FINAL EXAMINATION

(REVISED SYLLABUS - 2008)

GROUP - III

Paper-11 : CAPITAL MARKET ANALYSIS & CORPORATE LAWS

Section I : Capital Market Analysis

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

(i) The correlation coefficient of Megamart with market portfolio is + 0.7, σ_s = 0.35 and σ_m = 0.20. What is the Megamart's Beta?

A. 6.125

B. 1.225

C. 1.750

D. Insufficient information

(ii) An option allowing the Issuing Company to issue additional shares when the demand is high for the shares when the flotation is on

A. Follow on Offer

B. Green Shoe Option

C. Call Option

D. Put Option

(iii) The NAV of each unit of a closed –end fund at the beginning of the year was ₹ 15. By the year end, its NAV equals ₹ 15.40. At the beginning of the year, each unit was selling at a 3% premium to NAV. By the end of the year, each unit is selling at a 5% discount to NAV. The fund paid year end distribution of Income and Capital gains of ₹ 2.40 on each unit. The rate of return to the investor in the fund during the year is;

A. 9.861%

B. 10.226%

C. 11.512%

D. 11.916%

(iv) Citi Bank wants to calculate Rupee TT selling rate of exchange for DM since a deposit of DM 1,00,000 in a FNCR A/c. has matured, when :

EURO 1 = DM 1.95583 (locked in rate)

EURO 1 = US$ 1.02348/43

US$ 1 = ₹ 40.51/53

What would be the Rupee TT Selling rate for DM currency that the bank can consider for the said a/c.?

A. ₹ 25.3851

B. ₹ 21.1988

C. ₹ 21.2082

D. None of the above

(v) 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

Answer 1.

(i) **B** — 1.225

$\sigma = \sigma_{sm} / \sigma_m^2 = \rho_{sm} \sigma_s \sigma_m / \sigma_m^2$

$= (0.7 \times 0.35)/0.20 = 1.225$

(ii) **B** — Green Shoe Option

(iii) **B** — 10.226%

The price of unit at the beginning of the year is; ₹ 15 × 1.03 = ₹ 15.45

The price of the unit at the end of the year is ;

₹ 15.40 × 0.95 = ₹ 14.63

The price of the fund fell by; (14.63 – 15.45) = – 0.82

Rate of return (2.40 – 0.82) / 15.45 = 10.226%.

(iv) **B** — ₹ 21.1988

This involves finding the cross rate of ₹ /DM.

₹ /DM = ₹ /$ × $ / Euro × Euro/DM

The DM need to be sold ; hence we need to find the bid rate of the quote ₹ /DM

[₹ /DM] Bid = [₹ /$] Bid × [$/Euro] Bid × [Euro/DM] Bid

= (₹ 40.51 × 1.02348)/ 1.95583

= ₹ 21.1988

(v) **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 @ 10%.

Q. 2. Currently Infotech's weighted average beta of all its Software projects and assets is approximately 1.3. Suppose now Infotech is planning on setting up a new division that targets the Internet market. This is a riskier project due to the nature of the Internet market, hence it has a higher beta. It is provided that Infotech is able to find three firms that are solely involved with the Internet. The average beta of the three firms is approximately 2.59, the average debt to equity ratio is about 1.5, and the average tax rate is 35%. Infotech views that this is the future of the company and decides to put 25% of its resources in it. Infotech is able to borrow at a rate of 10% and the company has a policy of raising money with equal amount of debt and retained earnings. It is given that the 90-day T-bill provides a return of 5% and a market portfolio has a risk premium of 8%. Infotech currently faces a 40% tax rate. Answer the following :

(a) Prior to entering internet business, what was the rate of return expected by investors?

(b) What is the beta that would be used by Infotech for its Internet business?

(c) What is the new rate of return expected by investors from Infotech, assuming that as planned Infotech decides to put 25% of its resources in internet business?

Answer 2.

(a) Using the CAPM model, we know the cost of retained earnings (prior to undertaking the new project) for Infotech is :

$r_{re} = 0.05 + 1.3\ (0.08) = 0.154 = 15.4\%$

Given Infotechs' capital structure, we know its "old" WACC is :

$WACC = 0.5\ (1-0.4)(0.1) + 0.5(0.154) = 0.107 = 10.7\%$

We know that the investors will be willing to keep their "money" with Infotech if the company is able to generate a return greater than 10.7%.

(b) It is important to note that we cannot simply assume that the beta of the new project that Infotech is interested in, is also 2.59. This is because Infotech has different debt to equity ratio and tax rate than those three firms. Hence, we need to first adjust the average beta of the three firms to match the conditions of Infotech.

Step 1 : Infotech needs to take out the financing effect from the average beta of the three firms. We can use the following formula to take out the financing effect :

$$\beta_U = \frac{\beta_L}{1+(1-\tau)(D/E)}$$

$$= \frac{2.59}{1+(0.65)(1.5)} = 1.3114$$

Step 2 : Adjust the un-levered beta to match the financing and tax conditions of Infotech.

We can use the following formula to adjust the un-levered beta to match Infotechs' conditions :

$\beta_{L,\,Infosys} = \beta_U\,[1+(1-\tau)(D/E)]$

$= 1.3114[1+(1-0.4)(1)] = 2.098 \cong 2.1$

(c) When Infotech decides to invest in the new Internet market, it is going to affect the firm's weighted average beta, its cost of retained earnings and its WACC. Since Infotech is putting 25% of its resources into the new division, the company's new weighted average beta will be as follows :

$\beta_{new} = 0.75(1.3) + 0.25(2.1) = 1.5$

As a result, the company's cost of retained earnings will rise due to the increase in its beta :

$$r_{re}^{new} = 0.05 + 1.5(0.08) = 0.17 = 17\%$$

And the company's WACC will also jump due to an increase in its cost of retained earnings :

$$WACC_{new} = 0.5(1-0.4)(0.1) + (0.5)(0.70) = 0.115 = 11.5\%$$

Originally, Infotechs' investors were happy as long as Infotech generated a return of at least 10.7%. However, when Infotech begins to target the Internet market, its investors want the company to generate at least 11.5% in order to induce them to keep their "money" with the company.

Q. 3. (a) A Holds a diversified equity portfolio of ₹ 150 crores with beta 1.5. B holds his entire money in stock X of same value with a beta of 0.9. Both are planning to hedge their holdings using futures.

The following futures are available :

(i) Nifty Index Futures @ 4550 (Each lot = 50 units)

(ii) Futures of stock X @ 1520 (Each lot = 100 units)

How A and B would perfectly hedge their portfolios using the above futures? Examine all possible options and find the number of contracts required to hedge, gain or loss overall on hedging if it is expected that markets would fall by 10% from the current level. Today spot Nifty is at 4500 and stock X is quoting at ₹ 1500.

(b) Modern Ispat Ltd. has made an issue of 14 per cent non-convertible debenture on January 1, 2008. These debentures have a face value of ₹ 100 and are currently traded in the market at a price of ₹ 90. Interest on these NCDs will be paid through post-dated cheques dated June 30 and December 31. Interest payments for the first 3 years will be paid in advance through post-dated cheques while for the last 2 years, post-dated cheques will be issued at the third year. The bond is redeemable at par on December 31, 2012 at the end of 5 years.

Required **:**

(i) Estimate the current yield at the YTM of the debenture.

(ii) Calculate the duration of the NCD.

(iii) Assuming that intermediate coupon payments are, not available for reinvestment, calculate the realized yield on the NCD.

Answer 3. (a)

A is holding a diversified portfolio and hence would hedge using diversified market index viz. Nifty Index Futures. Since Nifty Index futures are correlated with diversified portfolio, A would sell Nifty Index Futures. A would sell Nifty futures equivalent to beta times value of his portfolio for perfect hedge i.e. he should sell 1.5 x 150 crores = ₹ 225 crores at 4550 levels i.e. 225 crores/ (4550 x 50) = 9890 contracts approximately.

With markets falling 10%, portfolio value will fall by 1.5 times of 10% i.e. 15% × 150 crores or a loss of ₹ 22.5 crores. Though Nifty futures too would fall when market falls (both would fall to same extent i.e. 10%, as beta of Nifty futures = beta of market = 1), since A has sold Nifty futures he would gain 10% of value sold i.e. ₹ 22.5 crores, resulting in nil gain or loss.

B holds a stock portfolio. Therefore he can hedge using stock futures, which would have same beta as the underlying or he can use Nifty Index futures, which has different beta as compared to the underlying.

If he used stock futures to hedge, he would sell stock X futures equivalent to value of his portfolio for perfect hedge i.e. he should sell 150 crores at 1520 levels i.e. 150 crores/(1520 × 100) = 9868 contracts approximately.

With markets falling 10%, stock value will fall by 0.9 times 10% i.e.9% x 150 crores or a loss of ₹ 13.5 crores. Stock futures which are sold worth ₹ 150 crores would give B 9% (as stock futures are also expected to fall by 9% but B having sold futures would gain) i.e. ₹ 13.5 crores, resulting in nil gains.

B may also sell Nifty futures equivalent to beta times value of his portfolio for perfect hedge i.e. he should sell 0.9 × 150 crores = ₹ 135 crores at 4550 levels i.e. 135 crores/(4550 × 50) = 5934 contracts approximately.

With markets falling 10%, stock value will fall by 0.9 times 10% i.e. 9% × 150 crores or a loss of ₹ 13.5 crores. Nifty futures which are sold worth ₹ 135 crores would give B 10% (as futures are expected to fall by 10%, but B having sold futures would gain) i.e. ₹ 13.5 crores, resulting in nil gains.

Answer 3. (b)

(i) Given the following :

Face value = ₹ 100; Coupon = 14%, therefore coupon = ₹ 14

Term = 5 years (1.1.2008 to 31.12.2012)

The current market price = ₹ 90

Interest payments = semi annual = ₹ 7 per half year receivable only on due dates though they are dispatched in advance.

Thus we have to find the yield 'k' in the following equation :

= 7 × PVIFA (k%, 10) + 100 x PVIF (k%, 10) = ₹ 90

By interpolating we get the answer as 8.5% which is the current YTM.

(ii) Now we use the following formula for duration :

$$\text{Macaulay Duration} = \frac{\sum_{t=1}^{n} \frac{t \times C}{(1+i)^t} + \frac{n \times M}{(1+i)^n}}{B_0}$$

$$D = \frac{\frac{7 \times 1}{1.085} + \frac{7 \times 2}{(1.085)^2} + \frac{7 \times 3}{(1.085)^3} + \ldots\ldots + \frac{7 \times 10 + 100 \times 10}{(1.085)^{10}}}{90} = 7.36 \text{ half year}$$

Or the duration is 3.68 years.

