# 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) If the share price of AB Ltd. (F.V. ₹ 10) quotes ₹ 920 on NSE, and the 3 months futures price quotes at ₹ 950, and the borrowing rate is given as 8% and the expected annual dividend yield is 15% p.a. payable before expiry, then the price of 3 months AB Ltd. futures would be :**

**A. ₹ 948.80**

**B. ₹ 939.90**

**C. ₹ 936.90**

**D. ₹ 928.40**

**(ii) A company issue commercial paper for ₹ 3 crore with a maturity period of 90 days. The interest rate is 11% p.a. The net amount received by the company will be :**

**A. ₹ 2.94 crore**

**B. ₹ 2.92 crore**

**C. ₹ 2.85 crore**

**D. ₹ None of the above**

**(iii) If the sale price of an open ended fund is ₹ 12.30 per unit and the fund is sold with a front end load of 5%, what is the NAV?**

**A. ₹ 10.00**

**B. ₹ 9.75**

**C. ₹ 11.70**

**D. ₹ 11.07**

**(iv) Determine the beta for the following portfolio :**

| Stock | % of portfolio | Beta |
|---|---|---|
| 1 | 45 | 1.20 |
| 2 | 20 | 0.75 |
| 3 | 35 | 1.00 |

**A. 1.05**

**B. 1.04**

**C. 1.40**

**D. 1.50**

**(v) What will be the capital gains on a 3 year 12% annual coupon bond of face value ₹ 1,000 if interest rates go down from 12% to 10%? Assume that the bond is redeemable in one year from now at face value.**

**A. ₹ 181.18**

**B. ₹ 18.18**

**C. ₹ 20.00**

**D. Nil**

**(vi) Mr. Sanyal purchased 100 shares of NITCO Ltd. Futures @ ₹ 2500 on 10th June . Expiry date is 26th of June. His total investment was ₹ 2,50,000 and the initial margin paid was ₹ 37,500. On 26th of June shares of NITCO Ltd. was closed at ₹ 2000. How much will be the gain / loss on the shares?**

**A. ₹ 25,000**

**B. ₹ 50,000**

**C. ₹ 35,000**

**D. None of the above.**

**(vii) Eureka Ltd. has both European call and put options traded on NSE. Both options have an expiration date 6 months and exercise price of ₹ 30. The call and put are currently selling for ₹ 10 and ₹ 4 respectively. If the risk-free rate of interest is 6% p.a., what would be the stock price of Eureka Ltd? [Given PVIF (6%, 0.5 Years = 0.9709]**

**A. ₹ 35.13**

**B. ₹ 40.87**

**C. ₹ 45.50**

**D. Incomparable information**

**(viii) Consider the following of A Ltd.**

| | |
|---|---|
| **Return on Government securities** | **12%** |
| **Share beta** | **1.50** |
| **Market return** | **16%** |

**Based on CAPM, cost of equity capital is equal to :**

**A. 28%**

**B. 22%**

**C. 18%**

**D. 12%**

**(ix) Nifty Index is currently quoting at 1329.78. Each lot is 250. Mr. A purchases a February contract at 1364. He has been asked to pay 10% initial margin. What is the amount of initial margin?**

**A. ₹ 34,100.00**

**B. ₹ 33,244.00**

**C. ₹ 136.40**

**D. ₹ 132.97**

**(x) An Indian company is planning to invest in US. The US inflation rate is expected to be 3% and that of India is expected to be 8% annually. If the spot rate currently is ₹ 45/ US$, what spot rate can you expect after 5 years?**

**A. ₹ 59.09/US$**

**B. ₹ 57.00/US$**

**C. ₹ 57.04/US$**

**D. ₹ 57.13/US$**

**Answer 1.**

(i) **C.** — ₹ 936.90

Future price (F) = Spot Price + Cost of carry – Dividend

= 920 + (920 × 0.08 × 3/12) – (10 × 0.15)

= 920 + 18.40 – 1.50 = ₹ 936.90

(ii) **B.** — ₹ 2.92 Crores.

11% p.a. interest for 90 days on Re 1.

= 0.11 × 90/365 = 0.0271232

Amount after 90 days : 1.0271232

Net amount received = ₹ 3,00,00,000 / 1.0271232 = 2,92,07,791 i.e. ₹ 2.92 crore

(iii) **C.** — ₹ 11.70

Sale Price = NAV (1 + Load%)

Therefore NAV = Sale Price / (1 + Load%) = 12.30/1.05 = ₹ 11.70 Approx.

(iv) **B.** — ₹ 1.04

Portfolio beta :

(0.45 × 1.20) + (0.20 × 0.75) + (0.35 × 1.00) = 1.04

(v) **B.** — ₹ 18.18

Value of the bond at 12% interest rate = ₹ 1120/1.12 = ₹ 1,000

Value of the bond at 10% interest rate = ₹ 1120/1.1 = ₹ 1,018.18

Capital gains = 1,018.18 – 1,000 = ₹ 18.18

(vi) **B.** — ₹ 50,000

Loss to Mr. Sanyal (2500 – 2000) × 100 = ₹ 50,000.

(vii) **A.** — ₹ 35.13

According to call- put parity;

$C_0 = P_0 + S_0 – PV(E)$

Where $C_0 = 10$, $P_0 = 4$ and PV(E) = PV of Exercise Price

Putting the values, we get;

$10 = 4 + S_0 – 30 \times 0.9709$,

$S_0 = 10\text{-}4+29.127$

= 35.127 or ₹ 35.13.

(viii) **C.** — 18%

$K_i = R_f + \beta_i (K_m - R_f)$

= 0.12 + 1.5(0.16 – 0.12) = 18%

(ix) **A.** — ₹ 34,100

The closing price for the spot index was 1329.78. The rupee value of stocks is thus 250 × 1329.78 = ₹ 3,32,445.00

The closing futures price for the February contract was 1364.00, which has a rupee value of 1364 × 250 = ₹ 3,41,000.00 and therefore requires a margin of ₹ 34,100.

(x) **C.** — ₹ 57.04/US $

According to Purchase Power Parity, spot rate after 5 years

= ₹ 45 × $[(1 + 0.08)/ (1 + 0.03)]^5$ = 45 × 1.2675 = ₹ 57.04

**Q. 2. (a) Price of ABC spot on NSE on November 30, 2011 is ₹ 1,280. December futures price close on November 30 is ₹ 1,300. Days left for expiration are 28. Riskless rate of return for 28 days at market rate of 11.5% p.a. is 0.88%. How arbitrageur can earn profit from the above transaction?**

**(b) An investor holding 10,000 shares of portfolio valued at ₹ 1,00,000. Investor is of fear that prices of the shares will fall in next two months and thereby value of his portfolio will also fall, leading to loss to investor. Suppose current NIFTY 50 index is at ₹ 950. And one futures contract is for delivery of 1,000 shares. So value of one contract is (950 × 50 = ₹ 47,500). Show how stock index futures can protect the investor from falling value of his holding.**

**(c) S&P 500 stock index futures price stands at 200. January 2012 stock index option price are shown as follows in table :**

| Strike price (₹) | Calls (₹) | Puts (₹) |
|---|---|---|
| 195 | 6.80 (0.84) | 1.65 (-0.16) |
| 200 | 2.79 (0.50) | 2.69 (-0.50) |
| 205 | 1.75 (0.15) | 6.60 (-0.85) |

**Describe a strategy using options and futures that will result in a profit from a movement of futures price, irrespective of direction. In the event of market expectations of volatility remaining constant, figures given in the brackets are details.**

**Answer 2. (a)**

Implied futures interest rate = ₹ 1,300 – ₹ 1,280

= ₹ 20 × 100/1,280 = 1.56%

The futures price locked in expiration is equal to the value of an investment in spot ABC at the implied rate of return of 1.56% while market interest rate is 0.88%. This implies that futures are quoting at a premium. To take advantage of this mispricing, an arbitrageur can borrow (200 × 1,280) = ₹ 2,56,000 over same period at lower rate of 0.88% to finance his purchase of the ABC shares. Simultaneously, an arbitrageur lends forward at an implied rate of 1.56% by selling of contract of December futures at ₹ 1,300 and can earn profit through a difference of (1.56% – 0.88%) = 0.68% return on the investment.

**Answer 2. (b)**

Short hedge using index futures :

| Spot/ cash market | Futures market |
|---|---|
| Current index S is at 950, investor fears the value of index may fall in next two months. | Sell 10 futures index contract at 950, thereby be notionally commit himself to deliver 10,000 shares valued (950 × 50 × 10 = 4,75,000) |
| Two months later, the current index is at 900 and thereby value of index portfolio falls by ₹ 50,000 per contract | Because contract is at expiry. Close out position by buying at 900 and thereby enjoying profit of ₹ 50,000 on each contract. |

Net futures position change = 0

So, we can see that the investor can protect the value of his portfolio by entering in futures market.

**Answer 2. (c)**

| | |
|---|---|
| Buy 2 January call | Delta = 2 × 0.50 |
| Sell 1 January futures contract | delta = – 1 |
| Net delta | = 0 |

A fall in the futures price would cause the option delta to decline. The net delta of the position thus become negative and the trader benefits from the price fall.

A rise in futures price would cause the options delta to rise. The net delta of the position is, thus, become positive and the trader profits from price rise. Loss could be occur if the market expectation of volatility were to decline and thereby reduce option price.

**Q. 3. (a) What is the difference between Mutual funds and Hedge funds?**

**(b) Shyamal has the following investments :**

| Stock | Expected return % | Portfolio weight % | Beta |
|---|---|---|---|
| **ABC** | **15.00** | **40** | **0.6** |
| **BAC** | **25.40** | **30** | **1.4** |
| **CAB** | **20.60** | **30** | **1.1** |

**(i) What is the expected return and $\beta$ of Shyamal's portfolio?**

**(ii) Shyamal has now decided to take on some additional risk in order to increase his expected return, by changing his portfolio weights. If Shyamal's new portfolio's expected return is 22.12% and its $\beta$ is 1.165, what are his new portfolio weights?**

**Answer 3. (a)**

Mutual funds and hedge funds differ in many ways. The areas of the greatest difference between the two are : regulatory requirements; fees; leveraging practices; pricing and liquidity; and investor characteristics. US mutual funds are among the most strictly regulated financial products. They are subject to numerous requirements designed to ensure that they are operated in the best interests of their shareholders. A hedge fund is a private investment pool that is subject to far less regulatory oversight. In addition, a hedge fund differs from a regular mutual fund in its investment strategies. Such funds typically generate returns through security selection. Their investors include normally high net worth peoples. In US investors with just $ 1 million in net worth might qualify under existing rules.

**Answer 3. (b)**

**(i)** We can calculate the expected return of Shyamal as follows :

$E(R) = (0.40)(0.15) + (0.30)(0.254) + (0.30)(0.206) = 0.198$ and

$\beta_p = (0.40)(0.60) + (0.30)(1.40) + (0.30)(1.10) = 0.990.$

**(ii)** Let $X_1$ be the new weight on ABC, $X_2$ be the new weight on BAC and $X_3 = 1 - X_1 - X_2$ be the new weight on CAB. Then, we have :

$X_1 (0.15) + X_2 (0.254) + (1 - X_1 - X_2)(0.206) = 0.2212$

$X_1 (0.6) + X_2 (1.40) + (1 - X_1 - X_2)(1.10) = 1.1650$

Rearranging these two equations gives :

$X_1$ (-0.056) + $X_2$ (0.048) = 0.0152

$X_1$ (-0.50) + $X_2$ (0.30) = 0.0650

Solving we get $X_1$ = 0.20

$X_2$ = 0.55 and

$X_3$ = 0.25

Therefore the new weights are 20% on ABC, 55% on BAC and 25% on CAB.

**Q. 4. (a) Using the CAPM, show that the ratio of the risk premiums on two assets is equal to the ratio of their betas.**

**(b) From the following information, compute the component of non-diversifiable risk of the shares of Neptune Ltd.**

| | |
|---|---|
| **Risk free return** | **8%** |
| **Market's attitude to risk return trade off** | **$\lambda$ = 2** |
| **$\alpha$ of returns of Neptune Ltd.** | **9%** |
| **degree of correlation with market ($\rho_{N,m}$)** | **+ 0.80** |

**(c) An investor owns the following investments :**

**(i) 1 million equity shares of A Ltd. Price ₹ 40, Beta 1.10**

**(ii) 2 million equity shares of B Ltd. Price ₹ 30, Beta 1.20**

**(iii) 3 million equity shares of C Ltd. Price ₹ 10, Beta 1.30**

**The investor wants to enhance the beta of his portfolio to 1.50. Suggest.**

**Answer 4. (a)**

Let two stocks be A & B.

Risk premium stock A – $E(R_A) - R_f$

Risk premium stock B – $E(R_B) - R_f$

Now, under CAPM, Reward to Risk ratio is same for all stocks.

Therefore, $[E(R_A) - R_f]/\beta_A = [E(R_B) - R_f]/\beta_B$

i.e., $RP_A/\beta_A = RP_B/\beta_B$

i.e., $\beta_A/\beta_B = RP_B/RP_A$

**Answer 4. (b)**

Expected return from Neptune Ltd. = $R_N$

$= R_f + \lambda (\alpha_N \times \rho_{N,m})$

$= 8 + 2 (9 \times 0.80)$

$= 8 + 2 \times 7.20 = 22.40\%$

Excess return over risk free return is (22.40 – 8.00) = 14.40

Risk premium is relatable not to the total risk ($\sigma_N$), but only to that part of the risk i.e.

$\sigma_N \times \rho_{N,m} = 7.20\%$

return for non-diversifiable risk is therefore 7.20%.

**Answer 4. (c)**

To increase the Beta to 1.50, the investor should borrow some money (Assuming that the investor can borrow money at risk free rate of interest) and invest the same in the equity shares of the three companies (the new investment should be in the ratio of amounts of present investment).

To calculate the overall beta, the borrowing is taken as negative investment, its risk is considered as zero (there is no risk in borrowing, there is risk in investing the amount of borrowing in the shares of the three companies) and its beta is taken as zero.

