5 cr.**
Hero Ltd.	**Rs. 10 cr.**

The company has also given a corporate guarantee of Rs. 10 cr. to ABC & Co. Ltd. Advise whether the Board can go ahead with the above proposal.

Answer 30. (a)

'Existing Industrial Undertaking' means –

(i) In the case of an industrial undertaking pertaining to any of the industries specified in the First Schedule as originally enacted, an industrial undertaking which was in existence on the commencement of this Act or for the establishment of which effective steps had been taken before such commencement, and

(ii) In the case of an industrial undertaking pertaining to any of the industries added to the First Schedule by an amendment thereof, an industrial undertaking which is in existence on the coming into force of such amendment or for the establishment of which effective steps had been taken before the coming into force of such amendment.

Answer 30. (b)

According to section 76(4A), no commission shall be paid to any person on shares or debentures which are not offered to the public for subscription.

Proviso to section 76(4A) provides an exception to the above rule. Accordingly, a company may pay commission to the underwriter in respect of shares or debentures already subscribed if the following two conditions are simultaneously fulfilled :

(i) Where a person has subscribed or agreed to subscribe for any shares in, or debentures of, the company and before the issue of the prospectus or statement in lieu thereof any other person or persons has or have subscribed for any of those shares or debentures, and

(ii) That fact together with the aggregate amount of commission payable under this section in respect of such subscription is disclosed in such prospectus or statement.

Answer 30. (c)

Section 292(1)(d) of the companies Act, 1956 empowers the Board of directors to delegate to any Committee of Directors, the managing director, the manager or any other principal officer of the company the power to invest the funds of the company. But inter-corporate investments by public companies in the shares is concurrently governed by section 372A of the Companies Act. Section 372A contains the relevant provision and provides that no investment shall be made by the Board of Directors of an investing company unless it is sanctioned by a resolution passed at the meeting of the Board with the consent of all the directors present at the meeting except those not entitles to vote thereon and unless notice of the resolution to be moved at the meeting has been given to every director in the manner specified in section 286. Further, section 286 provides that notice of every meeting of the Board shall be given in writing to every director in India and at his usual address in India to every other director. Thus, section 372A overrides the provisions of section 292 in so far as investments in shares are concerned. Section 372A does not contain any provision for delegation of the power and hence not withstanding the general provisions under section 292, the proposed delegation to managing director, if made, shall not be valid.

Moreover, the delegation is invalid even under section 292 itself, since the total amount upto which the funds may be invested in the shares has not been mentioned.

Answer 30. (d)

Particulars	**Rs. In crores**	**Rs. In crores**
Paid up capital		
Equity share capital	50	
Preference share capital	10	60
Free reserve = General reserve		100
Maximum amount u/s 372A without shareholders' approval = higher of	96	
i. 60% of paid up capital and free reserves [60% of (60 + 100)]		
ii. 100% of free reserves	100	100
Investments u/s 372 A already made –		
i. Dickens Ltd.	5	
ii. Hero Ltd.	10	
iii. ABC & Co. Ltd. [Corporate guarantee]	10	25
Further loan without shareholders' approval		75
Proposed investments : Loan to MN Ltd.		80

Loan upto Rs. 85 crores can be given provided a special resolution in company's general meeting has been passed as required u/s 372A. However, if the loan to MN Ltd. is Rs. 75 lakhs or less, such special resolution is not required.