(iii) If coupons are not reinvested, it is as if we get the entire amount at maturity. Therefore we simply discount the total proceeds = 7 × 2 × 5 + 100 = ₹ 170 at maturity with the implied yield. Since we have to find the yield matching today's price of ₹ 90, we get the following equation that needs to be solved :

₹ 90 = 170 × PVIF (k%, 5)

This would give us k = 6.5%, a very low realized yield as compared to the yield of 8.5% if coupons are reinvested at 8.5% YTM.

Note : Both 8.5% and 6.5% are semi-annual yields. Though the way it has to be understood is slightly different. While in (i) we got 8.5% semi-annual i.e. 17% annual, which is natural because we have the bond price < face value indicating yield (YTM) need to be greater than 14% coupon rate. The yield of 6.5% signifies that we have a realized yield of 13% annualized, which is much less than 17%. We had in mind the expected return of 17% when we bought the bond for ₹ 90, but did not reinvest coupons thereby ending with a realized yield of 13%.

Q. 4. (a) Write short on Insider Trading.

(b) An investor has two portfolios known to be on minimum variance set for a population of three securities A, B and C having below mentioned weights :

	W_A	W_B	W_C
Portfolio X	**0.30**	**0.40**	**0.30**
Portfolio Y	**0.20**	**0.50**	**0.30**

It is supposed that there are no restrictions on short sales.

(i) What would be the weight for each stock for a portfolio constructed by investing ₹ 5,000 in Portfolio X and ₹ 3,000 in Portfolio Y?

(ii) Suppose the investor invests ₹ 4,000 out of ₹ 8,000 in Security A. How he will allocate the balance between security B and C to ensure that his portfolio is on minimum variance set?

Answer 4. (a)

Insider trading is the trading of a corporation's stock or other securities (e.g. bonds or stock options) by individuals with potential access to non-public information about the company. In most countries, trading by corporate insiders such as officers, key employees, directors, and large shareholders may be legal, if this trading is done in a way that does not take advantage of non-public information. However, the term is frequently used to refer to a practice in which an insider or a related party trades based on material non-public information obtained during the performance of the insider's duties at the corporation, or otherwise in breach of a fiduciary or other relationship of trust and confidence or where the non-public information was misappropriated from the company.

In the United States and several other jurisdictions, trading conducted by corporate officers, key employees, directors, or significant shareholders (in the U.S., defined as beneficial owners of ten percent or more of the firm's equity securities) must be reported to the regulator or publicly disclosed, usually within a few business days of the trade. Many investors follow the summaries of these insider trades in the hope that mimicking these trades will be profitable. While "legal" insider trading cannot be based on **material non-public information**, some investors believe corporate insiders nonetheless may have better insights into the health of a corporation (broadly speaking) and that their trades otherwise convey important information (e.g., about the pending retirement of an important officer selling shares, greater commitment to the corporation by officers purchasing shares, etc.)

Illegal insider trading is believed to raise the cost of capital for securities issuers, thus decreasing overall economic growth.

However, it is relatively easy for insiders to capture insider-trading like gains through the use of transactions known as "open market repurchases." Such transactions are legal and generally encouraged by regulators through safeharbours against insider trading liability.

Answer 4. (b)

Investment in Individual Securities

Security	Portfolio X	Portfolio Y	Total	Weight
A	5,000 × 0.30 = 1,500	3,000 × 0.20 = 600	2,100	2,100 ÷ 8,000 = 0.2625
B	5,000 × 0.40 = 2,000	3,000 × 0.50 = 1,500	3,500	3,500 ÷ 8,000 = 0.4375
C	5,000 × 0.30 = 1,500	3,000 × 0.30 = 900	2,400	2,400 ÷ 8,000 = 0.3000
	5,000	3,000	8,000	1.0000

Investment Strategy to Ensure Minimum Variance

Given the following equations –

W_A = 0.50 (₹ 4,000 ÷ ₹ 8,000)

$W_A + W_B + W_C = 1$

Therefore, it naturally follows that –

$W_B + W_C$ = 0.50 ..... (i)

Notes to solution :

In order to solve equations for obtaining variable the number of equations should at least be equal to number of variables to be solved for. Here in order to solve two variables there need to be established at least two equations.

The additional linear equation that is missing can be obtained by establishing such relationship between the variables consistent with the data given.

Since, only two sets of data are available a linear equation is again used for obtaining the second linear relationship between the two variables.

A simple linear equation can be established between two variables W_A and W_B or the variables W_B and W_C in the given manner –

$W_C = a + bW_B$ ..... (ii)

Substituting the values of W_A and W_B from the data given (Portfolio X and Y), we get –

$0.30 = a + b \times 0.40$

$0.30 = a + b \times 0.50$

Solving, we get,

$b = 0$

$a = 0.30$

$W_C = 0.30 - 0W_B$

Or

$W_C + 0W_B = 0.30$ .....(ii)

Therefore, solving (i) and (ii) we get $W_C = 0.30$ and $W_B = 0.20$

Conclusion : Allocation of funds –

A = ₹ 4,000 (Given)

B = 0.20 × ₹ 8,000 = ₹ 1,600

C = 0.30 × ₹ 8,000 = ₹ 2,400

Alternatively, since the proportion of investment in C is 0.30 and is constant across both the portfolio, any linear equation drawn from the data given would result in the weight of C being a constant 0.30.

Therefore, $W_A = 0.50$ (given), $W_C = 0.30$ (constant), therefore $W_B = 0.20$ ($W_B = 1 – 0.50 – 0.30 = 0.20$).

Q. 5. (a) A Mutual Fund having 300 units has shown in NAV of ₹ 8.75 and ₹ 9.45 at the beginning and at the end of the year respectively.

The Mutual Fund has given two options :

(i) Pay ₹ 0.75 per unit as dividend and ₹ 0.60 per unit as a capital gain, or

(ii) These distributions are to be reinvested at an average NAV of ₹ 8.65 per unit.

What difference it would make in terms of return available and which option is preferable?

(b) Bharat Ltd. has ₹ 300 million, 12% bonds outstanding with 6 years remaining to maturity. Since interest rates are falling, Bharat Ltd. is contemplating of refunding these bonds with a ₹ 300 million issue of 6 years bonds carrying a coupon rate of 10%. Issue cost of the new bonds will be ₹ 6 million and the call premium is 4%. ₹ 9 million being the unamortized portion of issue cost of old bonds can be written off no sooner the old bonds are called off. Marginal tax rate of Bharat Ltd. is 35%. You are required to analyse the bond refunding decision.

Answer 5. (a)

Basic data for Computation

Particulars	**Value (₹)**
Opening NAV	8.75
Closing NAV	9.45
Dividend	0.75
Capital gain appreciation [Closing NAV – Opening NAV]	0.70
Capital gain distribution	0.60
Price paid at the year beginning [300 units × ₹ 8.75]	2,625

Option I : Returns are distributed to Mutual Fund Holders

(i) Preparation of Fund Balance Sheet

Liabilities	**₹**	**Assets**	**₹**
NAV on closing date [9.45 × 300]	2,835	Fund assets	3,240
Dividend payable [0.75 × 300]	225		
Capital gain distribution [0.60 × 300]	180		
	3,240		3,240

(ii) Returns $= \frac{\text{Closing Fund Assets - Opening NAV}}{\text{Opening NAV}}$

= [3,240 – 2,625] ÷ 2,625

= 23.43%

Option II : The Distributions are reinvested at an average NAV of ₹ 8.65 per unit

(i) Distributions reinvested

Particulars	**Value (₹)**
Capital gain [0.60 × 300]	180
Dividend [0.75 × 300]	225
Total distribution	405
No. of units [Total distributions ÷ Average NAV p.u. = 405 ÷ 8.65]	46.82

(ii) Preparation of fund balance sheet after reinvestment

Liabilities		₹	Assets	₹
NAV on closing date			Fund assets	3,240
- 300 units @ 9.45	2,835			
- 46.82 units @ 8.65	405	3,240		
		3,240		3,240

(iii) Returns $= \frac{\text{Closing Fund Assets - Opening NAV}}{\text{Opening NAV}}$

= [3,240 – 2,625] ÷ 2,625

= 23.43%

Conclusion : Holding period return is the same from Invetsor's view point irrespective of whether the return is reinvested or distributed in the form of Capital Gain or Dividends.

Answer 5. (b)

Evaluation of redemption of existing bond and issue of new bonds

Hypothesis : Redeem existing bonds. Issue new bonds.

(Evaluation based on incremental cash flow approach)

Nature of cash flow	₹ million	Net cash flow	Period/ time	DF @7%	Disc. Cash flow
Summary of inflows :					
i. Savings on interest outgo					
Interest on existing bond [₹ 300 millions × 12%]	36.00				
Less : Interest on new bonds [₹ 300 millions × 10%]	30.00				
Pre tax interest savings	6.00				
Less : Tax on interest savings [35% × ₹ 6 millions]	2.10				
After tax interest savings	3.90	3.90	1-6 years	4.767	18.591
ii. Tax savings on writing off unamortized floatation cost on old issue, immediately					
Unamortized floatation cost – written off immediately	9.00				
Tax saving on above [35% × ₹ 9 millions]	3.15	3.15	0	1.000	3.150
Present value of savings and inflows :					**21.741**
Summary of outflows :					
iii. Floatation cost for new issue		6.00	0	1.000	6.000
iv. Tax savings lost on amortization of issue cost					
Floatation charges for new issue	6.00				
Period over which amortized	6 years				
Annual amortization for issue cost of new issue [₹ 6 millions ÷ 6 years]	1.00				
Less : Floatation charge of existing bonds ₹ 9 millions ÷ 6 years	1.50				
Reduction in amount of issue cost amortized every year	0.50				
Tax savings lost on the above [₹ 0.50 millions × 35%]	0.175	0.175	1-6 years	4.767	0.834

v. Premium payable on redemption of existing bonds					
Callable value [Face value 300 + 4% premium]	312.00				
Premium payable on redemption	12.00				
Less : Tax saving on writing-off premium on redemption [35% of ₹ 12 millions]	4.20				
Net additional outgo on account of redemption	7.80	7.80	1	1.000	7.800
Present value of cost and outflows					**14.634**
Present value of gain					**7.107**

Conclusion : By following the hypothesis i.e. redeeming existing bonds and issuing bonds afresh, the Company stands to gain by ₹ 7.107 millions. Therefore, Company should refund the outstanding debt.