Existing portfolio beta = [(1.10 × 40/130) + (1.20 × 60/130) + (1.30 × 30/130)] = 1.1923

% required increase in risk = [(1.50 – 1.1923)/1.1923] × 100 = 25.81%

Borrowings = 130 m × 0.2581 = 33.55m. This amount should be invested in the shares of the three companies (the new investment should be in the ratio of amounts of present investments)

Calculation of beta in the changed scenario :

| Investment | Beta (X) | Amount of investment | Weight (W) | XW |
|---|---|---|---|---|
| A Ltd. | 1.10 | 40 m + (33.55 × 4/13)m = 50.32m | 50.32/130 = 0.3871 | 0.4258 |
| B Ltd. | 1.20 | 60m + (33.55 × 6/13)m = 75.48m | 75.48/130 = 0.5806 | 0.6967 |
| C Ltd. | 1.30 | 30m + (33.55 × 3/13)m = 37.75m | 37.75/130 = 0.2904 | 0.3775 |
| Borrowings | 0 | - 33.55 m | - 33.55/130 | 0 |
| | | 130m | | 1.50 |

**Q. 5. (a) A money market instrument with 60 days to maturity has a quoted ask price of 99, meaning ₹ 99 per ₹ 100 face value. What are the banker's yield, the bond equivalent yield, and the effective annual return?**

**(b) Sunflower is a diversified company with three operating divisions – Fast, Slow and Medium. The operating characteristics of Fast are 50% more risky than Slow, while Medium is 25% less risky than Slow. In terms of financial valuation, Slow is thought to have a market value twice that of Fast, which has the same market value as the Medium. Sunflower is all equity financed with a beta of 1.06. The overall return on the BSE Index is 25%, with a standard deviation of 16%. Return on Government Securities is 10%. Recently, Slow has been underperforming and Sunflower management plan to sell it and use its entire proceeds to purchase Normal Ltd., an unquoted company. Normal is all-equity financed and Sunflower's financial strategies reckon than while Normal is operating broadly in similar markets and industries as Slow, Normal has a revenue sensitivity of 1.4 times that of Slow, an operating gearing ratio of 1.6 compared to the current operating gearing in Slow of 2.0.**

***Assume*** **: No synergistic benefits from the divestment and acquisition. Taxation may be ignored.**

***Required*** **:**

**(i) Calculate the asset betas for the Fast, Slow and Medium divisions of Sunflower. Specify any assumptions which you make.**

**(ii) Calculate the asset beta for Normal.**

**(iii) Calculate the asset beta for Sunflower after the divestment and acquisition.**

**(iv) What discount rate should be applied to any new investment projects in Normal division?**

**(c) Arvind Mills has expected dividend growth of 7% and the average market return is 12% per annum. Dividend expected end-year on Arvind is ₹ 2.50. The company stock has $\beta$ = 2.00 and the risk free rate us 6%. What is the risk-adjusted rate of return on Arvind assuming the CAPM holds? What is the fair price of the equity share if the current market price is ₹ 20? What are the risks attached to the investment strategy?**

**Answer 5. (a)**

First, to get the discount yield, we have to use the bank discount formula and solve for the discount yield.

$$₹\ 99 = ₹\ 100 \times \left[1 - \frac{60}{360} \times \text{Discount yield}\right]$$

Solving, we get the discount yield as 6%.

We convert this to a bond equivalent yield as follows :

$$\text{Bond equivalent yield} = \frac{365 \times 0.06}{360 - (60 \times 0.06)} = 6.145\%$$

Finally, to get the Effective Annual Return (EAR), note that there are 6.0833 sixty-day periods in a year, so,

$$1 + \text{EAR} = \left[1 - \frac{0.6145}{6.0833}\right]^{6.0833}$$

$$= 1.06305$$

$$\text{EAR} = 6.305\%$$

This EAR illustrate the general result that the discount rate lower than the bond equivalent yield, which in turn is less than the EAR.

**Answer 5. (b)**

**(i)** Since the asset Beta is a weighted average of the component segment Betas :

$\beta_A = (1/4 \times \beta_F) + (1/4 \times \beta_M) + (1/2 \times \beta_S)$

Where, $\beta_F = \beta$ of Fast, $\beta_M = \beta$ of Medium, $\beta_S = \beta$ of South

Since, Fast is 50% more risky than Slow, and Medium is 25% less risky than Slow, it follows that

$1.06 = (1.5\beta_S)/4 + (0.75\beta_S)/4 + (\beta_S)/2$

$\beta_S = 1.00$

$\beta_F = 1.50$

$\beta_M = 0.75$

**(ii)** The asset beta for Normal ($\beta_N$) is :

$\beta_N = \beta_S \times$ Relative risk factor

$= \beta_S \times$ Revenue sensitive factor × Operational gearing factor

$= 1.0 \times 1.4 \times (1.6/2.0) = 1.12$

**(iii)** The asset beta for Sunflower after the divestment and acquisition is again a weighted average of the component asset betas :

$\beta_A = (1/4 \times \beta_F) + (1/4 \times \beta_M) + (1/2 \times \beta_N)$

$= (1/4 \times 1.50) + (1/4 \times 0.75) + (1/2 \times 1.12)$

$= 0.375 + 0.1875 + 0.56 = 1.1225$

**(iv)** If we evaluate projects in Normal on the assumption of all-equity financing, the cut-off rate is :

$T + E(R_m - T)$

$= 10\% + 1.12\ (25\% - 10\%) = 26.80\%$

**Answer 5. (c)**

Risk adjusted rate of return on Arvind, using CAPM is :

$ER_i = T + \beta_i (ER_m - T)$

$= 6\% + 2.00(12\% - 6\%) = 18\%$

Fair value of Arvind is :

$V = D/( ER_i - g)$

$= ₹ 2.50/ (0.18 - 0.07)$

$= ₹ 22.73$

Since the Arvind's equity is underpriced, the investor should buy the equity shares. But the CAPM measure $ER_i$ may not hold for all future periods. If the market price diverge from the fair value, the demand for the Arvind will shot up till there is equilibrium.

**Q. 6. (a) Company A wishes to borrow £10 million at a fixed rate for 5 years and has been offered either 11% fixed or six-month LIBOR + 1%. Company B wishes to borrow £10 million at a floating rate for 5 years and has been offered either six-month LIBOR + 0.5% or 10% fixed.**

**(i) How may they enter into a swap arrangement in which each benefits equally?**

**(ii) What risks may this arrangement generates?**

**(b) Write a short note on Ready Forward Transaction.**

**(c) A bond with a face value of ₹ 5,000 matures at the end of 5 years, the rate of interest on the bond being 15% p.a. paid annually. Find the present value of the bond so as to yield a return of 10% p.a.**

**Answer 6. (a)**

**(i)** By directly borrowing on the required basis, the total interests paid by A and B is :

£10 million × (11% + LIBOR + 0.5%)

By borrowing according to comparative advantage, the total interest paid is :

£10 million × (10% + LIBOR + 1%)

Borrowing according to comparative advantage provides a total saving of £10 million × 0.5% to be shared between A and B. Equal sharing means that both have a 0.25% reduction in interest charge.

There is a number of alternative swap arrangement that would be consistent with the distribution of the interest rate benefit of borrowing according to comparative advantage. For instance, by synthesizing a fixed rate borrowing at 10-3/4% (a saving of ¼% relative to borrowing directly at 11%), then B effectively obtains a floating rate loan at LIBOR + ¼% (an improvement of ¼% relative to borrowing directly). It may be noted that, conventionally, swaps are quoted in terms of the fixed rate to be exchanged for LIBOR.

**(ii)** B is at risk from LIBOR rising.

A is at risk from an opportunity loss in the event of a fall in LIBOR.

Both are at risk from default by the other.

**Answer 6. (b)**

A ready forward transaction, usually known as 'repo'; allows a holder of securities to sell with a commitment to repurchase them at a predetermined price and date. In a reverse repo securities are bought with a commitment to resell them to the original holder. The ingredients of a repo are :

(i) There must be a sale or purchase with the commitment to repurchase or resell in future.

(ii) The contract must be between two parties.

(iii) It must be in respect of some kind of securities, and for the same quantum of securities.

(iv) It must be entered into on the same day or contemporaneously and the price of resale or repurchase would be fixed at the stage of first leg itself.

The repo facility is restricted to certain identified players and thus a large number of potential users are denied participation. Such transactions are permitted only in government securities. Other securities such as shares, bonds, commercial paper do not have this facility. The mechanism does not permit players to go short. There is no standard documentation/ master agreement governing a repo transaction. There is no clearing house to take counterparty risk. The securities are not dematerialized.

**Answer 6. (c)**

$$V = \frac{I}{i} + \left[1 - (1+i)^{-n}\right] + \frac{F}{(1+i)^n}$$

Where, F = ₹ 5,000, n = 5, I = 15% of ₹ 5,000 = ₹ 750, i = 0.10

$$V = \frac{750}{0.10}[1 - (1+0.10)^{-5}] + \frac{5,000}{(1+0.10)^5}$$

$$V = 7,500\ [1 - (1.10)^{-5}] + \frac{5,000}{(1.10)^5}$$

Let $x = (1.10)^{-5}$

Log x = – 5 log 1.1 = – 5 × 0.0414 = – 0.207 = 1.793

X = antilog (1.793) = 0.6209

$$V = 7,500\ (1 - 0.6209) + \frac{5,000}{1.6105}$$

= (7,500 × 0.3791) + (5,000 × 0.6209)

= 2,843 + 3,105 = ₹ 5,948

**Q. 7. (a) Today the spot price of a share is ₹ 500. Its 3 months futures contract is being traded in the market at ₹ 505. Dividend of ₹ 5 is due on the date of maturity of futures. Interest is 10% p.a. (i) what is the theoretical price of the futures? (ii) is there some arbitrage opportunity ? (iii) How your answers to (i) as well as (ii) will change if the dividend is to be paid after 2 months from today instead of three months ?**

**(b) Assume that security returns are generated by a factor model in which two factors are pervasive. The sensitivities of two securities and of the riskfree asset of each of the two factors is shown below, along with the expected return on each security :**

| Security | b1 | b2 | Expected return |
|---|---|---|---|
| A | 0.75 | 0.60 | 18% |
| B | 1.75 | 1.20 | 24% |
| Rf | 0.00 | 0.00 | 12% |

**(i) If Ravi Verma has ₹ 10,000 to invest and sells short ₹ 5,000 of security B and purchases ₹ 15,000 of security A, what is the sensitivity of Verma's portfolio to the two factors?**

**(ii) If Verma now borrow ₹ 10,000 at the riskfree rate and invest the proceeds of the loan along with the original ₹ 10,000 in securities A and B in the same proportions as described in part (i), what is the sensitivity of the portfolio to the two factors?**

**(iii) What is the expected return on the portfolio created in part (ii)?**

**(iv) What is the expected return premium of factor 2?**

**(c) A share price is currently quoting at ₹ 50. It is known that at the end of six months it will be either ₹ 45 or ₹ 55. The risk free rate is 10% p.a. with continuous compounding. What is value of six-month European Put Option with a strike price of ₹ 50.**

**Answer 7. (a)**

(i) Theoretical or optimum futures prices = ₹ (500 + 12.50 – 5) = ₹ 507.50

(ii) The arbitrager may enter into a futures purchase contract at ₹ 505. (Market price is cheaper. The optimum price is ₹ 507.50. In the market it is available at ₹ 505; in the market it is available at cheaper rate). In other words, purchase in the futures market.

- Sell on spot. How to sell the share if we do not have it ? The answer is that borrow from the seller, sell on spot basis, invest the sale proceeds for 3 months at 10% p.a.; on maturity buy the share and return it to its lender along with dividend.
- Investment proceeds on maturity : 512.50
- Purchase the share under futures contract for ₹ 505
- Return the share to its lender along with dividend.

Profit = Investment proceeds – Cost of share on futures basis – Dividend

= ₹ (512.50 – 505 – 5) = ₹ 2.50

For borrowing the share, we have to pay some commission to the share lender. If its amount is less than ₹ 2.50, the arbitrager opportunity is there. Otherwise it is not there.

(iii) Theoretical or optimum futures price = ₹ [500 + 12.50 -5 – 5(0.0083)] = ₹ 507.46

**Answer 7. (b)**

(i) Verma's position in the two securities are +1.50 in security A and -0.50 in security B. As a result, the portfolios sensitivities to the two factors :

$b_{\text{Prof. 1}}$ = 1.50 × 0.75 + (– 0.50) × 1.75 = 1.125 – 0.875 = 0.25

$b_{\text{Prof. 2}}$ = 1.50 × 0.60 + (– 0.50) × 1.20 = 0.90 – 0.60 = 0.30

(ii) Verma's position in the two securities are now 3.0 in Security A (₹ 30,000/₹ 10,000), – 1.0 in security B (-₹ 10,000/₹ 10,000), and – 1.0 in the riskfree asset (-₹ 10,000/₹ 10,000). Therefore :

$b_{\text{Prof. 1}}$ = 3.0 × 0.75 + (– 1.0) × 1.75 + (– 1.0) × 0 =0.50

$b_{\text{Prof. 2}}$ = 3.0 × 0.60 + (– 1.0) × 1.20 + (– 1.0) × 0 = 0.60

(iii) The expected return on the portfolio is given by :

$\tilde{R}_p$ = 3.0 × 18% + (– 1.0) × 24% + (– 1.0) × 12%

= 54% - 24% – 12% = 18%

(iv) The portfolio created in part (ii) is a pure factor 2 portfolio. The expected return premium for the factor is the expected return on a pure factor portfolio for that factor less the riskfree rate.

Thus :

Expected return premium = 18% – 12% = 6%

**Answer 7. (c)**

This problem we solve by a different method. We find the value of Call first and then use Put Call parity to find the value of Put.

We have U = 55; D = 45

At U, payoff is ₹ 5 [55 – 50, Call exercised]

At D, pay off is ₹ 0 [Not exercised]

H will be $\Delta = \frac{\text{Swing of Call}}{\text{Swing of Stock}} = \frac{5-0}{55-45} = 0.5$

Risk less Hedge is created by buying H = 0.5 shares of stock and simultaneously writing a call of strike price of ₹ 50, for which we would receive the option premium.

In the up state our payoff (value of portfolio) would be = 0.5 × 55 – 5 = ₹ 22.50

In the down state our payoff (value of portfolio would be = 0.5 × 45 – 0 = ₹ 22.50

We have ₹ 22.50 as our portfolio value in either state.

i.e. whatever is paid today = PV of receivable after 6 months

0.5 × ₹ 50 – Option price = ₹ 22.50 × $e^{-rt}$ [irrespective of upstate or downstate]

Therefore, option price = 25 – 22.50 × $e^{(-0.10\times0.5)}$ = ₹ 3.60

Now we have form Put Call Parity :

S + P = C + PV (X)

We have S = 50, P = ?, C = ₹ 3.60, X = ₹ 50, r = 10%, t = 0.5 year

Therefore value of Put :

P = 3.60 + 50 × $e^{(-0.10\times0.5)}$ – 50 = ₹ 1.16

**Q. 8. (a) An investor is thinking about investing her money in the stock market. She has the following two stocks in mind: Stock A and Stock B. she knows that the economy can either go in recession or it will boom. Being an optimistic investor, she believes the likelihood of observing an economic boom is two times as high as observing an economic depression. She also knows the following about the stocks :**

| State of the economy | Probability | $R_A$ | $R_B$ |
|---|---|---|---|
| Boom | | 10% | -2% |
| Recession | | 6% | 40% |

**(i) Calculate the expected return for stock A and stock B.**

**(ii) Calculate the total risk (variance and standard deviation) for stock A and for stock B.**

**(iii) Calculate the expected return on a portfolio consisting of equal proportions in both stocks.**

**(iv) Calculate the expected return on a portfolio consisting of 10% invested in stock A and the remainder in stock B.**

**(v) Calculate the covariance between stock A and stock B.**

**(vi) Calculate the correlation coefficient between stock A and stock B.**

**(vii) Calculate the variance of the portfolio with equal proportions in both stocks using the covariance from answer (v).**

**(viii) Calculate the variance of the portfolio with equal proportions in both stocks using the portfolio returns and expected portfolio returns from answer (iii).**

**(b) ABC Ltd. Plans to expand its operations and estimates the total cost of the expansion to be Rs. 24 crore. The same is proposed to be financed by internal accruals of Rs. 9 crore and the balance through a rights issue. The current share capital of the company is Rs. 2.40 crores. The shares of the company are currently quoting at Rs. 345. The company proposes to price the rights at Rs. 250.**

**Based on the information**

**(i) Compute the ratio of the rights.**

**(ii) Calculate the value of the rights.**

**(iii) Determine the gain/ loss of a shareholder, if he**

**1. Exercise his rights in the rights issue**

**2. Allows his rights to expire**

**3. Sells his right.**

**Answer 8. (a)**

**(i)** p(boom) = 2/3 and p(recession) = 1/3 (note that probabilities always add up to 1)
$E(R_A) = 2/3 \times 0.10 + 1/3 \times 0.06 = 0.0867$ (8.67%)
$E(R_B) = 2/3 \times -0.02 + 1/3 \times 0.40 = 0.12$ (12%)

**(ii)** $SD(R_A) = [2/3 \times (0.10 - 0.0867)^2 + 1/3 \times (0.06 - 0.0867)^2]^{0.5} = 0.018856$ (1.886%)
$SD(R_B) = [2/3 \times (-0.02 - 0.12)^2 + 1/3 \times (0.40 - 0.12)^2]^{0.5} = 0.19799$ (19.799%)

**(iii)** Portfolio weights : $W_A = 0.5$ and $W_B = 0.5$
$E(R_P) = 0.5 \times 0.0867 + 0.5 \times 0.12 = 0.10335$ (10.335%)

**(iv)** Portfolio weights : $W_A = 0.1$ and $W_B = 0.9$
$E(R_P) = 0.1 \times 0.0867 + 0.9 \times 0.12 = 0.11667$ (11.67%)

**(v)** $COV(R_A,R_B) = 2/3 \times (0.10 - 0.0867) \times (-0.02 - 0.12) + 1/3 \times (0.06 - 0.0867) \times (0.40 - 0.12)$
$= -0.0037333$

**(vi)** $CORR(R_A,R_B) = -0.0037333/(0.018856 \times 0.19799) = -1$ (Rounding! Remember the correlation coefficient cannot be less than -1)

**(vii)** $VAR(R_P) = 0.5^2 \times 0.018856^2 + 0.5^2 \times 0.19799^2 + 2 \times 0.5 \times 0.5 \times -0.0037333 = -0.008022$
$SD(R_P) = 8.957\%$

**(viii)** $E(R_P$ Boom$) = 0.5 \times 0.10 + 0.5 \times -0.02 = 0.04$ (4%)
$E(R_P$ Recession$) = 0.5 \times 0.06 + 0.5 \times 0.40 = 0.23$ (23%)
Hence, $E(R_P) = 2/3 \times 0.04 + 1/3 \times 0.23 = 0.10335$ (10.335%)
And $SD(R_P) = [2/3 \times (0.04 - 0.10335)^2 + 1/3 \times (0.23 - 0.10335)^2]^{0.5} = 0.08957$ (8.957%)

**Answer 8. (b)**

| | | |
|---|---|---|
| **(i)** Total size of the project | = | 24 crores |
| Less : Internal accruals | = | 9 crores |
| Size of the proposed rights issue | = | 15 crores |
| Rights issue price | = | ₹ 250 per share |

Number of right shares = 15 crores/250 = 6,00,000
Existing capital = 24,00,000 shares
Proportion of rights = 6/24 = ¼
Hence the right ratio is 1 rights share for every 4 shares held.

**(ii)** Computation of the value of rights :

$$\text{Value of rights} = \frac{P_0 - SR}{N+R} = \frac{345 - 250 \times 1}{4+1} = ₹\ 19$$

**(iii)** Gain/loss to a shareholder

1. if he invests in the rights issue :
   The ex-rights price of the share is expected to be
   $=[NP_0 + SR] / (N + R) = [4 \times 345 + 250 \times 1]/(4 + 1) = ₹\ 326$

   Assume X holds 100 shares

| | | |
|---|---|---|
| Existing wealth | = 100 × 345 | = ₹ 34,500 |
| Subscription in rights issue | = 25 × 250 | = ₹ 6,250 |
| Total | | = ₹ 40,750 |

   Expected post-rights market value of his portfolio = 125 @ ₹ 326 = ₹ 40,750
   No gain/loss to the shareholder
2. Allows the rights to expires :

| | |
|---|---|
| Existing wealth | = ₹ 34,500 |
| Post-rights market value of his holdings = 100 × 326 | = ₹ 32,600 |
| Loss in the wealth of shareholder | = ₹ 1,900 |

3. Sells his rights

| | |
|---|---|
| Existing wealth | = ₹ 34,500 |
| Amount realized by sale of rights = 100 × 19 | = ₹ 1,900 |
| Post-rights market value of the holding = 100 × 326 | = ₹ 32,600 |
| Gain/loss | NIL |

There will be no change in the wealth of the shareholder if he sells the rights.

**Q. 9. (a) Is listing a legal requirement ?**

**(b) Given the following risky portfolios :**

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| **Return %** | **10** | **12.5** | **15** | **16** | **17** | **18** | **18** | **20** |
| **σ %** | **23** | **21** | **25** | **29** | **29** | **32** | **35** | **45** |

**(i) Which of these portfolios are efficient? Which are inefficient?**

**(ii) Suppose one can tolerate a risk of 25%, which is the maximum return one can achieve if no borrowing or lending is resorted to?**

**(iii) Suppose one can tolerate a risk of 25%, what is the maximum return one can achieve if borrowing or lending at the rate 12% is resorted to?**

**(c) Suppose an arbitrageur for a hedge fund finds two identical bonds trading at different YTM's : Bond A, an AA –rated, 10 year, 10% annual coupon bond trading at par, and Bond B, an AA-rated 10-year, 10% annual coupon bond to yield 10.25%. What are the prices of each bond? What swap strategy would you recommend to the arbitrageur? What is the risk in this strategy?**

**Answer 9. (a)**

There is no statutory obligation that a public limited company should get its shares enlisted on a recognized Stock Exchange unless it seeks to raise funds from the public by issue of a prospectus. Also, a company declaring in the prospectus its intention of applying for enlistment is required under Section 73 of the Companies Act to make listing application to the Stock Exchange concerned. Further, government has the power under Section 21 of the Securities Contracts (Regulation) Act, 1956, to compel a public limited company, when it is so necessary or expedient in the interest of the trade or the public to comply with the prescribed requirements and list its shares on a recognized Stock Exchange. Similarly, public financial institutions and nationalized banks make similar stipulations when agreeing to underwrite or subscribe to a new issue of capital.

**Answer 9. (b)**

(i) Using the risk-return tradeoff, an investor would prefer B to A (B gives higher return for lower risk, hence dominant); would prefer C; would prefer E to D (E gives higher return for lower risk and hence dominant); would prefer F to G (F is dominant because it offers 18% at lower risk); and H; Hence portfolios B,C, E, F & H are efficient. Portfolios A, D & G are inefficient.

(ii) As seen from the table, if the maximum risk of 25% can be tolerated, then portfolio C can be chosen to give a maximum return of 15%.

(iii) However, if borrowing/ lending can be resorted @ 12%, then one can borrow in such a manner that the total risk does not exceed 25%. As we know higher returns can be obtained by borrowing at the risk free rate and investing in a risky portfolio. Obviously risk too would increase. Now we need to find that portion of investment in risky portfolio, which will give us maximum return for a risk not greater than 25%. Therefore let us assume weight of investment in risky portfolio be 'x'. Therefore (1 – x) would be the weight in risk free asset. It is clear that since $\sigma$ of risk free asset is zero, we need to find just that proportion in risky security to get 25%.

Thus we have for portfolio A investment in proportion of 25/23 and -2/23 in risk free instrument (indicating borrowing) to arrive at a total risk of 25%. We simply used the below formula. [Note substitute $\sigma$ of Risk free portfolio = 0]

x * $\sigma$ of Risk free portfolio + (1-x) * $\sigma$ of Risk free portfolio = 25%

'x' found above, would be used it to find total return.

Total return = x * Return of risky Portfolio + (1 – x) * 12

Thus we get the table given below :

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| Proportion in risky security | 25/23 | 25/21 | 25/25 | 25/29 | 25/29 | 25/32 | 25/35 | 25/45 |
| To get risk | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Return | 9.83 | 12.60 | 15.00 | 15.45 | 16.31 | 16.69 | 16.29 | 16.44 |

We see from the table that a maximum return of 16.69% is obtained for portfolio F, when we invest in a proportion of 25/32 in portfolio F & balance 7/32 in risk free asset.

**Answer 9. (c)**

Bond A is trading at par, 100, and Bond B is trading at 98.48 :

$$P_B = \sum_{t=1}^{10} \frac{10}{(1.1025)^t} + \frac{100}{(1.1025)^{10}} = 98.48$$

To take advantage of the mis-pricing, a yield pickup swap could be formed by going long in Bond B at 98.48 (the under priced bond) and shorting Bond A at 100 (the overpriced bond) to realize an initial cash flow of 1.52. Since the bonds are identical, their prices will eventually converge. When this occurs, the arbitrageur can sell bond B, and then use the proceeds to buy Bond A and return the borrowed bond to the bond lender to close the short position.

The risk in a yield pick-up swap is when the bonds are not identical. For example, Bond B might be subject to a ratings downgrade of which the arbitrageur is unaware.

**Q. 10. (a) Jupiter Ltd. has ₹ 10 million invested in long term bonds. This bond portfolio's expected annual rate of return is 9%, and the annual standard deviation is 10%. E&Y, their financial advisor, recommends that Jupiter consider investing in an index fund which closely tracks Nifty Index. The Index has an expected return of 14%, and its standard deviation is 16%.**

**(i) Suppose Jupiter puts all his money in a combination of the index fund and Treasury bills, can they improve the expected rate of return without changing the risk of the portfolio? The Treasury bill yield is 6%.**

**(ii) Could Jupiter do even better by investing equal amounts in the corporate bond portfolio and the index fund? The correlation between the bond portfolio and the index fund is +0.10.**

**(b) Write a short note on – Insider Trading.**

**(c) Assume that on January 25, a corporate treasurer expects to receive ₹ 10 million from an overseas subsidiary on March 2012. He intends to invest the money in three-month-T-bills. On three-month-T-bill discount yield is 7.66% and current discount (implied) yield on March 90, T-bill is 7.35%. However, a treasurer infers from the futures yield that the market expects that interest rate will decline in futures. How can treasurer use T-bill futures to protect such risk?**

**Answer 10. (a)**

**(i)** Jupiter Ltd's current portfolio provides an expected return of 9% with an annual standard deviation of 10%. First we find the portfolio weights for a combination of Treasury bills (Security 1: standard deviation = 0 %) and the index fund (security 2 : standard deviation = 16%) such that portfolio deviation is 10%. In general, for a two security portfolio :

$$\sigma_P^2 = x_1^2\sigma_1^2 + 2x_1x_2\sigma_1\sigma_2\rho_{12} + x_2^2\sigma_2^2$$

$(0.10)^2 = 0 + 0 + x_2^2 (0.16)^2$

$x_2 = 0.625 \Rightarrow$ = 0.375

Further,

$$r_P = x_1r_1 + x_2r_2$$

= (0.375 × 0.06) + (0.625 × 0.14) = 0.11 = 11%

Therefore, he can improve his expected rate of return without changing the risk of his portfolio.

**(ii)** With equal amounts in the corporate bond portfolio (security 1) and the index fund (security 2), the expected return is :

$r_P = x_1 r_1 + x_2 r_2$

$r_P$ = (0.5 × 0.09) + (0.5 × 0.14) = 0.115 = 11.5%

$\sigma_P^2 = x_1^2\sigma_1^2 + 2x_1x_2\sigma_1\sigma_2\rho_{12} + x_2^2\sigma_2^2$

$\sigma_P^2$ = $(0.5)^2(0.10)^2 + 2(0.5)(0.5)(0.10)(0.16)(0.10) + (0.5)^2(0.16)^2$

$\sigma_P^2$ = 0.0097

$\sigma_P$ = 0.985 = 9.85%

Therefore, he can do even better by investing equal amounts in the corporate bond portfolio and the index fund. His expected return increase to 11.5% and the standard deviation of his portfolio decreases to 9.85%.

**Answer 10. (b)**

Insider trading is the trading of a security of a company (e.g. shares) by an insider, a person who knows information that is not accessible to the public. It is abuse of the confidential information by the persons who are insiders and are in possession of such information and as such is unethical, immoral, breach of fiduciary position of trust and confidence.

An example of insider trading may be that a Chief Executive Officer, knowing that his company is going to be taken over which is expected to bring upward movement in share prices, purchases shares of his own company (before this piece of information is known to the stock exchange).

SEBI (Prohibition of Insider Trading) Regulation, 1992 (the "Insider Trading Regulations") have been framed to prevent, prohibit and penalize insider trading in India.

The Insider Trading Regulations prohibit an "insider" from dealing, either on his own behalf or on behalf of any other person, in the securities of a company listed on any stock exchange when in possession of unpublished price sensitive information. The insider is prohibited from communicating, directly or indirectly, any unpublished price sensitive information or giving investment advice about relevant securities to anyother person.

The Insider Regulations provide a model code for this purpose. The model code provides that All Directors/ Officers/ Designated Employees shall obtain prior approval of the Compliance Officer in the prescribed form while entering into the deals of securities of the company where the trade exceeds a minimum threshold limit (to be decided by the company).

**Answer 10. (c)**

He will buy long March 10, 2012 T-bill futures on January 25 at a price of 92.65, locking a discount yield of 7.35% on ₹ 10 million and expects to invest in March.