Q. 6. (a) Write short note on Inter-Bank Term Money.

(b) Victor Ltd. manufactures luxury cars for export to USA and Europe. It requires a special type alloy called "Focal", made up of Iron, Aluminum and Copper. Focal is sold at ₹ 230 per kg. in the spot market. Victor Ltd. has a requirement of 6 tonnes in 6 months time, and the 6-months Future Contract rate is ₹ 2.40 lakhs per tone. Carrying cost is 4% p.a. If the interest rate is 11%, should the Company opt for Futures Contract?

***Case A* : If the Company does opt for Futures Contract for buying 6 tonnes of Focal, what will be the effect if –**

(i) Spot rate at the end of 6 months is ₹ 2,55,000 per tone?

(ii) Spot rate at the end of 6-months is ₹ 2,35,000 per tone?

***Case B* : What will be the course of action and effect of such action in the above two cases, if –**

(i) There is no Futures Market for Focal;

(ii) Hedge ratio for Focal with the Metal Index is 0.9 i.e. Beta of Focal with Metal Index is 0.90 (i.e. Beta for change in values)

(iii) Each Metal Index contract is equivalent to 500 kgs.of Focal.

(iv) 6-months' Metal Index Future is 4800 points [Assume futures contract are divisible]

If in Case A, Victor Ltd. wants to cash in on an arbitrage opportunity, what should it do?

Answer 6. (a)

Meaning : Inter Bank Term Market for deposits of maturity beyond 14 days is referred to as Inter-Bank Term Money. Term Money is accepted by the institutions at a discounted value, and on the due date payment will be made equal to the face value.

Participants : Financial Institutions by RBI such as IFCI, SIDBI, NABARD, EXIM Bank, DFHI (Discount & Finance House of India), etc.

Tenor of Instrument : 3 months to 6 months.

Rate of interest : Negotiated between the participants.

Other feature : Investment in Term Money is unsecured and the limits are fixed by RBI.

Reason for development of term money market :

(i) Declining spread in lending operations.

(ii) Volatility in the call money market with accompanying risks in running mismatches.

(iii) Growing desire for fixed interest rate borrowing by corporate.

(iv) Fuller integration between forex and money markets.

Answer 6. (b)

Computation of Theoretical Price [TFP_x]

$TFP_x = S_x \times e^{(r+c) \times t}$

Where,

S_x = Current spot price = ₹ 230 per kg or ₹ 2,30,000 per tone

r = Rate of Interest per annum = 11% p.a. or 0.11

c = Carrying cost (rate per annum) = 4% p.a. or 0.04

t = Period of Futures Contract in years = 6 months or 0.50 years

TFP_x = ₹ 2,30,000 x $e^{(0.11 + 0.04) \times 0.50}$

= ₹ 2,30,000 x $e^{0.15 \times 0.50}$

= ₹ 2,30,000 x $e^{0.075}$

= ₹ 2,30,000 x 1.0779

= ₹ 2,47,917

Evaluation of Futures Contract Proposal

- Theoretical Futures price ₹ 2,47,917 is greater than Actual Futures price ₹ 2,40,000.
- Therefore, the company should go in for futures for buying 6 tonnes of Focal.
- Theoretically the company stands to gain ₹ 7,917 per tonne based on Theoretical Futures price.
- Company can freeze its loss (based on current spot price of ₹ 2.30 lakhs per tone) to ₹ 10,000 per tone.

Effect of Futures Contract Proposal – Based on Actual Spot Rate 6-months later

Particulars	Situation A	Situation B
Spot rate (6-months later) is (per tonne)	₹ 2.55 lakhs	₹ 2.35 lakhs
Actual Futures price is (per tonne)	₹ 2.40 lakhs	₹ 2.40 lakhs
6-months's Future price vs. Spot Rate [S_1]	AFP is lower	AFP is higher
Based on Actual Spot Rate on the date of exercise (i.e. 6 months later), buying 6 tonnes at ₹ 2.40 lakhs per tonne would result in a	GAIN of ₹ 15,000 per tonne.	LOSS of ₹ 5,000 per tonne.

Conclusion :

- Futures contract does not eliminate loss, it only eliminates uncertainty associated with price. It is only a guarantee that the contractee will not gain or lose beyond a particular level (level determined by the Future Price) with reference to the current spot price.
- As a hedging tool, it freezes (fixes) the price and thereby mitigate the risk associated with price. The maximum gain or loss is known the day on which futures contract is entered into. One need not wait for the actual delivery or exercise day to know the rate.
- Therefore, it is inappropriate to conclude that Futures Contract should not be resorted to since it has failed to save the company from loss.

No Future Rate Available

Basis and suggested course of action

- Since Focal is not traded in the Futures Market, Victor Ltd. can resort to Cross Hedge i.e. entering into a Futures Contract in a related index/commodity (whose prices move in tandem with Focal).

- Since the Metal Index moves in tandem with the price of Focal, Victor Ltd. should enter into a Futures Contract in Metal Index opposite to its position in Focal's Cash Market i.e. it requires 6 tonnes of Focal six months hence (Going Long), therefore, it should sell 6-months Future Contract for Metal Index (Going short).
- Course of action : Sell Metal Index Futures. Buy Focal Stock in cash market (to be executed six months hence).

Activity flow

Activity	Time	Description
Contract	Now	Enter into 6-months Futures Contract for selling 10.80 Metal Index Futures
Settle Futures Contract	6-months later	Settle 6-month's Future Metal Index liability by pocketing (gain) or paying (loss) the price difference.Gain (₹) = No. of contracts × No. of Focal units per contract x Gain in Metal Index PointsLoss (₹) = No. of contracts × No. of Focal units per contract × Loss in Metal Index Points
Buy	6-months later	Buy six tones at prevailing spot price[Prevailing Spot Price = Spot Price at the beginning of Futures Contract ± Gain/Loss in settlement of Metal Index Futures]

Working note : Contract determination

Number of Metal Index Futures to be sold

$$= \text{Hedge Ratio} \times \frac{\text{Quantity of Focal required by Victor}}{\text{Quantity of Focal equivalent to one Futures Contract of Metal Index}}$$

$$= \frac{\text{Hedge Ratio [Beta of changes in price of Focal w.r.t. Metal Index]} \times \text{Quantity of Focal required by Victor}}{\text{Quantity of Focal equivalent to one Futures Contract of Metal Index}}$$

= 0.90 × 6 tonnes ÷ 0.50 tonne = 0.90 × 12 = 10.80 Futures Contracts

Cash flow

Price in Spot Market 6-months later is ₹ 2.55 lakhs

Particulars	Value (₹)
Value per kg. six months later [₹ 2,55,000 ÷ 1,000 kgs.]	255
Less : Value per kg. at the beginning	230
Appreciation/ (Depreciation) in Price per kg of Focal	**25**
Hedge ratio (i.e. Beta value of movement in Focal w.r.t. to Metal Index Futures]	0.90
Appreciation in Metal Index [per metal index futures] [Appreciation in Focal price ÷ Hedge ratio] = 25 ÷ 0.90 = 27.778 points i.e. Metal Index would have appreciated by 27.778 points to 4827.778 points (4800 + 27.778)	27.778 points
Gain on settlement of Metal Index Futures [No. of Contracts × No. of Focal units per contract × Gain in Metal Index Points] = 10.80 × 500 kgs. X ₹ 27.778 [This is the cash inflow for Victor Ltd.]	1,50,000
Cash outflow For purchase of 6 tonnes of Focal ₹ 2.55 lakhs per tonne × 6 tonnes = ₹ 15,30,000 = Spot Price at the beginning + Gain on settlement of Metal Index Futures = ₹ 2,30,000 × 6 tonnes + ₹ 1,50,000 = ₹ 13,80,000 + ₹ 1,50,000	15,30,000
Net outflows for Victor Ltd. = ₹ 15,30,000 – ₹ 1,50,000	13,80,000

Price in Spot Market 6-months later is ₹ 2.35 lakhs

Particulars	Value (₹)
Value per kg. six months later [₹ 2,35,000 ÷ 1,000 kgs.]	235
Less : Value per kg. at the beginning	230
Appreciation/ (Depreciation) in Price per kg of Focal	**5**
Hedge ratio (i.e. Beta value of movement in Focal w.r.t. to Metal Index Futures]	0.90
Appreciation in Metal Index [per metal index futures] [Appreciation in Focal price ÷ Hedge ratio] = 5 ÷ 0.90 = 5.556 points i.e. Metal Index would have appreciated by 5.556 points to 4805.556 points (4800 + 5.556)	5.556 points
Gain on settlement of Metal Index Futures [No. of Contracts x No. of Focal units per contract × Gain in Metal Index Points] = 10.80 × 500 kgs. X ₹ 5.556 [This is the cash inflow for Victor Ltd.]	30,000
Cash outflow For purchase of 6 tonnes of Focal ₹ 2.35 lakhs per tonne × 6 tonnes = ₹ 14,10,000 = Spot Price at the beginning + Gain on settlement of Metal Index Futures = ₹ 2,30,000 x 6 tonnes + ₹ 30,000 = ₹ 13,80,000 + ₹ 30,000	14,10,000
Net outflows for Victor Ltd. = ₹ 14,10,000 – ₹ 30,000	13,80,000

Arbitrage opportunity

Position : Theoretical Futures Price (₹ 2,47,917) ≠ Actual Futures Price (₹ 2,40,000)

AFP vs. TFP : To benefit from the opportunity, Victor Ltd. should buy Future and sell spot.

Profit : = Sale value (Spot price) Less Purchase Cost (Present value of Future Price)

= [₹ 2,30,000 x 6 tonnes] Less [₹ 2,40,000 per tonne x 6 tonnes ÷ e^{rt}]

= ₹ 13,80,000 Less [₹ 14,40,000 ÷ $e^{(0.11 + 0.04) \times 0.5}$]

= ₹ 13,80,000 Less [₹ 14,40,000 ÷ $e^{0.15 \times 0.5}$]

= ₹ 13,80,000 Less [₹ 14,40,000 ÷ $e^{0.075}$]

= ₹ 13,80,000 Less [₹ 14,40,000 ÷ 1.07788]

= ₹ 13,80,000 Less ₹ 13,35,956

= ₹ 44,044

Q. 7. Consider the following data for the companies M & N :

Company	*Beta*	*Standard deviation*	*Covariance with market*
M	**?**	**45%**	**0.0135**
N	**1.6**	**40%**	**?**

The expected return on the market index is 15% and the risk free rate of interest is 6%. You can borrow and lend at the risk free rate.