Suppose on March, the three-month cash T-bill has a discount yield by 6.70% (March futures are 93.30)

| | | |
|---|---|---|
| Price of T-bill | = ₹ 1,00,00,000 × (100 – 6.70 x 3/12) | = ₹ 98,32,500 |
| Less – Futures gain | = (93.30 – 92.65) × 100 × 25 × 10 | = ₹ 16,250 |
| Effective purchase price | | = ₹ 98,16,250 |

Annualized discount yield = $\frac{1,00,00,000 - 98,16,250}{1,00,00,000} \times \frac{12}{3} \times 100$ = 7.35% p.a.

**Q. 11. (a) ITC Ltd. having an authorized capital of ₹ 3 crores and paid-up capital of ₹ 2 crores. The company has the following reserves as at 31.12.2011 :**

| | |
|---|---|
| **Revaluation reserve by revaluation of fixed assets** | **2 crores** |
| **General reserve** | **4 crores** |
| **Investment allowance reserve** | **1 crore** |
| **Capital redemption reserve account in terms of section 80 of the Companies Act** | **1 crore** |
| **Profit and loss account credit balance** | **35 lakhs** |

**The company has earned the following profits during the last three years before providing for taxation :**

| | |
|---|---|
| **2009** | **1.00 crore** |
| **2010** | **1.25 crores** |
| **2011** | **1.50 crores** |

**Contingent liabilities not provided :**

| | |
|---|---|
| **Gratuity accruing** | **40 lakh** |
| **Sales tax disputed** | **10 lakh** |

**Apply the guidelines for issue of bonus shares and state up to what ratio the company can issue bonus shares.**

**(b) The risk free return is 6% and the return on market portfolio is 14%. If the last dividend on Share "A" was ₹ 2.00 and assuming that its dividend and earnings are expected to grow at the constant rate of 6%. The beta of share "A" is 2.00. Compute the intrinsic value of share "A".**

**(c) Shares of Mamata Ltd. are being quoted at ₹ 500. 3 –months futures contract rate is ₹ 520 per share for a lot size of 500 shares. If Mamata Ltd. is not expected to distribute any dividend in the interim, risk free rate of return is 9%, what is the recommended course of action for a trader in shares? If the 3-months Futures Contract Rate is ₹ 500, what should be the action?**

**Answer 11. (a)**

Calculation of the amount of maximum permissible bonus issue :

| | |
|---|---|
| General reserve | 4.00 crores |
| Investment allowance reserve | 1.00 crore |
| Capital redemption reserve | 1.00 crore |
| P&L A/c. | 0.35 crore |
| | 6.35 crores |
| *Less :* Gratuity — 0.40 × 0.70 - | 0.28 crore |
| Sales tax disputed — 0.10 × 0.70 - | 0.07 crore |
| Total amount | 6.00 crores |

Ratio of bonus shares : 6.00 crores/ 2.00 crores = 3. The company may issue 3 shares as bonus shares for each share held after raising the authorized capital suitably (through alteration of memorandum of association).

**Answer 11. (b)**

Basic data:

| Notation | Particulars | Value |
|---|---|---|
| $\beta_A$ | Beta of share | 2.00 |
| $R_M$ | Market return | 14% |
| $R_F$ | Risk free rate of return | 6% |
| g | Growth rate of dividends | 6% |
| $D_0$ | Last year's dividend | ₹ 2.00 |

Computation of expected return :

Expected return $[E(R_p)] = R_F + [\beta_p \times (R_M - R_F)]$

$= 0.06 + [2 \times (0.14 - 0.06)]$

$= 0.06 + 0.16 = 0.22$

i.e. $K_e = 22\%$

Intrinsic value of share $= D_1 \div (K_e - g) = D_0 \times (1 + g) \div (K_e - g)$

$= 2 \times (1 + 0.06) \div (0.22 - 0.06) =$ ₹ 13.25

The intrinsic value of share A is ₹ 13.25.

**Answer 11. (c)**

**Computation of Theoretical Forward Price (TFP)**

| Particulars | Value |
|---|---|
| Spot price $[S_x]$ | ₹ 500 |
| Risk free interest rate [r] | 9% or 0.09 |
| Period [t] | 3 months or 3/12 yrs. i.e. 0.25 |
| Theoretical forward price $[TFP_x] = S_x \times e^{rt} =$ ₹ $500 \times e^{0.09 \times 0.25}$ $=$ ₹ $500 \times e^{0.0225} =$ ₹ $500 \times 1.02276$ | ₹ 511.38 |

**Evaluation and suggested course of action :**

| Particulars | Case I | Case II |
|---|---|---|
| 3-months futures contracts price [AFPx] | ₹ 520 | ₹ 500 |
| $TFP_x$ Vs. $AFP_x$ | $AFP_x$ is higher | $AFP_x$ is lower |
| Valuation in futures market | Overvalued | Undervalued |
| Action | Buy spot, sell future | Sell spot, buy future. |

**Q. 12. (a) Write short note on Inter Bank Participation Certificate.**

**(b) The following information is available for security A – Equilibrium return – 15%, market portfolio return 15%, 6% treasury bills (₹ 100) are traded at ₹ 120. Covariance of the security with the market portfolio is 225% and correlation is 0.75. Determine market risk ($\sigma$ of market portfolio) and security risk.**

**(c) The Investor's Information has published as article evaluating two funds and comparing them with performance of the BSE Index under the Fama's Net Selectivity approach.**

**The following information is given in the first page :**

| *Particulars* | *Fund A* | *Fund B* | *Market portfolio* |
|---|---|---|---|
| **Average return** | **15%** | **20%** | **18%** |
| **Standard deviation** | **5%** | **7%** | **6%** |

**Ascertain what would have been the result of the evaluation undertaken by "The Investor's Information" if risk free rate of return is 6%.**

**Answer 12. (a)**

Inter Bank Participation Certifications (IBPC) are short-term instruments to even out the short term liquidity within the Banking system particularly when there are imbalances affecting the maturity mix of assets in Banking Book.

It is issued to provide a degree of flexibility in the credit-portfolio of banks. It can be issued by Scheduled Commercial Bank and can be subscribed by any Commercial Bank.

There are two types of participation certificates –

| | **Without risk to lender** | **With risk to lender** |
|---|---|---|
| Period | Period not exceeding 90 days | 91 days to 180 days |
| Disclosure | Issuing bank : Disclose as liability under borrowing from banks.<br>Participating bank : Advances to bank | Issuing bank : Reduce from advances outstanding<br>Participating bank : Under advances |

**Other features :**

(i) Interest rate on IBPC is freely determined in the market, i.e. negotiable.

(ii) Certificates are neither transferable nor prematurely redeemable by the Issuing Bank.

(iii) Issuing Bank can secure funds against advances without actually diluting its asset-mix.

**Answer 12. (b)**

(i) Computation of Beta of the security :

Risk free rate = Coupon payment ÷ Current market price

= [₹ 100 x 6%] ÷ ₹ 120 = 6 ÷ 120 = 5%

Assuming equilibrium return = CAPM return

$15\% = R_F + \beta_A \times (R_M - R_F)$

$15\% = 5\% + \beta_A \times (15\% - 5\%) \Rightarrow \beta_A = 1$

(ii) Computation of market risk :

$\beta_A = \frac{Cov_{AM}}{\sigma_M^2}$

$1 = 225\% \div \sigma_M^2 \Rightarrow \sigma_M$ = 15% (Market risk)

(iii) Computation of security risk :

$\beta_A = \frac{\sigma_A}{\sigma_M} \times \rho_{AM}$

$1 = [\sigma_A / 15\%] \times 0.75 \Rightarrow \sigma_A$ = 15% ÷ 0.75 = 20%

**Answer 12. (c)**

**Evaluation of Fund A, B and Market Portfolio**

| Particulars | | | Fund A | Fund B |
|---|---|---|---|---|
| Risk free return | $[R_F]$ | | 6% | 6% |
| Market return | $[R_M]$ | | 18% | 18% |
| Market risk premium | $[R_M - R_F]$ | | 12% | 12% |
| Market standard deviation | $[\sigma_M]$ | | 6% | 6% |
| Average return | $[R_P]$ | | 15% | 20% |
| Standard deviation | $[\sigma_P]$ | | 5% | 7% |
| Actual risk premium | $[R_P - R_F]$ | [A] | 9% [15% – 6%] | 14% [20% – 6%] |
| Desired risk premium | $[(R_M - R_F) \times \sigma_P \div \sigma_M]$ | [B] | 10% [12% × 5% ÷ 6%] | 14% [12% × 7% ÷ 6%] |
| Fama's net selectivity | | [A] – [B] | (1%) | 0% |

Fama's net selectivity for Fund A is negative, and therefore, the Market has out-performed Fund A. net selectivity for Fund B is zero, and hence it has performed as good as the market.

**Q. 13. (a) Following information is available in respect of dividend, market price and market condition after one year –**

| Market condition | Probability | Market price | Dividend per share |
|---|---|---|---|
| **Good** | **0.25** | **115** | **9** |
| **Normal** | **0.50** | **107** | **5** |
| **Bad** | **0.25** | **97** | **3** |

**The existing market price of an equity share is ₹ 106 (F.V. Re 1), which is cum 10% bonus debenture of ₹ 6 each, per share. M/s. ABC Finance Company Ltd. has offered the buy-back of debentures at face value.**

**(i) Find out the expected return and variability of returns of the equity shares.**

**(ii) And also advise – whether to accept buy-back offer?**

**(b) Debentures of Ma Tara Mines are being traded at Rs. 988. The debentures carry a face value of ₹ 1,000 with a coupon rate of 12%. AT the end of one year, the Debenture is traded at ₹ 995, after an interest disbursement.**

**Required (holding period return) –**

**(i) Nominal return on debenture [value and rate]**

**(ii) Real return on debenture [value and rate], if average inflation rate was 4.49%.**

**(c) Manas has two investment opportunity, A and B, carrying an yield of 15% p.a. The tenor of both these investments is 3 years.**

**A offers continuous compounding facility, whereas B offers yield on the basis of monthly compounding. Which offer will Manas opt for?**

**If continuous compounding facility comes at a price of ₹ 180 p.a. per lakh of deposit (chargeable at the end of the period), what will be the position?**

**At what price, will Manas be indifferent to Continuous Compounding Facility and Monthly Compounding?**

**Answer 13. (a)**

**The expected return of the equity share may be found as follows :**

| Market condition | Probability | Total return (₹) | Net return (₹) | Expected return | Deviation (D) | $D^2$ | $PD^2$ |
|---|---|---|---|---|---|---|---|
| **(1)** | **(2)** | **(3)** | **(4) = (3) – Cost** | **(5) = (2)×(4)** | **(6) = (4) – 12** | **(7) = (6)²** | **(8) = (7)×(2)** |
| Good | 0.25 | 124 | 24 | 6 | 12 | 144 | 36 |
| Normal | 0.50 | 112 | 12 | 6 | 0 | 0 | 0 |
| Bad | 0.25 | 100 | 0 | 0 | -12 | 144 | 36 |
| | | | | 12 | | | 72 |

Expected return = 72%

Variability of the returns = $\Sigma PD^2$

SD = $\sqrt{PD^2} = \sqrt{72} = 8.49$

**Note :** The present market price of the share is ₹ 106 cum bonus 10% debenture of ₹ 6 each. Hence the Net Cost is ₹ 100.

**Answer 13. (b)**

Computation of Nominal return :

| Particulars | | | ₹ |
|---|---|---|---|
| Sale proceeds | | | 995 |
| *Less* : Purchase price | | [A] | 988 |
| Price gain/(loss) | | [B] | 7 |
| Coupon payments received [ ₹ 12% × ₹ 1000 × 1 year] | | [C] | 120 |
| Total return during holding period | [B] + [C] | [D] | 127 |
| Holding period return | [D] ÷ [A] | | 12.85% |

**Computation of real return**

**Computation of real return (rate)**

Real return $= \frac{(1+\text{Nominal Interest Rate})}{(1+\text{Inflation Rate})} - 1$

= [(1 + 0.1285)/ (1 + 0.0449)] – 1

= (1.1285/1.0449)] – 1

= 1.08 – 1 = 0.08 = 8%

**Real return (value)**

= Purchase price × Real rate of return = ₹ 988 × 8% = ₹ 79.04

*OR*

= [(Interest + Closing Price) ÷ (1 + Inflation rate)] – Purchase Price

= [(₹ 120 + ₹ 995) ÷ 1.0449] – ₹ 988

= [₹ 1,115 ÷ 1.0449] – ₹ 988

= ₹ 1,067.08 – ₹ 988 = ₹ 79.08

**Answer 13. (c)**

Return on Investment options A and B :

| Particulars | Investment A | Investment B |
|---|---|---|
| Investment (assumed) | ₹ 10,00,000 | ₹ 10,00,000 |
| Amount receivable on maturity (A) | $P \times (1 + r/m)^{n \times m}$<br>$= ₹\ 10,00,000 \times (1 + 0.15/12)^{3 \times 12}$<br>$= ₹\ 10,00,000 \times (1 + 0.0125)^{36}$<br>$= ₹\ 10,00,000 \times (1.0125)^{36}$<br>$= ₹\ 10,00,000 \times 1.563944$<br>$= ₹\ 15,63,944$ | $P \times e^{rt}$<br>$= ₹\ 10,00,000 \times e^{0.15 \times 3}$<br>$= ₹\ 10,00,000 \times e^{0.45}$<br>$= ₹\ 10,00,000 \times 1.568312$<br>$= ₹\ 15,68,312$ |
| Charges payable at ₹ 180 p.a. per lakh | NIL | 10×₹180 p.a.× 3 yrs. = ₹ 5,400 |
| Net amount receivable upon maturity | ₹ 15,63,944 – NIL = ₹ 15,63,944 | ₹ 15,68,312 – ₹ 5,400 = ₹ 15,62,912 |

**Evaluation of investments :**

**Case A (No charges for continuous compounding) :** Investment B is preferable, as it offers a higher return on maturity.

**Case B (Charges for continuous compounding) :** Investment A is preferable, as amount receivable is higher than net amount receivable in Investment A.

**Indifference point :**

Manas will be indifferent to Investment A and B, if

Amount receivable under maturity in Investment A = Amount receivable under maturity in investment B – Charges for continuous compounding

₹ 15,63,944 = ₹ 15,68,312 – charges

Charges = ₹ 15,68,312 – ₹ 15,63,944 = ₹ 4,368

Charges per lakh per annum = ₹ 4,368 ÷ (3 yrs × 10)

= ₹ 4,368 ÷ 30

= ₹ 145.60

The price payable for Investment B is ₹ 145.60 per lakh per annum for Manas to be indifferent to both the investment alternatives.

**Q. 14. (a) The current price of Soya Oil is ₹ 455 per 10 Kgs. The storage costs are ₹ 30 per week per Metric Ton (1 MT = 1000 Kgs) payable in arrears. Also there involves a fixed charge of ₹ 110 per deposit up to 1000 Kgs payable in advance. Assuming that interest rates are 10% p.a. with continuous compounding. Calculate 3 months (thirteen weeks) futures price of 1000 Kgs of Soya Oil.**

**(b) We have put options on a stock available with strike prices of ₹ 30 and ₹ 35. While the 30 Put costs ₹ 2, the 35 Put costs ₹ 5. Explain how we can form a bull spread and a bear spread. Also tabulate the values at expiry for various values of stock $S_T$.**

**(c) Bharat Ltd. is a consumer goods company which earns expected return of 12% on its existing operations subject to standard deviation 20%. The company is owned by a family and the family has no other investment.**

**New project is under consideration and the new project is expected to give a return of 16% subject to standard deviation of 32%. The new project has a correlation of 0.25 with Bharat's existing operations.**

**The new project is likely to account for 25% of Bharat's operations.**

**Bharat is identified a utility function to appraise risky project.**

**The function is as under :**

**Shareholder's utility = 100 R – $\sigma^2$ ; where, R = expected return (in %); $\sigma^2$ = standard deviation of return (in %)**

**The project can be accepted only if total utility goes up. Evaluate the project.**

**Answer 14. (a)**

The value of commodity futures = (Spot Price + PV of Storage + Any other costs) × $e^{rt}$

We are given Spot price = ₹ 455 / 10 Kgs., r = 10%, t = 3 months = 0.25 years; Storage = ₹ 30 per MT per week: Fixed charge of ₹ 110 per deposit up to 1000 kgs.

We first find PV of Storage = ₹ 30 × 13 × $e^{-0.10 \times 0.25}$ = ₹ 380.37

Next we find PV of fixed charge = ₹ 110 [Since it is payable in advance]

Therefore the value of 1 MT of Soya Oil Futures = [455 × 100 + 380.37 + 110] × $e^{0.10 \times 0.25}$

= ₹ 47154.62

**Answer 14. (b)**

A bull spread can be created by buying the ₹ 30 put and selling the ₹ 35 put. This transaction yields an initial cash flow of ₹ 3. The outcome at maturity is as follows :

| Stock prices | Payoff | Profit |
|---|---|---|
| $S_T \geq 35$ | 0 | 3 |
| $30 \leq S_T < 35$ | $S_T - 35$ | $S_T - 32$ |
| $S_T < 30$ | – 5 | – 2 |

A bear spread can be created by selling the ₹ 30 put and buying the ₹ 35 put. This transaction initially costs ₹ 3. The outcome at maturity is as follows :

| Stock prices | Payoff | Profit |
|---|---|---|
| $S_T \geq 35$ | 0 | – 3 |
| $30 \leq S_T < 35$ | $35 - S_T$ | $32 - S_T$ |
| $S_T < 30$ | 5 | 2 |

**Answer 14. (c)**

We may treat the existing Co. and new project as to two securities portfolio since we are aware that original company has 0.75 share and new project 0.25 finally in overall operation.

Expected return = Proportion of Investment × Return

= (0.75 × 12%) + (0.25 × 16%) = 13%

Covariance = $\rho_{AB}$ (Correlation between old and new operations) × $\sigma_{\text{old project}} \times \sigma_{\text{new project}}$

= 0.25 × 20 × 32 = 160

$$\sigma_p = \sqrt{(\sigma_A^2 \times W_A^2) + (\sigma_B^2 \times W_B^2) + 2(\sigma_A \times W_A \times \sigma_B \times W_B \times \rho_{AB)}}$$

Therefore, variance of the company with new project = $(0.75^2 \times 20^2) + (0.25^2 \times 32^2) + (2 \times 0.75 \times 0.25 \times 160)$ = 349

S.D. = $\sigma = \sqrt{349}$ = 18.68%

Share holders utility without the project = $100 \times 12 - 20^2$ = 800 units

Share holders utility with the project = $100 \times 13 - (18.68)^2$ = 951 units.

Hence, project will increase the utility.

**Q. 15. (a) The standard deviation of the monthly spot prices of gold is 0.90. The standard deviation of the monthly futures prices of gold is 1.20. Coefficient of correlation between these two prices is 0.60. Today is 20th February 2012. An exporter-jeweller has to purchase 100 kgs. of gold after one month. Gold futures contracts mature on 20th of every month. How can it be hedged against rise in gold price?**

**(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?**

**(iii) What is the price of the implicit option?**

**(c) What are advantages of share repurchase over dividends?**

**Answer 15. (a)**

Hedge ratio = $r\ (SD_{SP}/SD_{FP})$

= 0.60 (0.90/1.20) = 0.45

The exporter may buy 45 kgs. of gold through future contracts, maturity one month. This will more or less hedge against rise in the prices of the gold.

**Note :** Suppose the spot price is ₹ 16L/kg. and the futures price is ₹ 1.60010/kg. Suppose the future prices increase by 10%, the spot prices are expected to rise by 4.50% (as hedge ratio is 0.45).

Loss due to increase in Spot prices = 1.60L × 0.045 × 100 = ₹ 7.20 L

Gain on futures : 1.60010 × 0.10 × 45 = ₹ 7.20045 L

The concept of hedge ratio (the term used in the futures market) is based on the concept of Beta.

Hedge ratio = $r(SD_{SP}/SD_{FP}) = \frac{\text{Co variance between } SP_S \text{ and } FP_S}{SD_{SP} \times SD_{FP}} \times \frac{SD_{SP}}{SD_{FP}}$

**Answer 15. (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 ₹ 3/(1.15) for every ₹ 100 of the original investment.

**Answer 15. (c)**

The advantages of share repurchase over dividends are as follows :

(i) Cash dividend implies a commitment on the part of company to continue payments in future, as investors keep expecting them. However, share repurchase is an one time affair.

(ii) The decision to repurchase the shares offers a company more flexibility as to number of shares, the period etc.

(iii) Share repurchase are more focused in terms of paying out cash only to those shareholders who need it. However, dividends are paid to all.

(iv) Share buy back provide a way of increasing control in the firm. If only outsiders tender their shares, automatically insiders control increases.

**Q. 16. (a) A prospective investor has collected the following information pertaining to returns on stocks A & B.**

| Stock | Correlation Coefficient (with market) | Standard Deviation | Expected Return |
|---|---|---|---|
| A | 0.6 | 0.3 | 0.12 |
| B | 0.4 | 0.2 | 0.11 |

**Expected market return = 0.10**
**Risk free rate of return = 0.06**
**Variance of market return = 0.01**

**You are required to find out :**

**(i) The beta for an equally weighted portfolio of stocks A & B.**

**(ii) The required rate of return as per CAPM for portfolio of 50% each of A & B.**

**(iii) Are A & B are under-priced, overpriced or correctly priced according to CAPM ?**

**(b) Explain how a trader who has bought an option can exit the trade.**

**(c) You are supplied the following information regarding equity shares of the two companies :**

| | *A Ltd.* | *B Ltd.* |
|---|---|---|
| Average return | 12% | 15% |
| SD of return | 6% | 3% |

**Coefficient of correlation between returns from equity shares of A Ltd. and B Ltd. = 0.50. An investor is interested investing ₹ 15,00.000 in these two securities. Suggest the portfolio to minimize the risk.**

**(d) What is the value of the following call option according to the black Scholes Option Pricing Model?**

| | |
|---|---|
| **Stock price** | **₹ 27** |
| **Exercise price** | **₹ 25** |
| **Time to Expiration** | **6 months** |
| **Risk-free rate** | **6%** |
| **Stock return variance** | **0.11** |

**Answer 16. (a)**

**(i)** Beta of a stock is given by $\beta_i = \rho_{im} \times \frac{\sigma_i \sigma_m}{\sigma_m^2}$

Where, $\rho_{im}$ = Correlation coefficient of the stock with the market

$\sigma_i$ = Standard deviation of the stock returns

$\sigma_m$ = Standard deviation of market returns

Let $\beta_A$, $\beta_B$ and $\beta_{AB}$ be the beta of stock A, stock B and portfolio of stock A & B in equal proportion.

$\beta_A = 0.6 \times \frac{0.3}{\sqrt{0.01}} = 1.8$

$\beta_B = 0.4 \times \frac{0.2}{\sqrt{0.01}} = 0.8$

$\beta_{AB} = 0.5\ \beta_A + 0.5\ \beta_B$

$= 0.5 \times 1.8 + 0.5 \times 0.8$

$= 1.3$

(ii) According to CAPM the equilibrium required rate of return is given by

$R_P = R_f + \beta_P (R_m - R_f)$

Here, $R_m = 0.10$

$\beta_P = \beta_{AB} = 1.3$

$R_f = 0.06$

$R_P = 0.06 + 1.3(0.10 - 0.06)$

$= 0.112$

$= 11.2\%$

(iii) Required rate of return for stock A

$R_A = R_f + \beta_A (R_m - R_f)$

$= 0.06 + 1.8\ (0.10 - 0.06)$

$= 0.132$

$= 13.2\%$

The expected rate of return from stock A is 12% therefore security is overpriced.

Required rate of return for Stock B

$R_B = R_f + \beta_B (R_m - R_f)$

$= 0.06 + 0.8 (0.10 - 0.06)$

$= 0.092$

$= 9.2\%$

The expected rate of return from B is 11%, therefore security is under priced.

**Answer 16. (b)**

**Liquidating Option Positions :**

When a trader buys an option, he can exit the trade in two ways :

- Sell the option and collect whatever the premium is – If the premium is more than what is initially cost plus commission, there's a profit. If the premium is less, it's a loss, but keeping some money is better than losing all the money.

- Exercise the option, covering it into a future position-The broker must be notified before options expire. Not all options have an automatic exercise provision. Therefore, an in-the-money option that expires without any action taken, loses the buyer money (a seller somewhere will be very happy). An option can be exercised if the trader feels the market will continue to move favourable to the trader's position or an option can be exercised if the trading in the option is not very liquid. The trader, in this case feels he can exercise and then liquidate the futures more economically than selling his option position.

- Ride the option into the dust- Let it expire worthless, especially if getting out will cost more than the premium is worth. When a trader sells an option, he or she can exit the trade by buying the option back. If the premium is higher, the option seller has lost money. The option seller cannot exercise his or her option.

**Answer 16. (c)**

if r = 0.50 :

$$W_A = \frac{(SD_B)^2 - r(SD_A)(SD_B)}{(SD_A)^2 + (SD_B)^2 - 2r(SD_A)(SD_B)}$$

$$= \frac{(0.03)^2 - (0.50)(0.06)(0.03)}{(0.06)^2 + (0.03)^2 - 2(0.50)(0.06)(0.03)}$$

$= 0$

Invest total amount of ₹ 15,00,000 in the equity shares of B Ltd.

If the coefficient of correlation is – 1, we may not apply this formula. In this case, the same result, that we get from this formula, can be obtained through the reverse ratio of the SDs. For example if the SD of A is 1 and that of B is 3, r = – 1, for minimum risk variance the investment may be made in the ratio of 3:1 i.e. 75% of the funds may be invested in A and 25% in B. (We shall get the same result if we apply the above formula, but that will be time consuming)

Remember that the concept of the reverse ratio of the SDs is applicable only when r = – 1.

**Answer 16. (d)**

We use the Black Scholes Model

$$C = S\,N(d_1) - X\,e^{-rt}\,N(d_2)$$

Where

C = Price of the call option

S = Price of the underlying stock

X = Option exercise price

r = Risk-free interest rate

t = Current time until expiration

N() = Area under the normal curve

$d_1 = [\ln(S/X) + (r + \sigma^2/2)t]/\sigma t^{1/2}$

$d_2 = d_1 - \sigma t^{1/2}$

The input variable are :

S = ₹ 27; X = ₹ 25; $R_f$ = 6%; t = 6 months = 0.5 yrs.; and $\sigma^2 = 0.11$

We first find $d_1$ :

$$d_1 = \frac{\ln(27/25) + [(0.06 + 0.11/2)0.5]}{(0.3317)(0.7071)}$$

$$= \frac{0.0770 + 0.0575}{0.2345} = 0.5736$$

$d_2 = d_1 - (0.3317)(0.7071) = d_1 - 0.2345$

$= 0.5736 - 0.2345 = 0.3391$

$N(d_1) = N(0.5736) = 0.5000 + 0.2168 = 0.7168$

$N(d_2) = N(0.3391) = 0.5000 + 0.1327 = 0.6327$

Therefore,

$C = ₹\ 27\ (0.7168) - ₹\ 25\ e^{-0.03}(0.6327) = ₹\ 19.3536 - ₹\ 25\ (0.97045)(0.6327)$

$= ₹\ 19.3536 - ₹\ 15.3500 = ₹\ 4.0036 \approx ₹\ 4.00$

Thus, the value of the call option is about ₹ 4.00.

**Q. 17. (a) A Ltd. and B Ltd. are in the same risk class, paying taxes at 33%. They are registering steady earnings. A study of their financial statements and the market information highlights the following –**

**(Fig. in ₹ crores)**

| Particulars | A ltd. | B ltd. |
|---|---|---|
| Capital employed | 1200 | 800 |
| Share capital | 750 | 400 |
| Reserves | 450 | 100 |
| 9% debt | - | 300 |
| Market value of shares | 3500 | 1850 |
| Market value of debt | - | 250 |
| Profit after tax | 472.50 | 296 |

**If equity beta of A Ltd. is 1.20, ascertain –**

**(i) Cost of equity of B Ltd.**

**(ii) Beta of equity of B Ltd.**

**Assume that debt has no beta.**

**(b) Mr. Ashish can earn a return of 16% by investing in equity shares on his own. Now he is considering a recently announced equity based mutual fund scheme in which initial expenses are 5.5% and annual recurring expenses are 1.5%. How much should the mutual fund earn to provide Mr. Ashish a return of 16%?**

**(c) Mr. Mehra is contemplating purchase of 1,000 equity shares of a company. His expectation of return is 10% before tax by way of dividend with an annual growth of 5%. The company's last dividend was ₹ 2 per share. Even as he is contemplating, Mr. Mehra suddenly finds, due to a budget announcement dividends have been exempted from tax in the hands of the recipients. But the imposition of dividend distribution tax on the Company is likely to lead to a fall in dividend of 20 paise per share. Mr. Mehra's marginal tax rate is 30%.**

**Calculate what should be Mr. Mehra's estimate of the price per share before and after the budget announcement?**

**Answer 17. (a)**

Cost of equity of B Ltd.