(i) Suppose the volatility (standard deviation) of the market is 15%. What is the beta of M and the Covariance of N?

(ii) What are the correlations between M and the market (N and the market)?

(iii) How could you form a portfolio of M and N that has exactly the same expected rate of return as the market?

(iv) How could you form a portfolio A, comprising of M and N that has a rate of return of 24%? What is the risk of this portfolio if the correlation between M and N is 0.5?

(v) How could you form a portfolio B that has the same expected return as the portfolio formed in part (iv), but lower standard deviation? What is the lowest risk you have to assume for this expected return?

(vi) Now assume that you have two stocks X and Y having returns of 10% and 14% respectively. They have standard deviations of 10% and 18% respectively? How could you form a portfolio C comprising of X and Y that has a rate of return of 12% and having a total standard deviation of 12%?

(vii) How could you form a portfolio D that has the same risk as the portfolio formed in part (vi), but higher expected return using risk free asset?

Assume portfolios formed i.e. A and C are efficient.

Answer 7.

(i) Beta of a stock is given by $\beta_i = \frac{\sigma_{im}}{\sigma^2_m}$

Where σ_{im} = Covariance of the stock with the market

= Standard deviation of market returns

Therefore, beta of M = $0.0135/(0.15)^2 = 0.6$

Now using the same formula Covariance of N with respect to market = $1.6 \times (0.15)^2 = 0.036$

(ii) Correlation of M and the market = $= 0.0135/(0.45 \times 0.15) = 0.2$

Correlation of N and the market = $\rho_{sm} = \frac{\sigma_{sm}}{\sigma_s \sigma_m} = 0.036/(0.40 \times 0.15) = 0.6$

(iii) We can create portfolio by ensuring that the portfolio has same beta as that of the market i.e. beta = 1 i.e. by ensuring that weighted average of beta i.e. 0.6wp + 1.6ws = 1 and since wp + ws = 1, we have :

wp = 0.60 or 60% and ws = 0.4 or 40%.

(iv) We can form a portfolio A of M and N so that it has a rate of return of 24%, by ensuring that the weighted average of returns of both stocks equal 24%.

Expected return of Stock M = 6 + 0.6 × (15 – 6) = 11.4%

Expected return of Stock N = 6 + 1.6 × (15 – 6) = 20.4%

Therefore we have 0.114wp + 0.204ws = 0.24 and since wp + ws = 1, we have :

i.e. 0.114wp + 0.204 – 0.204wp = 0.24

Implying wp = -0.4. therefore ws = 1.4

The risk of this portfolio = $\sigma_p = \left[\sum_{j=1}^{n} x_i x_j \rho_{ij} \sigma_i \sigma_j\right]^{1/2}$

Substituting we have, $\sigma_p = [(-0.4)^2 \times (0.45)^2 + (1.4)^2 \times (0.4)^2 + 2 \times -0.4 \times 1.4 \times 0.5 \times 0.45 \times 0.4]^{1/2}$

= 49.52%

(v) The portfolio A in part (iv) has an expected return of 24%. We should be able to replicate this return with a lower standard deviation by forming a portfolio consisting of the market portfolio and the risk-free asset.

For a portfolio B consisting of a market portfolio (m) and risk free asset (f), we know that expected return should equal 24% :

$0.24 = w_f (0.06) + (1 – w_r)(0.15)$ [$w_m = 1 – w_f$]

By solving we get w_f = -1.0, implying we should short 100% of our investment in the risk-free asset (i.e. borrow money at the risk less rate) and invest the borrowed sum too i.e. 200% in the market.

The variance of this portfolio is $\sigma = 2 \times (0.15) = 0.30$

Thus, the risk, or standard deviation of 0.30, is less than the standard deviation of the portfolio above (0.4952).

(vi) We can form portfolio C, comprising of X and Y so that it has a rate of return of 12%, by ensuring that the weighted average of return of both stocks X & Y equals 12%. Let wx and wy represent proportion of investments made in X and Y respectively.

Return of Stock X = 10%

Return of Stock Y = 14%

Now we have 0.1wx + 0.14wy = 0.12 and since wx + wy = 1, we have :

0.10wx + 0.14 – 0.14wx = 0.12

Implying wx = 0.5, Therefore wy = 0.5

If this portfolio needs to have a risk of 12%, it must have a correlation as under :

The risk of this portfolio = 12% = $\sigma_c = \left[\sum_{j=1}^{n} x_i x_j \rho_{ij} \sigma_i \sigma_j\right]^{1/2}$

Substituting all the given information, we can find the correlation coefficient as :

$0.12 = [(0.5)^2 \times (0.1)^2 + (0.5)^2 \times (0.18)^2 + 2 \times 0.5 \times 0.5 \times \rho \times 0.1 \times 0.18]^{1/2}$

By ensuring that the correlation is + 0.42, we can create a portfolio C of return = 12% and having a risk of 12%.

(vii) The portfolio C in part (vi) has a risk of 12%. Our task is to create a portfolio of market portfolio and risk free asset so that we can replicate this risk carrying a higher return.

For a portfolio D consisting of a market portfolio (m) and risk free asset (f), we know that σ_f is zero. Substituting in the two asset risk equation we get portfolio risk as :

$\sigma_p = [w_m^2 \sigma_m^2 + 2 w_m w_f \sigma_m \sigma_f \rho_{mf} + w_f^2 \sigma_f^2]^{½} = [w_m^2 \sigma_m^2 + 0 + 0]^{½} = w_m \sigma_m$

The required variance of this portfolio is $\sigma_p = 0.12 = w_m \times (0.15)$ implying $w_m = 0.8$. This implies that we should invest 80% in market portfolio and balance 20% in Risk Free Asset (i.e. lend money at the risk less rate). With this proportion of investment, we have a portfolio return of :

$R_p = 0.2 \times 0.06 + 0.8 \times 0.15 = 13.2\%$ which is higher than 12% which we formed in part (vi).

Q. 8. The share of Rana Ltd. is currently price at ₹ 415 and call option exercisable in three months' time has an exercise rate of ₹ 400. Risk free interest rate is 5% p.a. and standard deviation (volatility) of share price is 22%.

(i) Based on the assumption that Rana Ltd. is not going to declare any dividend over the next three months, is the option worth buying for ₹ 25?

(ii) Calculate value of aforesaid call option based on Black Schole's valuation model if the current price is considered as ₹ 380.

(iii) What would be the worth of put option if a current price is considered ₹ 380?

(iv) If Rana Ltd. share price at present is taken as ₹ 408 and a dividend of ₹ 10 is expected to be paid in the two months time, then, calculate value of the call option.

Answer 8.

(i) Given : Rana Ltd.

Current price = ₹ 415

Exercise rate = 400

Risk free interest rate is = 5% p.a.

Standard Deviation (volatility) = 22%

Based on the above bit the value of an option is calculated as per Black Scholes Model :

$$d_1 = \frac{1_n(\frac{415}{400}) + [0.05 + \frac{1}{2}(0.22)^2]0.25}{0.22\sqrt{0.25}}$$

$$= \frac{-0.03681 + 0.01855}{0.11} = 0.5032727$$

$$d_2 = \frac{1_n(\frac{415}{400}) + [0.05 - \frac{1}{2}(0.22)^2]0.25}{0.22\sqrt{0.25}}$$

$$= \frac{0.03681 + 0.00645}{0.11} = 0.3932727$$

$N(d_1) = N(0.50327) = 1 - 0.3072 = 0.6928$

$N(d_2) = N(0.39327) = 1 - 0.3420 = 0.6580$

$$\text{Value of option} = 415\,(0.6928) - \frac{400}{e^{(0.05)(0.25)}}(0.6580)$$

$$= 285.512 - \frac{400}{1.012578}(0.6580)$$

$$= 287.512 - 259.931$$

$$= ₹\ 27.58$$

Since market price of ₹ 25 is less than ₹ 27.58 (Black Scholes Valuation model). This indicates that the option is under priced, hence worth buying.

(ii) If the current price is taken as ₹ 380 the computations are as follows :

$$d_1 = \frac{1_n(\frac{380}{400}) + [0.05 + \frac{1}{2}(0.22)^2]0.25}{0.22\sqrt{0.25}}$$

$$= \frac{-0.05129 + 0.01855}{0.11} = -0.297636$$

$$d_2 = \frac{1_n(\frac{380}{400}) + [0.05 - \frac{1}{2}(0.22)^2]0.25}{0.22\sqrt{0.25}}$$

$$= \frac{0.05129 + 0.00645}{0.11} = -0.407666$$

$$V_0 = V_s N(d_1) - \frac{E}{e^{rt}} N(d_2)$$

$N(d_1) = N(-0.297636) = 0.3830$

$N(d_2) = N(-0.407666) = 0.3418$

Value of option = $380\ (0.3830) - \frac{400}{e^{(0.05)(0.25)}}(0.3418)$

$= 145.40 - \frac{400}{1.012578}(0.3418)$

$= 145.54 - 138.4397$

$= ₹\ 7.10$

(iii) Value of call option = ₹ 7.10

Current market value = ₹ 415

Present value of exercise price = $\frac{400}{1.0125} = 395.06$

$V_p = -P_s + V_s + PV(E)$

$V_p = -380 + 7.10 + 395.06$

= ₹ 22.16

(iv) Since dividend is expected to be paid in two months time we have to adjust the share price and then use Black Schole's model to value the option :

Present value of dividend (using continuous discounting)

= Dividend x e^{-rt}

= ₹ $10 \times e^{-0.5 \times 0.1666}$

= ₹ $10 \times e^{-0.008333}$

= ₹ 9.917

Adjusted price of shares is ₹ 408 – 9.917 = ₹ 398.083

This can be used in Black Scholes model

$$d_1 = \frac{1_n(\frac{398.083}{400}) + [0.05 + \frac{1}{2}(0.22)^2]0.25}{0.22\sqrt{0.25}}$$

$$= \frac{-0.00480 + 0.01855}{0.11} = 0.125$$

$$d_2 = \frac{1_n(\frac{398.083}{400}) + [0.05 - \frac{1}{2}(0.22)^2]0.25}{0.22\sqrt{0.25}}$$

$$= \frac{-0.00480 + 0.00645}{0.11} = 0.015$$

$N(d_1) = N(0.125) = 0.5498$

$N(d_2) = N(0.015) = 0.5060$

Value of option $= 398.083\ (0.5498) - \frac{400}{e^{(0.05)(0.25)}}\ (0.5060)$

$= 218.866 - \frac{400}{1.012578}\ (0.5060)$

$= 218.866 - 199.8858$

$= ₹\ 18.98$

Q. 9. (a) ABC Ltd., is engaged in manufacturing spare parts for machineries. They got a huge order during the year, which is not expected to be repeated in the years to come, because of which there is a surplus liquid funds of ₹ 60 crores. With little scope for further expansion and company's policy of leveraging with debt, ABC Ltd. is contemplating cash dividends or shares buy back.