Cost of equity ($K_E$) = Equity earnings ÷ Market value of equity

= ₹ 296 cr. ÷ ₹ 1850 Cr. = 16%

**Beta value of equity of B Ltd.**

Beta of B Ltd. = Beta of its assets

Since, A Ltd. and B Ltd. are in the same industry and in the same risk class, Beta of B Ltd = Beta of A Ltd.

Therefore, Beta of Assets of B Ltd. = 1.20; Beta of debt = 0

$$\beta_A = \frac{\beta_{Equity} \times Equity}{Equity + Debt\,(1 - Tax)} + \frac{\beta_{Debt} \times Debt \times (1 - Tax)}{Equity + Debt\,(1 - Tax)}$$

$1.20 = \beta_E \times 1850 \div [1850 + ₹\ 250 \times (1 - 33\%)] + 0$

$1.20 = \beta_E \times 1850 \div [1850 + 250 \times (1 - 0.33)]$

$1.20 = \beta_E \times 1850 \div [1850 + 250 \times 0.67]$

$1.20 = \beta_E \times 1850 \div [1850 + 167.50]$

$1.20 = \beta_E \times 1850 \div 2017.50$

$1.20 = \beta_E \times 0.917$

$\beta_E = 1.20 \div 0.917 = 1.309$

**Answer 17. (b)**

Let the return on mutual funds be ₹ X.

Investor's expectation denotes the return from the amount invested.

$$\text{Returns from Mutual Funds} = \frac{\text{Investor's expectation}}{100 - \text{Issue Expenses}} + \text{Annual recurring expenses}$$

$$X = \frac{16}{(100 - 5.5)\%} + 1.5 = 16.93 + 1.5 = 18.43\%$$

Return that the Mutual Fund should earn so as to provide a return of 16% = 18.43%

**Answer 17. (c)**

Value of share based on expected dividend is $P_0 = \frac{D_0(1+g)}{(K_e - g)}$

| Particulars | Notation | Value |
|---|---|---|
| Price (or value) per share | $P_0$ | To be ascertained |
| Dividend per share | $D_0$ | Rs. 2 |
| Growth rate expected in dividend | G | 5% |
| Expected rate of return | $K_e$ | 10% / 7% |

| Estimated price | Before budget announcement | After budget announcement |
|---|---|---|
| $P_0 = \frac{D_0(1+g)}{(K_e - g)}$ | $P_0 = \frac{2 \times (1 + 0.05)}{(0.10 - 0.05)} =$ ₹ 42.00 | $P_0 = \frac{1.80 \times (1.05)}{(0.07 - 0.05)} =$ ₹ 94.50 |

**Q. 18. (a) ABC Ltd. pays no taxes and is entirely financed by equity shares. The equity share has a beta of 0.6 and price earning ratio of 5 and is priced to offer an expected return of 20%. ABC Ltd., now decides to buy back half of the equity shares by borrowing an equal amount. If the debt yields a Risk Free return of 10%,**

***Calculate :***

**(i) The beta of the equity shares after the buyback.**

**(ii) The required return and risk premium on the equity shares before and after the buyback.**

**(iii) The required return on debt.**

**(iv) The percentage increase in expected earnings per share.**

**(v) The new price earning multiple.**

**(vi) Assume that the operating profit of the firm is expected to remain constant in perpetuity.**

**(b) The market received rumor about Reliance Ltd.'s tie-up with a multinational company. This has induced the market price to move up. If the rumor is false, the Reliance Ltd.'s stock price will probably fall dramatically. To protect from this an investor has bought the call and put options.**

**He purchased one 3 months call with a strike price of ₹ 42 for ₹ 2 premium, and paid Re 1 per share premium for a 3 months put with a strike price of ₹ 40.**

**(i) Determine the investor's position if the tie up offer bids the price of Reliance Ltd.'s stock up to ₹ 43 in 3 months.**

**(ii) Determine the investor's ending position, if the tie up programme fails and the price of the stocks falls to ₹ 36 in 3 months.**

**Answer 18. (a)**

**Beta of equity shares after buy-back**

Before buy back ABC is all equity financed and the equity beta is 0.6.

Expected return on equity is 20%.

Thus, firm's assets beta is 0.6 and the firm's cost of capital is 20%.

Firm value will not change after the buy back and that the debt is risk free.

$$Beta_A = \frac{D}{D+E}(Beta_D) + \frac{E}{D+E}(Beta_E)$$

$0.6 = 0.5 \times 0 + 0.5 \times Beta_E$

or, $Beta_E = 0.6/0.5 = 1.20$

**Required return and risk premium :**

| Particulars | Before buy-back | After buy-back |
|---|---|---|
| Return on equity | 20% (given) | $R_A = \frac{D}{D+E}(R_D) + \frac{E}{D+E}(R_E)$<br>$0.20 = 0.5 \times 0.10 + 0.5 \times R_E$<br>$0.20 = 0.05 + 0.5 \times R_E$<br>$R_E = (0.20 - 0.05) / 0.5 = 30\%$ |
| Risk free rate | 10% | 10% |
| Risk premium | $R_A = R_F + (R_M - R_F) \times \beta$<br>$20\% = 10 + (R_M - 10) \times 0.6$<br>$10 = (R_M - 10) \times 0.6$<br>$R_M - 10 = 10/0.6$<br>Risk premium = 16.67% | $R_A = R_F + (R_M - R_F) \times \beta$<br>$30 = 10 + (R_M - 10) \times 1.2$<br>$R_M - 10 = 20/1.2$<br>$R_M - 10 = 16.67$<br>Risk premium = 16.67% |
| Required return | $R_M = 10 + 16.67 = 26.67\%$ | $R_M = 10 + 16.67 = 26.67\%$ |

The expected rate of return on debt is 10% i.e. risk free rate.

The percentage increase in EPS :

| | **Before buy-back** | **After buy back** |
|---|---|---|
| Equity | 100 | 50 |
| Debt @ 10% | Nil | 50 |
| Total | 100 | 100 |
| EBIT @ 20% | 20 | 20 |
| Less : Interest | Nil | 5 |
| Earnings | 20 | 15 |
| No. of shares | 100 | 50 |
| Earnings per share | 0.2 | 0.3 |
| P/E ratio | 5 | 3.33 |
| Return on equity | 20% | 30% |

The percentage increase in EPS is 50% i.e. (0.3 – 0.2) / 0.2 × 100 = 50%

The new price earnings multiple is 3.33.

**Answer 18. (b)**

Cost of call and put option :

Cost of call and put options = (₹ 2 per share call) + (Re 1 per share put)

= ₹ 2 + Re. 1 = ₹ 3

**Position if price increases to ₹ 43**

| **Particulars** | **Time** | ₹ |
|---|---|---|
| Cost of options | $T_0$ | 3 |
| If price increases to ₹ 43, Investor will not exercise the Put Option. Gain on call [Spot price on expiry date – Exercise Price = ₹ 43 – ₹ 42] | $T_1$ | 1 |
| Net loss due to options [3 – 1] | $T_1$ | 2 |

**Position if price falls to ₹ 36**

| **Particulars** | **Time** | ₹ |
|---|---|---|
| Cost of options | $T_0$ | 3 |
| If price falls to ₹ 43, Investor will not exercise the Call Option. Gain on Put [Exercise Price – Spot price on expiry date = ₹ 40 – ₹ 36] | $T_1$ | 4 |
| Net loss due to options [4 – 3] | $T_1$ | 1 |

## Section II : Corporate Laws and 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) Contracts entered into by a company after its incorporation and before it is entitled to commence business are called :**

**A. Provisional contracts**
**B. Pre-incorporation contracts**
**C. Both (A) and (B)**
**D. None of the above**

**(ii) The underwriting commission on shares must not exceed :**

**A. 2% of the issued price of shares**
**B. 2.5% of the issued price of shares**
**C. 5% of the issued price of shares**
**D. 5.5% of the issued prices of shares**

**(iii) An index of members must be maintained by a company when its membership exceed :**

**A. 20**
**B. 50**
**C. 70**
**D. 80**

**(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 small depositor means a depositor who has deposited in a financial year a sum not exceeding :**

**A. ₹ 10,000**
**B. ₹ 15,000**
**C. ₹ 20,000**
**D. ₹ 50,000**

**Answer 19.**

(i) - A – As per section 149, any contract made by a company before the date at which it is entitled to commence business shall be provisional only.

(ii) - C – As per section 76, the underwriting commission shall not exceed in the case of shares, 5% of the price at which the shares are issued or the amount or rate authorized by the articles, whichever is less.

(iii) - B – as per section 151, every company having more than 50 members shall keep an index of members.

(iv) - D – Board is empowered to call an EGM (Reg. 48 of table A), Members (Requisitionists) are empowered to call an EGM u/s 169, CLB/Tribunal is empowered to call an EGM u/s 186.

(v) - C – As per section 58AA, ; a small depositor' means a depositor who has deposited in a financial year a sum not exceeding ₹ 20,000 in a company and includes his successors, nominees and legal representatives.

**Q. 20. (a) Before the incorporation of the company, the promoters of the company entered into an agreement with Mr. Thomas to buy an immovable property on behalf of the company. After incorporation, the company refused to buy the said property. Advise Mr. Thomas whether he has any remedy under the provisions of the Companies Act, 1956?**

**(b) X, A chemical manufacturing company distributed 20 lacs to scientific institutions for furtherance of scientific education and research. Referring to the provisions of the Companies Act, 1956 decide whether the said distribution of money was "Ultra vires" the company?**

**(c) Akash had applied for the allotment of 1,000 shares in a company. No allotment of shares was made to him by the company. Later on, without any further application from Akash, the company transferred 1,000 partly-paid shares to him and placed his name in the Register of Members. Akash, knowing that his name was placed in the Register of Members, took no steps to get his name out from the Register of Members. The company later on made final call. Akash refuses to pay for this call. Referring to the provisions of the Companies Act, 1956, examine whether his refusal to pay for the call is tenable and whether he can escape himself from the liability as a member of the company.**

**Answer 20. (a)**

Mr. Thomas has no remedy against the company, since a pre-incorporation contract is not binding on the company, as the company was not in existence when such contract was entered into, unless the company, after incorporation, adopts the pre-incorporation contract in accordance with the provisions of Sec. 15 and 19 of Specific Relief Act, 1963.

Mr. Thomas may hold the promoters liable for any loss incurred by him, since if a pre-incorporation contract is not adopted by the company after incorporation, the promoters are personally liable.

**Answer 20. (b)**

Donation of ₹ 20 lacs for furtherance of scientific education and research is permissible, as it is incidental or ancillary to the main objects of the company and it is conductive to the continued growth of the company as chemical manufacturers as was held in **Evans *v* Brunner, Mood & Co. Ltd.**

**Answer 20. (c)**

Register of members is a prima facie evidence of any matters directed or authorized to be inserted therein by the Act (Sec. 164). A person who knowingly permits entering his name in the register of members, becomes a member by estoppels or acquiescence. In other words, if the name of a person is entered in the register of members, although he is not a member, but such person does not object to it (i.e. he does not apply for rectification of register of members), he becomes a member by estoppels.

As per the above, Akash is a member by estoppels, since he knowingly permitted entering his name in the register of members. So he is liable to pay the final call, as a member by estoppels is liable to pay the unpaid call.

**Q. 21. (a) The scheme of amalgamation was approved by overwhelming majority of the members of the merging companies, viz., ABC Ltd. and XYZ Ltd., at meeting called as per directions of the court. When the scheme of amalgamation was awaiting sanction of the court, the exchange ratio was**

**questioned by a small group of dissenting shareholders of ABC Ltd. The exchange ratio was fixed by a firm of reputed chartered accountants. Examine with reference to court rulings, whether the dissenting shareholders will succeed.**

**(b) Developers Ltd. was incorporated with the object of developing land for residential houses as well as purchase and sale of flats. It had, therefore, purchased 8 acres of land near the airport of Kolkata. But Government acquired the same for defence purpose. The company would not replace the land as the prices of land of other places are prohibitive.**

**What will be the decision of the court in the following cases :**

**(i) The company suspends its business for a whole year?**

**(ii) The company fails to resume its operation (business) for 5 years and the prospects seemed gloomy?**

**(c) An arrangement has been made among the Cotton Producers that the Cotton produced by them will not be sold to mills below a certain price. The arrangement is in writing but it not intended to be enforced by legal proceedings. Examine whether the said arrangement can be considered as an arrangement within the meaning of Sec 2(b) of the Competition Act, 2002.**

**Answer 21. (a)**

The exchange ratio was fixed by a reputed firm of chartered accountants and the scheme of amalgamation was approved by overwhelming majority of members of both the merging companies i.e. ABC Ltd. and XYZ Ltd.

Courts leave the aspect of share valuation to Expert Valuers and shareholders. Unless the person, who challenges the valuation satisfies the court that the valuation is grossly unfair, the court will not disturb the scheme. [**In Re Piramal Spinning & Weaving Mills Ltd. 50 CC 514**].

In view of the above court rulings, the dissenting shareholders are not likely to succeed unless they are able to satisfy the court that the valuation is grossly unfair, particularly when the exchange ratio is fixed by a reputed firm of chartered accountants. Even in case of representations by Central Government, unless that Government establishes that the exchange ratio was unfair or inequitable and not in public interest, the court will refuse to interfere.

**Answer 21. (b)**

(i) The court may refuse to grant winding-up order. Suspension of business for a whole year is a ground u/s 433(C ) seeking winding-up by the court but the power of the court in this regard is discretionary. The court shall refuse winding-up on this ground if the intention of the company not to resume its business is absent. Thus, in the given case, winding-up order shall not be issued (**Murlidhar *v* Bengal Steamship Co. Ltd.**)

(ii) Where the company fails to resume its operations for 5 years and prospects also seem gloomy, the court may order the winding-up of the company [**Rupa Bharati Ltd. *v* Registrar of Companies**].

**Answer 21. (c)**

Vertical Agreements are agreements amongst enterprises or persons at different stages or levels of the production chain in different markets, in respect of production, supply, distribution, storage sale or price of, or trade in goods (or) provision of services. They include the following arrangements/ agreements –

(i) Tie-in arrangement

(ii) Exclusive supply agreement

(iii) Exclusive distribution agreement

(iv) Refusal to deal

(v) Resale price maintenance

Such Vertical Agreements shall be considered anti-competitive (and hence void), if it cause or is likely to cause an appreciable adverse effect on competition in India.

In the given case the agreement stipulates the Resale Price and does not allow the purchaser to sell the goods at prices lower than the stipulated prices, hence invalid. It is a Vertical Anti-Competitive Agreement.