The Company has 3 crores shares outstanding, with a current market capitalization of ₹ 240 crores.

***Required*:**

(i) If the whole of surplus funds is used to buy back shares, what is the maximum number of shares that can be bought back by the Company and at what price?

(ii) If the Company were to buy back 50 lakhs shares, what should be the offer price?

(iii) If the Company decides to declare a dividend, what will be the ex-dividend value per share, if the given market capitalization is cum-dividend?

(b) Write short notes on Repo and Reverse Repo Transactions.

Answer 9. (a)

(i) Buy-back using whole of funds

Computation of factors :

Pricing of Buy Back $P_B = (S \times P_0)/(S - N)$

Where P_B = Buy Back price

S = Number of share outstanding before buy back = 3 crores shares

P_0 = Current market price = ₹ 240 crores/ 3 crores = ₹ 80 per share

N = Number of shares bought back = To be ascertained

Computation of maximum number of shares bought back

Therefore, buy back price, P_B = (3 Cr. × ₹ 80) / (3 Cr. – N) = ₹ 240 crores ÷ (3 Cr. – N)

Total value of buy back = Surplus funds of ₹ 60 crores

= Number of shares bought back × Buy back price per share

₹ 60 crores = N × [₹ 240 crores ÷ (3 crores – N)]

₹ 60 crores = (₹ 240 crores × N) ÷ (3 crores – N)

60 crores × (3 crores – N) = 240 crores × N

180 crores – 60 crores × N = 240 crores × N

180 crores = 240 crores × N + 60 crores × N = 300 crores × N

N = ₹ 180 crores ÷ ₹ 300 crores = 0.6 crores or 60 lakhs shares

Buy back price per share

Therefore, buy back price = ₹ 240 crores ÷ (3 crores – N)
= ₹ 240 crores ÷ (3 crores – 0.6 crores)
= ₹ 100 per share

(ii) Offer price for buy back of 50 lakh shares

P_B = (S × P_0)/ (S – N)
= (3 Cr. × ₹ 80) / (3 Cr. – 0.50 crores)
= ₹ 240 crores ÷ 2.50 crores shares
= ₹ 96 per share

(iii) Ex-dividend price per share

Particulars		Value
Distributions surplus		₹ 60 crores
Number of shares outstanding		3 crores
Dividend per share (distributable surplus ÷ Number of shares outstanding)	[A]	₹ 20 per share
Market capitalization		₹ 240 crores
Cum-dividend price per share = Market price per share (Market Capitalization ÷ No. of shares outstanding)	[B]	₹ 80 per share
Ex-dividend price per share	[B – A]	₹ 60 per share

Answer 9. (b)

Repo and Reverse Repo :

(i) Repo agreement is the sale of a security with a commitment to re-purchase the same security at a specified price on a specified date.

(ii) Reverse Repo is a purchase of security with a commitment to sell at a pre-determined price and date.

Participants : Buyer in Repo is usually a Bank which requires approved securities in its investment portfolio to meet the Statutory Liquidity Ratio (SLR).

Interest:

Computation : Interest for the period of Repo is the difference between Sale Price and Purchase Price.

Recognition : Interest should be recognized on a time-proportion basis, both in the books of the buyer and seller.

RBI Guidelines :

(i) Accounting for Repo/ Reverse Repo transactions should reflect their legal form, viz. an outright purchase and outright sale.

(ii) Thus securities sold under Repo would not be included in the Investment Account of the seller, instead, these would be included by the Buyer in its Investment Account.

(iii) The buyer can consider the approved securities acquired under Reverse Repo Transactions for the purpose of SLR during the period of the Repo.

Sale price of securities : Sale of securities should be recognized by the Seller at prevailing market rate comprising of accrued interest to date and the clean price. Repurchase of securities by the seller, would be at the above market rate plus interest for the period of Repo.

Q. 10. (a) Explain perfect hedge and imperfect hedge.

(b) From the following data for Government securities, calculate the forward rates :

Face value (₹)	Interest rate (%)	Maturity (years)	Current price (₹)
1,00,000	0	1	91,500
1,00,000	10	2	98,500
1,00,000	10.50	3	99,000

(c) M/s. Aptech Ltd. is contemplating calling ₹ 3 crores of 30 year's, ₹ 1,000 bond issued 5 years ago with a coupon interest rate of 14 percent. The bonds have a call price of ₹ 1,140 and had initially collected proceeds of ₹ 2.91 crores due to a discount of ₹ 30 per bond. The initial floating cost was ₹ 3,60,000. The company intends to sell ₹ 3 crores of 12 per cent coupon rate, 25 years bonds to raise funds for retiring the old bonds. It proposes to sell the new bonds at their par value of ₹ 1,000. The estimated floatation cost is ₹ 4,00,000. The company is paying 35% tax and its after tax cost of debt is 8 per cent. As the new bonds must first be sold and their proceeds, then used to retire old bonds, the company expects a two months period of overlapping interest during which interest must be paid on both the old and new bonds. What is the feasibility of refunding bonds?

Answer 10. (a)

Perfect hedge : Perfect hedge is one which completely eliminates the risk. At the time of taking an opposite position in Derivatives Market, Perfect Hedge would mean covering the risk involved in the Cash Market Position completely, i.e. 100%.

Imperfect hedge : When the position in cash market is not completely hedged or not hedged to 100% then such hedge is called Imperfect Hedge.

Example : A wants to buy 1000 shares of ITC In the Cash Marker. To hedge his position, he should sell Index Futures. If the hedge ratio is 1.6 and Index Futures Contract has 100 units then –

(i) **Perfect hedge** would mean covering the risk completely by trading in appropriate number of Futures Contract. Therefore, number of contracts to be bought would be equal to 16 contracts. (i.e. Hedge Ratio 1.6 x 1000 Shares of ITC ÷ Index Futures Contract size 100 units)

(ii) **Imperfect hedge** would mean either covering the risk to the extent of less than 100% or greater than 100%. If risk is to be hedged to the extent of 75%, then the number of contracts to be entered into would be 75% × Hedge Ratio × No. of shares to be hedged ÷ Index Futures Contract size = 75% × 1.60 × 1000 shares ÷ 100 units per Index Futures Contract = 12 Contracts.

Answer 10. (b)

Calculation of Forward Rates of Treasury Bills

Forward rate of one year Treasury Bill

$$91{,}500 = \frac{1{,}00{,}000}{(1+r)}$$

$$(1 + r) = \frac{1{,}00{,}000}{91{,}500}$$

$$1 + r = 1.09290$$

$$r = 1.09290 - 1.00000 = 0.0929 \text{ or } 9.29\%$$

Forward rate for two year Treasury Bill

$$98,500 = \frac{1,00,000}{1.093} + \frac{1,10,000}{1.093(1+r^2)}$$

$$98,500 = 9149.131 + \frac{100640.4}{(1+r^2)}$$

$$1 + r^2 = 1.126351$$

$$r^2 = 0.12635$$

Forward rate of three year Treasury Bill

$$99,000 = \frac{10,500}{1.093} + \frac{10,500}{1.093 \times 1.1263} + \frac{1,10,500}{1.093 \times 1.1263(1+r^3)}$$

$$99,000 = 9606.587 + 8529.65 + \frac{89764.42}{(1+r^3)}$$

$$80,863.763 = \frac{89764.42}{(1+r^3)}$$

$$1 + r^3 = 1.1100697$$

$$r^3 = 0.1100697$$

Answer 10. (c)

Cash flow involved in New Bond issue for 25 years	₹
12% bonds issue	3,00,00,000
Estimated floatation cost	4,00,000
Annual interest @ 12%	36,00,000

Cash flow involved in redemption of old bonds		₹
Initial amount collected	(30,000 nos. × ₹ 1,000)	3,00,00,000
Redemption value	(30,000 nos. × ₹ 1,140)	3,42,00,000
Discount on issue	[30,000 nos. × (₹ 1,000 – ₹ 970)]	9,00,000
Premium on redemption	[30,000 nos. × (₹ 1,140 – ₹ 1,000)]	42,00,000
Initial floatation cost		3,60,000
Annual interest	(₹ 300 lakhs × 14/100)	42,00,000
Overlapping interest	(₹ 300 lakhs × 14/100 × 2/12)	7,00,000

Initial cost of issue of new bonds and redemption of old bonds		₹
Premium payable on redemption of old bonds	42,00,000	
Less : Tax saving @ 35%	14,70,000	27,30,000
Floatation cost of new bonds issue		4,00,000
Overlapping interest	7,00,000	
Less : Tax saving @ 35%	2,45,000	4,55,000
		35,85,000
Deduct :		
Tax saving on unamortized discount on old bonds (9,00,000 × 25/30 × 35/100)	2,62,500	
Tax saving from unamortized floatation cost of old bonds (3,60,000 × 25/30 × 35/100)	1,05,000	3,67,500
		32,17,500

Annual cash flow savings from old bonds		₹
Interest	42,00,000	
Less : Tax savings @35%	14,70,000	27,30,000
Deduct :		
Tax saving from amortization of discount (9,00,000/30 years × 35/100)	10,500	
Tax saving from amortization of floatation cost (3,60,000/30 years × 35/100)	4,200	14,700
		27,15,300

Annual cash outflow on new bonds		₹
Interest cost	36,00,000	
Less : Tax savings @35%	12,60,000	23,40,000
Less : Tax saving from amortization of floatation cost (4,00,000/25 years × 35/100)		5,600
		23,34,400

Net annual outflow for 25 years = 27,15,300 – 23,34,400 = 3,80,900

Calculation of NPV	₹
PV of net annual cash outflow for 25 years at a discount rate of 8% (₹ 3,80,900 × 10.675)	40,66,108
Less : Initial investment	32,17,500
NPV	8,48,608

Suggestion : The NPV of proposal to issue new bonds and refund of old bonds is positive. Hence, the proposal is recommend.

Q. 11. (a) Consider the following companies :

Name of the company	Industry	Equity beta	Asset beta	Debt equity ratio
Gillette	**Personal products**	**0.250**	**0.13**	**1.489**
Revlon	**Beauty products**	**1.616**	**1.13**	**0.657**
Honda	**Automobile**	**1.429**	**0.59**	**2.195**
MPS	**Food Products**	**0.282**	**0.22**	**0.453**

(i) What can you conclude about each company's stock by the value of its beta?