**Q. 22. (a) Indra Ltd. issued Convertible Debentures during the Financial Year 2011-12. Now it wants to alter the terms of redemption. Is it permissible under the provision of SEBI Regulations?**

**(b) What are the provisions relating to application for the issue of electronic signature certificate?**

**(c) A Ltd. was incorporated with 10 members (A to J). On 1st April 2011, the number of members reduced to 6. The debts of the company on that date were ₹ 3,00,000. On 1st Jan 2012, the number of members increased to 9. The debts of the company increased to ₹ 4,50,000 and ₹ 4,80,000 on 30th September 2011 and on 31st December 2011 respectively. Out of six members, two members, Mr. A and Mr. D were not aware of the fact that the number of members reduced to 6. Discuss the legal position.**

**Answer 22. (a)**

No issuer shall alter the terms (including the terms of issue) of specified securities which may adversely affect the interest of the Holders of that specified Securities.

The alteration is permissible if –

(i) The consent in writing of the holders of not less than 3/4th of the specified securities of that class; or

(ii) With the sanction of a special resolution passed at a meeting of the holders of the specified securities of that class.

**Answer 22. (b)**

Any person may make an application to the Certifying Authority for the issue of a Electronic Signature Certificate in such form as may be prescribed by the Central Government.

Such application must be accompanied by :

(i) Such fee not exceeding ₹ 25,000 as may be prescribed by the Central Government. However, different fees may be prescribed for different classes of applicants.

(ii) A 'certification practice statement' or where there is no such statement, a statement containing such particulars, as may be specified by regulations.

**Answer 22. (c)**

As per section 45 if any company carries on business for more than 6 months with the number of members reduced below the statutory requirement (i.e. 2 in case of private company and 7 in case of public company), every person who was member of the company during the time when it carried on business after those 6 months and who was aware of this fact, shall be personally liable for all debts of the company contracted after those 6 months.

Accordingly, in the given case, four members (other than Mr. A and Mr. D), who were aware of reduction in number of members are personally liable for ₹ 30,000 (₹ 4,80,000 – ₹ 4,50,000) contracted after those 6 months.

**Q. 23. (a) What are the three fundamental values on which corporate governance is built according to Bob Garratt?**

**(b) ABC Ltd. is a listed company having a shareholders fund of ₹ 60 crore of which ₹ 24 crore is general reserves, desires to make a loan of ₹ 10 crore to MN Ltd. ABC Ltd., holds 60% of the equity shares in MN Ltd. ABC Ltd. has already made investments in and given loans to other**

**companies aggregating to ₹ 30 crore. ABC Ltd., has not committed any default in respect of institutional loans or in repayment of fixed deposits. Advise the managing director of the steps to be taken to implement the decision. Would your answer be different if MN Ltd., is ABC Ltd.'s wholly owned subsidiary?**

**(c) A, the secretary of ABC Ltd. issues a share certificate in favor of X purporting to be signed by the directors and the secretary and the seal of the company affixed to it. In fact the secretary forged the signature of the directors and has affixed the seal without authority. Can X held the company liable for the shares covered by the share certificate, under the provisions of the Companies Act, 1956?**

**Answer 23. (a)**

The three fundamental values generally accepted by everybody concerned with good governance are :

(i) Accountability
(ii) Openness
(iii) Probity

In the context of corporate governance, these will whittle down to :

(i) Accountability to owners
(ii) Honest dealing within and outside the board
(iii) Transparency of risk-assessment and decision-taking process to the owners.

**Answer 23. (b)**

Calculation of limits :

(i) 60% of paid up capital and free reserves
= 60% × (36 + 24) crores
= 60% × 60 = ₹ 36 crores

(ii) 100% of free reserves = ₹ 24 crores
Limit is higher of (i) or (ii) i.e. ₹ 36 crores.

Value of existing transactions is ₹ 30 crores.

The proposal is to make a loan of ₹ 10 crore to M/s. MN Ltd., a subsidiary of ABC Ltd. wherein the later company holds 60% of the equity shares.

The proposed loan of ₹ 10 crores together with the value of existing transaction (₹ 30 crores) would take the aggregate of the value of transactions to ₹ 40 crores which exceed the limit of ₹ 36 crores. The managing director may therefore be advised to comply with the procedure described under section 372A. Please note that as ABC Ltd. is a listed company the special resolution for previously sanctioning the loan is to be passed by postal ballot.

Yes, the answer would be different, as Section 372A does not apply to loans made by a holding company to its wholly owned subsidiary. The company need not comply with the above procedures.

**Answer 23. (c)**

Since in case of forgery, there is not a defect in consent, but absence of consent and therefore the share certificate issued by way of forgery is invalid (**Ruben *v* Great Fingall Consolidated Company**).

In the given case, X is not entitled to shares and he cannot hold the company liable for any loss.

**Q. 24. (a) Examine with reference to the relevant provisions to the Competition Act, 2002 whether a person purchasing goods not for personal use, but for resale can be considered as a 'consumer'.**

**(b) A shareholder living in Kolkata sent a transfer deed for registration of transfer of shares in a company having its registered office in Mumbai. The share certificates duly endorsed in his name were not received by him even after the expiry of four months from the date of lodgment. He lodged a criminal complaint before the appropriate court dealing with economic offences at Kolkata. Can the Court in Kolkata entertain the complaint?**

**(c) LMN Ltd. has been running in losses and has defaulted payment to its creditors. On 1st August 2011, the company mortgaged its plant and Machinery to Sharma, a close friend of the MD of the Company, against payment of amount due to him ₹ 15 lakhs. The other creditors were left in lurch. In the meantime, Bhaskar (who has not paid by the company for supply of Raw material of the value of ₹ 75,000) presented a petition for winding-up the company before the High court on 31.10.2011. the company was ordered to be wound up by the court on 31.3.2012. the official liquidator wants to declare the transaction of mortgage with Sharma as invalid. Will he succeed?**

**Answer 24. (a)**

The given problem relates to section 2 (f) of the Competition Act, 2002.

As per section 2 (f) 'consumer' means any person who –

(i) Buys any goods for a consideration which has been paid or promised or partly paid and partly promised, or under any system of deferred payment and includes any user of such goods other than the person who buys such goods for consideration paid or promised or partly paid or partly promised, or under any system of deferred payment when such use is made with the approval of such person, whether such purchase of goods is for resale or for any commercial purpose or for personal use ;

(ii) Hires or avails of any services for a consideration which has been paid or promised or partly paid and partly promised, or under any system of deferred payment and includes any beneficiary of such services other than the person who hires or avails of the services for consideration paid or promised, or partly paid and partly promised, or under any system of deferred payment, when such services are availed of with the approval of the first-mentioned person whether such hiring or availing of services is for any commercial purpose or for personal use.

Thus, a person who purchases goods for resale or for any commercial purpose (and not for personal use) is also a 'consumer'.

**Answer 24. (b)**

According to section 113(1) of the Companies Act, 1956, every company, unless prohibited by any provision of law or of any order of court, tribunal or other authority, shall within two months after the application for the registration of transfer of any such shares, deliver the certificates of all shares transferred. In the case of a listed company under the listing agreement this period has been reduced to 30 days.

The facts of the given case are similar to **H.V. Jaya Ram *v.* ICICI Ltd. 1998 (7) Scale 481**. In this case the special court for Economic Offences in the State of Karnataka rejected the appellant's complaint against the respondent company on the ground that since the company had its registered office at Mumbai it is only the court which has territorial jurisdiction over the registered office of the company that can entertain the petition and not the court located in the State of Karnataka where the shareholder is residing. The High Court also upheld the order of the Special Court. On appeal Supreme Court held the cause of action for failure to deliver share certificate arises where the registered office of the company is situated and not in the jurisdiction of the Court located in the place where the complainant resides.

Accordingly in the present case also, the court in Kolkata cannot entertain the complaint against a company having its registered office in Mumbai.

**Answer 24. (c)**

A fraudulent preference is invalid, if it satisfies the following conditions :

(i) It must relate to a transaction involving any transfer of movable or immovable property, delivery of goods, payment, execution or other act relating to property of the company.

(ii) It must have been made, taken or done within 6 months before the commencement of its winding-up of the company.

(iii) It must be an entirely voluntary act, and not made under any pressure.

(iv) The main purpose of the transaction is to give some creditors, a preference over other creditors. It must be shown that – 1) preference was given to a particular creditor, 2) it was done with a view to give him the favoured treatment.

In the given case, the date of commencement of winding-up is the date of presentation of petition to the court, i.e. 31.12.2011.

The transaction of fraudulent preference has been entered into within 6 months before that date. Also, all the essentials of a fraudulent preference are satisfied. Hence, it can be declared invalid u/s 531.

**Q. 25. (a) The board of directors of M/s. All India Film Producers and Exhibitors Association Ltd. have passed a resolution to the effect that no member who is indulging in activities detrimental to the interests of the company be permitted to examine the records or obtain certified copies thereof. A member of the company who is also a member of the Rival Association demands inspection of register of members and minutes of general meetings and certified true copies thereof. The company refuses the inspection, etc., on the strength of the resolution referred to above. Examine the correctness of refusal by the company in the light of the provisions of the Companies Act and the remedial action, if any, that can be taken by the aggrieved member in this case.**

**(b) From the following information extracted from the Balance Sheet of ABC Ltd. as at 31.3.2011, Board of Directors of the company decide to grant a loan of ₹ 80 crores to another Company MN Ltd.**

| | |
|---|---|
| **Paid –up share capital :** | |
| **Equity share capital** | **₹ 50 crores** |
| **Preference share capital** | **₹ 10 crores** |
| **General reserves** | **₹ 100 crores** |
| **Debentures** | **₹ 5 crores** |
| **Debenture redemption reserve** | **₹ 5 crores** |

**The company has already given loans to the following companies :**

| | |
|---|---|
| **Asha Ltd.** | **₹ 5 crores** |
| **Steel India Ltd.** | **₹ 10 crores** |

**The company has also given a corporate guarantee of ₹ 10 crores to BSF Co Ltd. advise whether the Board can go ahead with the above proposal.**

**(c) M was appointed as director of the company in an annual general meeting. He took over the office and carried on his functions as director. Subsequently, it was found that there were some irregularities in voting and hence the appointment was declared invalid. Would the acts done by M, while in office as director, be binding upon the company?**

**Answer 25. (a)**

According to the provisions contained in section 163 of the Companies Act, 1956, every member of the Company is entitled to inspect the register of members without payment of any fee. Even a non-member of the company can inspect the register of members on payment of prescribed fee. They can also ask for copies of extracts from the register of members on payment of the prescribed fee as copying charges. Similarly, as per section 196, the minutes books of the general meetings are also to be made available for inspection of the members of the Company without any charge. Thus, All India Film Producers and Exhibitors Association Ltd. have no right to refuse the inspection of the register of members and minutes books of general meetings. The resolution passed by the said Association is not valid as it cannot go beyond the provisions of the Act. The aggrieved member has every right to approach the Company Law Board under sections 163(6) and 196(4) of the Companies Act. For this purpose the member has to file an application before CLB along with the prescribed application fee.

**Answer 25. (b)**

| **Particulars** | **₹ Crores** | **₹ Crores** |
|---|---|---|
| Paid up capital – Equity share capital | 50 | |
| Preference share capital | 10 | 60 |
| Free reserves = General reserve | | 100 |
| Maximum amount u/s 372A without shareholder's approval = higher of : | | |
| (i) 60% of paid up capital and free reserves [60% of (60 + 100)] | 96 | |
| (ii) 100% of free reserves | 100 | 100 |
| Investments u/s 372A already made | | |
| (i) Asha Ltd. | 5 | |
| (ii) Steel India Ltd. | 10 | |
| (iii) BSF Co. Ltd. | 10 | 25 |
| Further loan without shareholder's approval (100 – 25) | | 75 |
| Proposed investments : Loan to MN Ltd. | | 80 |

Loan upto ₹ 80 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 ₹ 75 lakhs or less, such Special Resolution is not required.

**Answer 25. (c)**

According to section 290, the acts done by a director shall be valid notwithstanding that it may afterwards be discovered that his appointment was invalid by reason of any defect or disqualification in his appointment. The section will protect, the bona fide acts and not where they are done with notice that they were done wrongfully or illegally. Hence, the acts done by M as a director, before the irregularity was found, are in order and interests of company as well as outsiders dealing with the company would be protected. But the acts done after the discovery of invalidity would not be protected.

**Q. 26. (a) The article of association of M/s. MNP Pvt. Ltd. provide that 5 members present in person constitute the quorum. The total number of members of the company is also 5. A general meeting of the company was held on 25-1-2011 and it was attended by 4 members as the 5th member had expired sometime earlier. In the said meeting a resolution was passed by a majority of 3 to 1 removing one Mr. Wrong as a director for indulging in anti company activities. Mr. Wrong challenges the validity of the resolution on the ground of lack of quorum in terms of the articles**

**of association. Discuss with reference to the relevant provisions of Companies Act whether the contention of Mr. Wrong is correct.**

**(b) 40 out of 100 members of a company submitted a requisition for holding an extraordinary general meeting in order to remove managing director from office. On the failure of the company to call the meeting, the requisitionists themselves called the meeting at the registered office of the company. On the appointed day, they could not hold the meeting at the registered office, as it was kept under lock and key by the managing director himself. The members held the meeting elsewhere and adopted a resolution removing the managing director from office. Is the resolution valid?**

**(c) In a proceeding before CCI involving two pharmaceutical Companies, the Plaintiff requested the Presiding Officer to call upon the services of experts from the pharmaceutical sector to determine the truth of the allegations leveled by it against the respondent. The Respondent opposed the request on the ground that such action cannot be taken by the CCI. State whether the contention of the Respondent is tenable.**

**Answer 26. (a)**

Section 174 of the Companies Act, 1956 stipulates that unless the articles of association of the company provide for a larger number, two members personally present shall constitute quorum in case of a private company. Hence a private company may provide a larger number for quorum. The general principle is that if no quorum is present, the meeting and the proceedings are void. However, there can be situations when quorum becomes immaterial. If all the members are present, it is immaterial that the quorum required is more than the total number of members **[Re Express Engineering Works Ltd. (1920) Ch 466 & Rs. Oxted Motor Co. Ltd. (192) 3 KB 32]**. Thus, in this case Mr. Wrong cannot successfully challenge the resolution.

**Answer 26. (b)**

Section 169 of the Companies Act contains provisions regarding holding of extraordinary general meetings. It provides that if directors fail to call a properly requisitioned meeting, the requisitionists or such of the requisitionists as represent not less than $1/10^{th}$ of the total voting rights of all the members (or a majority of them) may call a meeting to be held on a date fixed within 3 months of the date of the requisition.

Where a meeting is called by the requisitionists and the registered office is not made available to them, it was decided in ***R. Chettiar*** v. ***M. Chettiar*** that the meeting may be held anywhere else.