(ii) Assume a marginal tax rate of 35%. What can you conclude by comparing the two values of beta (current and un-levered) for each company?

(b) Assume we form a portfolio of market (20%) and risk free asset (5%). The market portfolio gives a return of 20% and has a standard deviation of 4%. Assuming that CAPM will hold, what is the expected return of a security if it exhibits a correlation of 0.5 with the market and has a standard deviation of 2%?

Answer 11. (a)

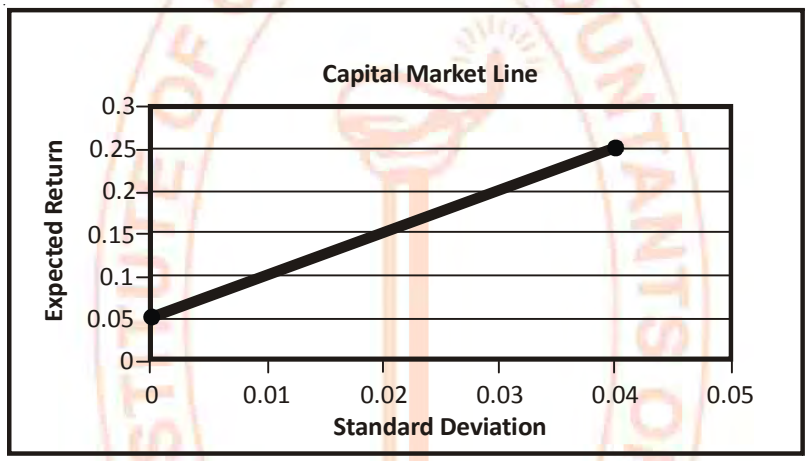
(i) Gillette and MPS, being companies in personal products and food products, do not observe much variability in their earnings with the business cycle and, thus, their equity betas are quite low. On the contrary, Revlon and Honda are selling more discretionary products and their earnings exhibit more volatility with the business cycle. Therefore, their equity betas are higher. However, the equity beta includes the risk from financial leverage. Thus, we need to obtain the un-levered beta for each company in order to disentangle the determinants of beta.

(ii) The asset betas that reflect the nature of the business of each company, as well as the company's operations, show again that companies like Gillette and MPS are in Industries with more stable earnings pattern. There is a considerable gap between the asset beta and the equity beta of Honda. Even though the asset beta is quite low, reflecting relatively low risk from the company's business and operations, the equity beta is much higher due to the company's high financial leverage.

Answer 11. (b)

First, calculate the standard deviation of the market portfolio using the Capital Market Line (CML).

We know that the risk-free asset has a return of 5% and a standard deviation of zero and the portfolio has an expected return of 25% and a standard deviation of 4%. These two points must liw on the Capital Market Line.



The slope of the Capital Market Line equals :

$Slope_{CML}$ = Increase in expected return/ Increase in standard Deviation

= (0.25 – 0.05) / (0.04 – 0)

= 5

According to the Capital Market Line :

$E(r_i) = r_f + Slope_{CML} (\sigma_i)$

Where $E(r_i)$ = The expected return on security i

r_f = The risk-free rate

$Slope_{CML}$ = The slope of the Capital Market Line

σ_i = The standard deviation of security i

Since we know the expected return on the market portfolio is 20%, the risk-free rate is 5% and the slope of the Capital Market Line is 5, we can solve for the standard deviation of the market portfolio (σ_m).

$E(r_m) = r_f + Slope_{CML} (\sigma_m)$

$0.20 = 0.05 + (5)(\sigma_m)$

$\sigma_m = (0.20 – 0.05) / 5$

= 0.03

The standard deviation of the market portfolio is 3%.

Next, use the standard deviation of the market portfolio to solve for the beta of a security that has a correlation with the market portfolio of 0.5 and a standard deviation of 2%.

$B_{security}$ = [Correlation($R_{security}$, R_{market})*($\sigma_{security}$)] / σ_{market}

= (0.5 * 0.02) / 0.03

= 1/3

The beta of the security equals 1/3.

According to the Capital Asset Pricing Model :

$E(r) = r_f + \beta [E(r_m) - r_f]$

Where, E(r) = The expected return of the security

r_f = The risk-free rate

β = The security beta

$E(r_m)$ = The expected return on the market portfolio

In this problem :

r_f = 0.05

β = 1/3

$E(r_m)$ = 0.20

$E(r) = r_f + \beta [E(r_m) - r_f]$

= 0.05 + 1/3(0.20 – 0.05)

= 0.10

A security with a correlation of 0.5 with the market portfolio and a standard deviation of 2% has an expected return of 10%.

Q. 12. (a) Assume that two factors are considered in the APT model and the following model works :

Expected returns, $R = \lambda_0 + \beta_1\lambda_1 + \beta_2\lambda_2$

Assume a risk-free rate of 6% and the risk premiums for Factor 1 and Factor 2 as 4% and 5% respectively. Three portfolios with following characteristics are in equilibrium with respect to the two macroeconomic variables :

Portfolio	Beta (Factor 1)	Beta (Factor 2)
A	0.5	1.2
B	1.5	1.0
C	2.5	0.6

(i) Find out the expected returns of the three portfolios A, B and C. There exists a Portfolio D with betas of 0.6 and 0.8 with respect to Factor 1 and Factor 2 respectively but provides a return of 10%.

(ii) How will you take advantage of mispricing of Portfolio D?

(iii) What profit can you generate?

(b) Below are the returns for the two stocks under different states of nature :

State of nature	Stock A Return	Stock B Return	Probability
Recession	-2.0%	2.0%	1/3
Normal	9.2%	5.0%	1/3
Boom	15.4%	13.0%	1/3

What is the expected return of a portfolio that has a standard deviation of 5.6%?

Answer 12. (a)

(i) APT returns for Portfolio A = $\lambda_0 + \beta_1\lambda_1 + \beta_2\lambda_2$

= $6 + 0.5 \times 4 + 1.2 \times 5 = 14\%$

APT returns for Portfolio B = $\lambda_0 + \beta_1\lambda_1 + \beta_2\lambda_2$

= $6 + 1.5 \times 4 + 1.0 \times 5 = 17\%$

APT returns for Portfolio C = $\lambda_0 + \beta_1\lambda_1 + \beta_2\lambda_2$

= $6 + 2.5 \times 4 + 0.6 \times 5 = 19\%$

(ii) To eliminate mispricing of portfolio D, we would take opposite positions in Portfolio D on one side and the combinations of Portfolios A, B and C on the other side. The investment proportions in Portfolios A, B and C denoted by F_A, F_B and F_C respectively would be determined such that the betas with respect to Factor 1 and Factor 2 are equal and opposite. This provides the following equations :

Set investment equal to zero :

$F_A + F_B + F_C = 1.0$ .....(1)

Sets beta for Factor 1 equal to zero :

$0.5F_A + 1.5F_B + 2.5F_C = 0.6$ .....(2)

Sets beta for Factor 2 equal zero :

$1.2F_A + 1.0F_B + 0.6F_C = 0.8$ .....(3)

Multiplying (2) by 2 and subtracting it from (1), we get :

$F_B = 0.1 - 2.0F_C$

Inserting the value of F_B in equation (1) we get

$F_A + 0.1 - 2F_C + F_C = 1.0$, gives $F_A = 0.9 + F_C$

Inserting the values of F_A and F_B in equation (3) we get an equation in terms of F_C alone. Solving we get :

$F_C = 1.9$

$F_B = 0.1 - 2F_C = -3.7$

$F_A = 0.9 + F_C = 2.8$

Portfolio D provides 10% returns while the APT returns are :

$\lambda_0 + \beta_1\lambda_1 + \beta_2\lambda_2 = 6 + 0.6 \times 4 + 0.8 \times 5 = 12.4\%$

Portfolio D, therefore, is overpriced and needs to be sold. The arbitrage portfolio is constituted by short selling the Portfolio D and investing the same amount in the Portfolios A, B and C in the proportion indicated above. The negative proportion for Portfolio B implies that it too would be short sold. Such a portfolio would have no investment and zero betas with respect to Factor 1 and Factor 2 as shown in the following table :

Arbitrage Portfolio	**Investment (Cash Flow)**	**Portfolio Beta for Factor 1 (β_{1P})**	**Portfolio Beta for Factor 2 (β_{2P})**
Position in Portfolio D not in APT equilibrium	+ 1.0	-0.6	-0.8
Opposite position in Portfolio in APT equilibrium		$\beta_{1A}F_A + \beta_{1B}F_B + \beta_{1C}F_C$	$\beta_{2A}F_A + \beta_{2B}F_B + \beta_{2C}F_C$
Portfolio A	-2.8	+0.5 x 2.8	+1.2 x 2.8
Portfolio B	+3.7	-1.5 x 3.7	-1.0 x 3.7
Portfolio C	-1.9	+1.9 x 2.9	+0.6 x 2.9
	-1.0	+0.6	+0.8

(iii) The end position in the Portfolio D would be a loss of 10% and the cumulative positions in Portfolios A, B and C would end up with the gain of 12.4% being in equilibrium. The resultant arbitrage profit would be 2.4%. this can be confirmed as follows :

Returns on Portfolio D :	-1.0 × 10%	= -10.0%
Returns on Portfolio A :	2.8 × 14%	= 39.2%
Returns on Portfolio B :	-3.7 × 17%	= -62.9%
Returns on Portfolio C :	1.9 × 19%	= 36.1%
Total		= 2.4%

Answer 12. (b)

Calculate the means and the variances of returns of stocks A and Stock B.

$E(R_A) = (-0.02 + 0.092 + 0.154)/3 = 0.0753$

$E(R_B) = (0.02 + 0.05 + 0.13)/3 = 0.0667$

$\sigma^2_A = (-0.02 - 0.0753)^2 \frac{1}{3} + (0.092 - 0.0753)^2 \frac{1}{3} + (0.154 - 0.0753)^2 \frac{1}{3} = 0.005185$

$\sigma^2_B = (0.02 - 0.0667)^2 + (0.05 - 0.0667)^2 + (0.13 - 0.0667)^2 = 0.002156$

Calculate the covariance between Stock A and Stock B

$Cov(R_A, R_B) = [(-0.02-0.0753)(0.02 - 0.0667) + (0.092 - 0.0753)(0.05 - 0.0667) + (0.154 - 0.0753)(0.13 - 0.0667)]/3$

$= 0.00305$

Determine the weights of a portfolio that has a standard deviation of 5.6% using the formula for the variance of a portfolio of two assets.