Further, resolutions properly passed at such a meeting are binding on the company.

Thus, in the given case, since all the above mentioned provisions are duly complied with, resolution removing the managing director shall be valid.

**Answer 26. (c)**

As per Section 36 of the Competition Act, 2002, CCI may call upon experts from the fields of Economics, Commerce, Accountancy, International Trade or from any other discipline, to assist it in the conduct of any enquiry by it.

So, in the given case, the contention of the Respondent is incorrect. CCI can call upon the services of expert.

**Q. 27. (a) A Ltd. and B Ltd. entered into a scheme of amalgamation by which A Ltd. would transfer its entire undertaking to B Ltd. However, the Central Government raised an objection that unless the Objects Clause of the Companies are similar, and Memorandum empowers to do so, the scheme of amalgamation cannot be permitted. Is the contention of the Central Government correct?**

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

**(c) Nature Camp Engineering Ltd. is being wound up by the Court. The Official Liquidator, after realization of the assets has an amount of ₹ 28,00,000 at his disposal towards payment to the Creditors of the Company. The list of Creditors is given below :**

| | |
|---|---|
| **Dues to secured creditors** | **₹ 20,00,000** |
| **Dues to workers** | **₹ 15,00,000** |
| **Taxes, etc. payable to Government Authorities** | **₹ 2,00,000** |
| **Unsecured creditors** | **₹ 40,00,000** |

**Since the available amount is insufficient to meet the claims of all the creditors, explain the procedure to be followed for payment of dues, assuming that the Company has created a charge on all its assets, in favour of the Secured Creditors.**

**Answer 27. (a)**

There is no statutory condition that the Objects Clause of both amalgamating Companies should be similar. Infact, the purpose of amalgamation may be to enter into new areas of activity/ lines of business (within the powers stipulated by the MOA), without starting a new undertaking afresh. Hence, non-similarity of Objects Clause of amalgamating Companies cannot be a valid objection.

"To amalgamate with another Company" is a power of the Company, and not merely an object. This right to amalgamate is derived from the statute itself, and no separate provision in the Company's MOA is required. Section 394 gives full jurisdiction to the Court to sanction amalgamation, even though there may be no power in the objects clause of MOA. **[United Bank of India *vs.* United India Credit & Devt Co. Ltd. 47 CC 689; Hari Krishna Lohia Vs. Hoolungoree Tea Company 47 CC 458]**.

In view of the above discussion, the objections of the Central Government are not valid.

**Answer 27. (b)**

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 ₹ 3 crores and above or net worth of ₹ 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.

**Answer 27. (c)**

| | |
|---|---|
| Overriding preferential payments u/s 529A = Workmen's dues + Secured Creditors = | 35,00,000 |
| Preferential payments u/s 530 = Dues to Government = | 2,00,000 |
| Amount of assets available to meet the liabilities = | 28,00,000 |

First payment u/s 529A – equal rank payments to be made proportionately to Workmen and Secured Creditors in the ratio of their dues, i.e. ₹ 28,00,000 to be paid as 20:15.

| | | |
|---|---|---|
| Workmen's dues | ₹ 28,00,000 × 15/35 | 12,00,000 |
| Secured creditors | ₹ 28,00,000 × 20/35 | 16,00,000 |

**Q. 28. (a) The auditors made confidential report to the directors of a company calling the later's attention to the fact that the security for substantial amount of loans are insufficient and also a major part of the debts are not realizable. Under the circumstances, they advised that no dividend could be paid for the year. In their report to the shareholders, however, the auditors only made a cryptic remark that the value of assets was dependent upon realisation. The directors recommended dividend of 5%.**

**Discuss with reasons the liability of the auditors and if so, the extent of their liability.**

**(b) The Official Liquidator of a public company in liquidation instituted misfeasance proceedings against the Managing Director of the Company. During the pendency of the proceedings, the Managing Director passed away.**

**What is meant by misfeasance? Can the legal representatives of the Managing Director be impleaded and the proceedings continued against him?**

**(c) What is Project Governance? What are the benefits of Project Governance?**

**Answer 28. (a)**

An auditor who gives to shareholders the means of information, instead of the information itself, in respect of the company's financial position, has failed to discharge his duty and will be liable. A person whose duty is to give information cannot be said to have discharged his duty by simply giving others so much information as is calculated to induce them to ask for more [**Re, The London and General Bank Ltd. (1895) 2 Ch. 166**]. The auditors were expected to have stated in unequivocal terms that the securities for the loans were insufficient and that their realization would be difficult.

Auditors shall, therefore, be liable to make good the loss which the company has suffered, viz., dividends paid plus any other loss that could be shown as directly flowing from breach of duty.

Besides, auditors may be fined up to ₹ 10,000 under section 233 for not making a report in accordance with the requirements of section 227.

**Answer 28. (b)**

The facts of the case in question are similar to the case **Official Liquidator *v.* Parthasarathi Sinha [1983] 53 Comp. Cas. 163 (SC)**, wherein it was held that misfeasance proceedings initiated u/s 543, against a director of a company in winding up can be continued on his death against his heirs and legal representatives for the purpose of determining and declaring the loss or damage caused to the company. The expression 'misfeasance' means grave breach of duty or abuse of power usually associated with taking undue benefit or advantage at the cost of the company. However, any decision to recover money for the act of misfeasance will remain restricted to the value of the properties of the Managing Director in the hands of the legal representatives.

**Answer 28. (c)**

Project Governance extends the principle of Governance into both the management of individual projects via Governance structures, and the management of projects at the business level, for example via Business Reviews of Projects. Today, many organisations are developing models for 'Project Governance Structures', which can be different to a traditional Organisation Structure in that it defines accountabilities and responsibilities for strategic decision-making across the project. This can be particularly useful to project management processes such as change control and strategic (project) decision-making. When implemented well, it can have a significantly positive effect on the quality and speed of decision making on significant issues on projects.

**Benefits of Project governance**

Project governance will :

(1) Outline the relationships between all internal and external groups involved in the project.

(2) Describe the proper flow of information regarding the project to all stakeholders.

(3) Ensure the appropriate review of issues encountered within each project.

(4) Ensure that required approvals and direction for the project is obtained at each appropriate stage of the project.

**Q. 29. (a) A, who was appointed as a Director at the last AGM resigned. The Board filled up the vacancy by appointing B. But within few days of his becoming Director, B died. The Board wishes to appoint C in place of B in the next board Meeting. Can the Board do so?**

**(b) A company passed a special resolution authorizing payment of commission of 1% of the net profits to part-time directors for a period of 5 years. Registrar of companies files a complaint that the company has contravened the provisions of section 310 of the companies Act, 1956 as they have not obtained Central Government's approval. This failure was sought to be punished u/s 629A of the Act. Discuss.**

**(c) State the importance of a remuneration committee in the context of Corporate Governance. What are the responsibilities normally assigned to such committee?**

**Answer 29. (a)**

Casual vacancy u/s 262 is the vacancy arising in the office of the director appointed by the Company in the General Meeting before the expiry of his term of office.

In the above case, the vacancy on account of death of B cannot be considered as a casual vacancy in the office of the director, as the appointment of B himself was not originally made by the Company in General Meeting.

However, in the interest of the smooth working of a company, if the casual vacancy is in an office which was filled by election at a general meeting, then the Board may fill the casual vacancy as many times as necessary, i.e., if the original appointment was made by the company in the General Meeting any subsequent casual vacancy to the office of the Director can be filled by the Board **[Company News & Notes 01.07.1963 issue]**.

Hence, in the above case, the Board can appoint C as Director.

**Answer 29. (b)**

U/s 310 of the Act, any provision for increasing the remuneration of a director and others contained in, inter alia, a resolution passed by the members shall not have any effect unless approved by the Central Government. It is given in the question that the Company has not complied with the provision by not obtaining the said approval.

It has been held by the Court in **Raghunath Swarup Mathur *v.* Har Swarup Mathur [1967] 2 Comp LJ 195 (All.)** that the phrase "shall not have effect unless approved by the Central Government" used in section 269 did not contain a direction or prohibition and that before an act can be regarded as an offence there must be specified statutory prohibition. In that case the Court, therefore, held that no action can be taken under section 629A.

In **Fenner (India) *v* Additional Registrar**, the Madras High Court has adopted the view that provisions of the section relating to approval are declaratory only and do not cast any obligation on the company to communicate to the Central Government its resolution for increasing the director's remuneration.

On the same analogy, the Registrar cannot proceed with the prosecution in the matter referred to in the question.

Moreover, in terms of the provisions of section 309(4) of the Act, remuneration to director who are not in whole-time employment of the company can be paid upto 1% of net profits, if the company has a managing director or a whole time director or a manager and upto 3% of the net profits of the company in any other case. The remuneration to part time directors in excess of the aforesaid percentage can be paid with the approval of the shareholders in general meeting and with the approval of the Central Government.

**Answer 29. (c)**

**Remuneration Committee :**

It is now a universally accepted proposition of corporate governance practice that Boards of Directors of companies appoint appropriately composed remuneration committees to work out executive remuneration on their behalf.

The combined code of the UK says that the remuneration committee will be responsible for working out remuneration package 'to attract, retain and motivate executives of the quality required". The committee should decide where to position their company relative to other companies and take account of comparable remuneration and relative performance. With regard to the composition of the committee, as overwhelming majority of guidelines suggest that it be composed exclusively of independent non-executive directors.

The committee would make it well considered recommendations to the board for final decision. The following responsibilities are normally assigned to a remuneration committee, which should have a written terms of reference :

(i) Remuneration packages and service contracts of the CEO and others senior executives,

(ii) Remuneration packages for non-executive directors,

(iii) Remuneration policies and practice of the company,

(iv) Any company share and other incentive schemes,

Company superannuation and pension arrangements.

**Q. 30. (a) A private limited company issued certain number of shares as fully paid-up to a subscriber to the Memorandum on the basis of a promissory note executed by him as consideration towards the shares. Since no money was paid towards the allotment, the company now (after 5 years from the date of allotment) wants to forfeit those shares and re-issue such forfeited shares. Can the company do so?**

**(b) An unlisted company, having paid-up share capital of ₹ 3 crores, consisting of 30,00,000 equity shares of ₹ 10 each fully paid-up, proposes to make an IPO of 90,00,000 equity shares of ₹ 10 each at a premium of ₹ 5 per share, in July 2011. The Promoters acquired 10,00,000 equity shares on 1st January 2007 and another 10,00,000 equity shares on 1st January 2011 at face value. Required**

**(i) What should be the minimum contribution that should be made by the Promoters of the above company, in order to comply with SEBI regulations?**

**(ii) State the period for which the Promoters are required to lock-in the amount in excess of the required minimum contribution.**

**(c) Directors of Sachin Ltd. are not holding any shares in Dhoni Ltd. Similarly directors of Dhoni Ltd. are not holding any shares in Sachin Ltd. But, wife of director 'S' of Sachin Ltd. holds 40% of the paid up share capital of Dhoni Ltd. Board of directors of Sachin Ltd entered into a contract with Dhoni Ltd. for purchase of goods and director 'S' did not disclose his indirect interest in Dhoni Ltd. Examine whether 'S' has violated any of the provisions of the Companies Act and also the validity of the contract.**

**Answer 30. (a)**

Normally in the case of allotment of shares, a company may call for the entire face value of the shares on allotment or it may call for a portion of the face value. In case where a company has allotted shares for part of the face value, it issues call notice for the balance money in one or more instalments.

Therefore, in the normal course, no share is allotted unless otherwise allotment money is received and the question of forfeiture would arise only when on the basis of call made for the balance amount, the same is not paid by the shareholder. In the instant unique case, the consideration for the shares has been received by the company in a form other than cash (i.e. Promissory Note).

If the concerned shareholder has not paid any money as per the promissory note, the course of action for the company would be to initiate legal proceedings for realizing the money. It cannot forfeit those shares after 5 years from the date of allotment – **K Md. Farooq Ahmed *v.* F.C. Electronics (P) Ltd. [1997] 2 CLJ 234 CLB.**

**Answer 30. (b)**

Post-issue capital = ₹ 3 crores + ₹ 9 crores = ₹ 12 crores

So, minimum promoters' contribution = 20% of ₹ 12 crores = ₹ 2.40 crores, i.e. 24,00,000 shares of ₹ 10 each

Presently the promoters hold 20,00,000 shares, out of which 10,00,000 shares are acquired from 1st January 2007 onwards, at face value (whereas the IPO is made a premium of ₹ 5 per share). Hence, these 10,00,000 shares are not eligible to be included in promoters' contribution.

However, if the promoters bring in the difference i.e. ₹ 5 × 10 lakh shares = ₹ 50 lakhs these shares will also be eligible for inclusion in promoters' contribution.

The promoters have to subscribe for a further 4 lakh shares, and bring in the full amount of the promoters' contribution, including premium thereon, (₹ 15 × 4 lakh shares = ₹ 60 lakhs) atleast one day prior to the issue opening date.

Lock-in period : In respect of minimum promoter contribution – 3 years

In respect of excess contribution over minimum contribution – 1 year.

**Answer 30. (c)**

Section 297 does not apply to a contract between two public companies and therefore the present case is outside the purview of section 297. However, as per section 299, every director who is anyway, directly or indirectly, interested in a contract or arrangement shall disclose the nature of his interest. Following must be noted in this regard.

- Relationship of husband and wife, or father and son is capable of influencing the judgement of a person so that it is prima facie a matter of interest which must be disclosed. The interest need not be direct **[Pydah Venkatachalapathi *v.* Guntur Cotton, Jute and Paper Mills Co. Ltd. AIR 1929 Mad 353.]**

- If to the knowledge of a director, his relative is concerned or interested in a contract or arrangement, the director must disclose the same to the Board **[Fateh Chand Kad *v.* Hind Sons (Patiala) Ltd. (1957) 27 Comp Cas 340].**

Therefore, in view of the above judicial rulings, 'S' should disclose his interest since he is indirectly interested in the contract, as his wife is holding 40% of the paid up share capital of Dhoni Ltd. Failure to disclose the interest by 'S' amounts to non-compliance of section 299 and the following consequences shall follow :

- 'S' shall vacate the office of director held by him (Section 283)
- He shall be punishable with fine which may extend to ₹ 50,000 (Section 299)
- If 'S' acts as a director when he knows that the office of director held by him has become vacant on account of non-disclosure of interest, he shall be punishable with fine which may extend to ₹ 5,000 for each day on which he acts as a director (Section 283)

The contract is not illegal, void or unenforceable. However, the company has an option to avoid the contract **[Amritsar Rayon and Silk Mills Ltd. *v.* Arirchand Saideh (1988) 64 Comp Cas 762]**.