Let X be the fraction invested in Asset A.

$(0.056)^2 = (X^2)(0.005185) + (1 - X)^2(0.002156) + 2(X)(1 - X)(0.00305)$

$0.00314 = 0.005185\ X^2 + (1 - 2X + X^2)(0.002156) + 0.00610(X - X^2)$

The previous expression can be rearranged to give the following equation :

$0 = 0.00124X^2 + 0.00179X - 0.00098$

Dividing both sides of this equation by 0.00124 we get the following equation :

$X^2 + 1.443X - 0.790 = 0$

Using the quadratic equation, we get the values for X :

$X = 0.423$ or $X = -1.866$

Since the expected return of stock A is higher than that of stock B, we want to invest as much as possible in Stock A, (therefore we take higher value of X) given the standard deviation of 5.6%. thus, we choose X to be equal to 0.423. Therefore, the fraction invested in asset B is equal to 0.577.

This implies that the expected return of a portfolio that has a standard deviation of 5.6% is :

$E(R_P) = (0.423)(0.0753) + (0.577)(0.0667) = 7.03\%$

Q. 13. (a) An investor is considering an investment in market portfolio to capitalize on the probable increase in the value of securities and earn the dividend yield. He has ₹ 10 lakh to invest. BSE Sensex is trading at 6,650 while 2-m futures contract with 60 days to maturity is selling for 6,670.

Assuming risk-free rate of interest of 8% and a dividend yield of 4%, find the fair value of 2-m future contract. Also analyse the investment strategies of : investing in Sensex (Strategy I) and investing in T-bills and futures (Strategy II).

Compare the positions of Strategy I and II with (i) 10% increase, (ii) 10% decrease, and (iii) no change in Sensex after 2 months.

(b) Investor A & B had both invested in Fund X in the past. Currently as on 30th June 2012 both their holdings are worth ₹ 50,000 each. From now on, each prefer different strategies to repurchase their investment. While A prefers to wait till 30th June 2014 to encash his full investment, B prefers systematic withdrawal of ₹ 5,000 every quarter over the next 9 quarters (beginning today) at the closing NAV. Which investor would clock a higher return on investment, if it is assumed that B deposits the withdrawals to earn 8% p.a. simple interest? Explain the difference.

	2012			2013				2014	
Date	**30th Jun**	**30th Sep**	**31st Dec**	**31st Mar**	**30th June**	**30th Sept**	**31st Dec**	**31st Mar**	**30th June**
Close NAV	**10.04**	**11.26**	**13.73**	**13.57**	**14.58**	**19.45**	**21.50**	**27.15**	**23.69**

Answer 13. (a)

Fair value of 2-m futures contract :

$$F = S_0 \times e^{\frac{(r-d)t}{365}} = 6,693.87$$

The actual price of futures is 6,670 which is lower than the fair value. Hence, futures are underpriced.

Rather than buying the portfolio in the physical market, the investor can replicate the portfolio by buying futures contract and invest in T-bills. The strategy will have the same risk as that of the portfolio in the physical market. A comparison of pay off under the two strategies is presented below :

Strategy I : Invest in the portfolio of Index	
Amount invested in securities	10,00,000
Strategy II : Invest in T Bills and go long on futures	
Amount invested in T Bills	10,00,000
Nos. of futures bought	
Current value of 2-m futures	6,670
Nos. of indices in a futures contract	50
Value of one futures contract	₹ 3,33,500
Nos. of contracts bought	3.33
Rounded off	3

The pay off of the strategies are analysed for three different scenarios of 10% increase, no change and a 10% decrease in the market from the current level of 6,650.

₹

	Increase by 10%	No change	Decrease by 10%
Strategy I			
Have a portfolio of ₹ 10 lakh			
Value of the portfolio	11,00,000	10,00,000	9,00,000
Dividend yield 4% of 10,00,000 for 2 months	6,667	6,667	6,667
Total value of investment	**11,06,667**	**10,06,667**	**9,06,667**
Strategy II			
Investment in T Bills and buy 3 futures			
Value of T Bills	10,00,000	10,00,000	10,00,000
Interest on T Bills	13,333	13,333	13,333
Position on futures			
Selling price of futures	7,315	6,650	5,985
Purchase price of futures	6,670	6,670	6,670
Profit/loss on index points	645	-20	-685
Profit/loss on futures	96,750	-3,000	-1,02,750
Total value of investment	**11,10,083**	**10,10,333**	**9,10,583**

As can be noticed, Strategy II is always superior to the Strategy I and hence in case of mispricing of futures, the yields can be improved by investing in futures and T-bills.

Answer 13. (b)

Opening balance	**X : 50,000/10.04**		**4980.08**	**Y : 50,000/10.04**		**4980.08**
	Date	**Close NAV**	**Repurchase**	**Repurchase Amount**	**No. of units Repurchased**	**Interest @ 8%**
2012	30th Jun	10.04	0.00	5000.00	498.01	800*
	30th Sep	11.26	0.00	5000.00	444.05	700
	31st Dec	13.73	0.00	5000.00	364.17	600
2013	31st Mar	13.57	0.00	5000.00	368.46	500
	30th Jun	14.58	0.00	5000.00	342.94	400
	30th Sep	19.45	0.00	5000.00	257.07	300
	31st Dec	21.50	0.00	5000.00	232.56	200
2014	31st Mar	27.15	0.00	5000.00	184.16	100
	30th Jun	23.69	0.00	5000.00	211.06	0
Total units repurchased by B					2902.47	3600
Closing units			4980.08		2077.61	
Value of investment		4980.08 × 23.69	117978.09	2077.61×23.69+ 45000 + 3600	97818.61	
Original investment			50000.00		50000.00	
Return on investment			1.3596		0.9564	
Annualized return		$(1+1.3596)^{1/2}-1$	53.61%	$(1+0.9564)^{1/2}-1$	39.87%	

*5000 x 8/100 × 24/12 = 800 (2 years)

Investor A and B adopted different methods to repurchase their units. An investor can be indifferent between systematic repurchase and one time repurchase, only if the amount withdrawn through systematic repurchase is invested at the same rate of return as that of the fund till the time the one time repurchase is made. In this case B withdraws regularly and invests at 8% simple interest, while the fund earns a much higher return. Therefore A could get a higher return of 53.61% as against 39.87% as received by B.

Q. 14. (a) Explain the computation of expected return of a security under Market Model.

(b) Dev is contemplating buying / selling the shares of Companies M, N and P. He already holds some shares in each of these companies. He has the following data in his hand to aid him in his decision –

- **Return on NIFTY 16%.**
- **₹ 500 Treasury Bonds, whose returns are considered risk free, earns its owners a return of ₹ 35.**
- **Company M has a Beta Factor of 0.9 and investment therein yields a return of 14%.**
- **Company N, which is traded at ₹ 1200 per shares, earns its investors a sum of ₹ 246. It has a beta factor of 1.5.**
- **Company P, price of which is ₹ 450 has a beta factor of 0.5. Historical data shows the annual share price increase of the company is around 8%. Last dividend decided was ₹ 10 per share. Dividend payout is expected to double in the next year.**

Dev seeks your guidance on the course of action.

Answer 14. (a)

Market Model : Market Model does not pre-suppose the existence of risk free return for the purpose of estimating return from a security. Under this model (Assumption), the market risk affects the whole of return from a security, and not just the return in excess of the risk-free rate.

Formulae :

(i) Expected return [$E(R_p)$] : Without considering Risk Free Return

$$E(R_p) = \alpha_p + (\beta_p \times R_M) + e$$

Components :

Notation	Description
α_p (Alpha Intercept)	It is the return from a Security / Portfolio when Market Return is Zero. = Average Return Less Expected Return (Beta Adjusted Return) $= \overline{R_P} - \beta_P \times R_M$ Over a longer period, α should be zero.
$\beta_p \times R_M$	Beta adjusted Market Return
e	Error Factor (with Zero Mean and constant standard deviation)

(ii) Expected return : Considering Risk Free Return (Risk Adjusted Excess Return Approach)

$$E(R_p) = \alpha_p - [R_F \times (1 - \beta_p)] + R_F + [\beta_p) \times (R_M - R_F)] + e$$

Components :

Notation	Description
$\alpha_P - [R_F \times (1 - \beta_P)]$	Risk Adjusted Excess Return (Alpha value adjusted for risk free rate of return)
R_F	Risk free rate of return
$[\beta_P \times (R_M - R_F)]$	Market risk premium adjusted for beta factor
e	Error Factor (with Zero Mean and constant standard deviation)

Computation of beta :

(i) Under market model, computation of beta is done using annualized returns from security and the market on a daily basis.

(ii) Return for this purpose = (Dividend + Price increase) ÷ Price at the beginning of the day

Answer 14. (b)

Market Return (R_M) and Risk Free Return (R_F)

Market return = Return on NIFTY = 16%

Risk free return = Return on Treasury Bonds = Return in ₹ /Face Value = ₹ 35/₹ 500 = 7%

Evaluation of Company M

Particulars		Value
Estimated return (Given) (R_A)	[A]	14%
Expected return under CAPM [$E(R_A)$] – $E(R_A) = R_F + \beta_A \times (R_M - R_F)$ = 7% + 0.9 × (16% - 7%)	[B]	15.10%
Estimated return [A] vs. Expected Return under CAPM [B]		[B] is higher
Inference		Stock gives lesser than what it should give
Conclusion [Expected Return is HIGHER than Estimated Return] Share is		Overpriced
Recommendation		SELL

Evaluation of Company N

Particulars		Value
Estimated return (Given)		₹ 246
Market price (Given)		₹ 1,200
Estimated return (in %) (R_B) [Estimated Return ₹ 246/ Market Price ₹ 1200]	[A]	20.50%
Expected return under CAPM [$E(R_B)$] – $E(R_B) = R_F + \beta_B \times (R_M - R_F)$ = 7% + 1.50 × (16% - 7%)	[B]	20.50%
Estimated Return [A] vs. Expected Return under CAPM [B]		Equal
Inference		Stock is giving exactly what it should give
Conclusion [Expected Return is EQUAL to Estimated Return] Share is		Correctly priced
Recommendation		HOLD

Evaluation of Company P

Particulars	Value
Capital appreciation expected (Market price of ₹ 450 × 8%)	₹ 36
Estimated dividend payout (Previous year's dividend of ₹ 10 × 2 times)	₹ 20
Total estimated return for the year	₹ 56
Estimated return (in %) (R_C) [Estimated Return ₹ 56/ Market price ₹ 450] [A]	12.44%
Expected return under CAPM [$E(R_C)$] – $E(R_C) = R_F + \beta_C \times (R_M - R_F)$ = 7% + 0.50 × (16% - 7%) [B]	11.50%
Estimated Return [A] vs. Expected Return under CAPM [B]	is lower
Inference	Stock gives more than what it should give
Conclusion [Expected Return is LOWER to Estimated Return] Share is	Underpriced
Recommendation	BUY

Q. 15. (a) Consider a bond selling at its par value of ₹ 1,000, with 6 years to maturity and a 7% coupon rate (with annual interest payment), what is bond's duration? If the YTM of this bond increases to 10%, how it affects the bond's duration? And why? Why should the duration of a coupon carrying bond always be less than the time to its maturity?

(b) Write short notes on – Green Shoe Option.

Answer 15. (a)

We are given the price of the bond as ₹ 1,000.

We also know that duration is given by :

$$D = \frac{\sum_{t=1}^{n} \frac{t*C}{(1+i)^t} + \frac{n*M}{(1+i)^n}}{P}$$

Where,

n = number of cash flows = 6

t = time to maturity = 6

C = Coupons - ₹ 70

i = required yield = 7%

M = maturity (par) value = ₹ 1,000

P = bond price = ₹ 1,000

D = required

$$D = \frac{\frac{1*70}{1.70} + \frac{2*70}{(1.07)^2} + \frac{3*70}{(1.07)^3} + \frac{4*70}{(1.07)^4} + \frac{5*70}{(1.07)^5} + \frac{6*70}{(1.07)^6} + \frac{6*1000}{(1.07)^6}}{P} = 5.098 \text{ years}$$

If the YTM increases to 10%, then the coupons would be re-invested at higher rates, thereby decreasing the time required for getting the initial investment. Hence, duration, which is nothing but, weighted discounted payback period, decreases. We can re-calculate to verify the same :

$$D = \frac{\frac{1*70}{1.1} + \frac{2*70}{(1.1)^2} + \frac{3*70}{(1.1)^3} + \frac{4*70}{(1.1)^4} + \frac{5*70}{(1.1)^5} + \frac{6*70}{(1.1)^6} + \frac{6*1000}{(1.1)^6}}{1000} = 5.025 \text{ years}$$

The term duration is a measurement of how long it takes for the price of a bond to be repaid by its internal cash flows. In a zero coupon bond we do not receive any intermediate cash flows and the entire money is available only on maturity, and hence duration of a Zero-coupon bond is equal to maturity period. On the same lines since coupon bonds, pays coupons (intermediate interest), we get our price much earlier to maturity period. Moreover, we receive the re-investment income too. Therefore, duration of a coupon bond will always be less than its maturity period.

Answer 15. (b)

Green Shoe Option denotes 'an option of allocating shares in excess of the shares included in the public issue'. It is an option allowing the Issuing Company to issue additional shares when the demand is high for the shares when the flotation is on. SEBI guidelines allows the Issuing company to accept oversubscription, subject to a ceiling, say 15% of the offer made to public. In certain cases, the Green Shoe Option can be even more than 15%. It is extensively used in international IPOs to stabilise the post listing price of new issued shares. The concept has been introduced in the Indian capital market and is used in initial public offerings through book building process. SEBI has allowed the use of the option with a view to boost the investors' confidence and to put a check for speculative practices causing short-term volatility in post listing price. The Green Shoe Option facility would bring in price stability of initial public offerings.

Q. 16. (a) What are the provisions regarding e-mail and digital signature as per IT Act, 2000.

(b) How to estimate the equity beta of a private firm ?

(c) Company A is in the food processing business and has a market capitalization of ₹ 100 million and a market beta of 1.5. A considers a merger with B, another company mainly producing computer software that has a market capitalization of ₹ 400 million and a market beta of 1.2. The CEO of A argues that this will reduce their cost of capital. The risk free rate of interest is 5% and the market risk premium is 8%. Both companies and the merged company are 100% equity financed.

(i) What is the beta of the merged company?

(ii) What is the required rate of return on equity of the merged company?

(iii) What is the required return on a typical project in the software division of the merged company? Hence, comment on the reasoning of the CEO that merging has reduced A's cost of capital ?

Answer 16. (a)

The IT Act 2000, the cyber law of India legalizes the e-mail and gives it the status of being valid form of carrying out communication in India. This implies that e-mails can be duly produced and approved in a court of law, thus can be regarded as substantial document to carry out legal proceedings.

The Act also talks about digital signatures and digital records. These have been also awarded the status of being legal and valid means that can form strong basis for launching litigation in a court of law. It invites the corporate companies in the business of being Certifying Authorities for issuing secure Digital Signatures Certificates.

Answer 16. (b)

To obtain an estimate for the cost of equity of a private firm, we can use the CAPM. To do so, we need an estimate of the company's equity beta. Since this is not available, given that the firm is not publicly traded, we can use information from comparable firms. Obtaining a sample of comparable firms, we can use

each firm's equity beta and un-lever it to obtain the firm's asset beta. We use the average asset beta of the comparable firms as an estimate of the asset beta for the private firm. To take into account the impact of financial leverage, we re-lever the asset beta using the private firm's debt-equity ratio. The re-levered beta is the estimate of the private firm's equity beta. In order to obtain an estimate of the cost of debt, given that the firm has no publicly –traded debt, we could either examine the firm's borrowing history or obtain a synthetic rating by comparing the private firm's financial ratios to those of comparable firms that are rated.

Answer 16. (c)

We can summarize the given information first :

Market Cap of A = ₹ 100 million; beta of A = 1.5

Market Cap of B = ₹ 400 million; beta of B = 1.2

r_f = 0.05 or 5%

$r_m - r_f$ = 0.08, Therefore r_m =0.13

(i) The beta of the merged company is the weighted average of the betas of the individual companies. The weights are :

w_A = 100/500 = 0.20, Therefore w_B = 1-0.2 = 0.80

Thus beta of the merged company is :

= 0.20 × 1.5 + 0.80 × 1.2 = 1.26

(ii) The expected return of the merged company follows from the CAPM model :

$E(r_p) = r_f + \beta[E(r_m) - r_f]$

= 0.05 + 1.26(0.08)

= 0.1508 or 15.08%

(iii) The required rate of return from the software company also follows from the CAPM :

E(r) = 0.05 + 1.2 (0.08)

= 0.1460 or 14.60%

The required rate of return of food processing business

E(R) = 0.05 + 1.5 (0.08) = 0.17 or 17%

Since the expected return of the merged company is less than that of food processing business in which company A is engaged. The CEO of A was right.

Q. 17. (a) The annualized yield is 3% for 91-day commercial paper and 3.5% for 182 – days commercial paper. What is the expected 91-day commercial paper rate 91days form now, assuming that we get the same maturity value after 182 days?

(b) Suppose a bank offers a 6-month CD at an annual percentage rate of 11.5% compounded monthly and a 1-year CD with an annual percentage rate of 11.3% compound weekly. You are required to find out which of them offers a higher rate of interest. Assume a face value of ₹ 1,000.

Answer 17. (a)

Assuming the difference is just due to higher future interest rates, an investor should be able to earn the same return over 182 days using either 182-day paper or a 91-day paper by rolling over to 91 day paper again after investing in 91 day paper.

Assume that the 182-day paper has a face value of ₹ 1,00,000. The current price can be found using :

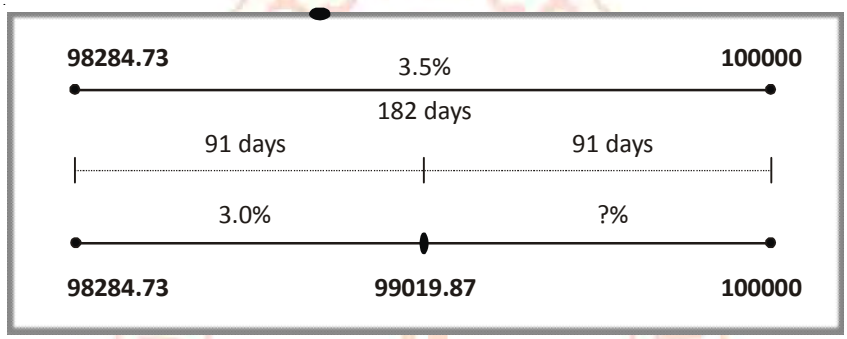
$$Y = \left(\frac{F - P}{P}\right) x \frac{365}{M} x 100$$

Where,

Y = 3.5, F = 1,00,000, M = 182

P = ₹ 98,284.73

Had we invested the same amount in 91-day paper, by substituting P = ₹ 98,284.73, M = 91 & Y = 3 we get F = ₹ 99,019.87. That is, such an investment should payoff ₹ 99,019.87 after 91 days.



Now, invest ₹ 99,019.87 in 91-day paper again. It is expected to give a final value of ₹ 1,00,000 (just like the 182-day paper). When we substitute in the above formula, F = ₹ 1,00,000 & P = ₹ 99,019.87 and M = 91, we get the 91-day rate in 91-days as 3.97%.

Answer 17. (b)

Effective annual interest rate on the 6 month CD – 11.5% compounded monthly :

A CD paying 11.5% p.a. would pay monthly 11.5%/12 = 0.958%

This when compounded 12 times (corresponding to monthly compounding), we get :

Amount = $1000 \times (1 + 0.00958)^{12}$ = ₹ 1121.214

i.e. 12.12% on an investment of ₹ 1,000.

Effective annual interest rate on a one year CD – 11.3% compounded weekly :

A CD paying 11.3% p.a. would pay weekly 11.3%/52 = 0.217%

This when compounded 52 times (corresponding to weekly compounding), we get :

Amount = $1,000 \times (1 + 0.00217)^{52}$ = ₹ 1119.315

i.e. 11.93% on an investment of ₹ 1,000.

The effective annual interest rate of 1st CD is higher than that of the 2nd CD.

Q. 18. You are thinking about investing your money in the stock market. You have the following three stocks in mind: Stock X, Y and Z. You know that the economy is expected to behave according to the following table. You believe the likelihood of each scenario is identical (all states of nature have equal probabilities). You also know the following about your two stocks.

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

Portfolio	XY	XZ	YZ
Correlation	-0.1639	-0.1098	+0.2441

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

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

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

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

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

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

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

Answer 18.

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

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

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

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

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

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

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

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

$COV(R_X, R_{P(Y,Z)})$ = 0.25 × (-0.2 – 0.175) x (0.0 – 0.3) + 0.25 x (0.1 – 0.175) x (0.125 – 0.03) + 0.25 x (0.3 - .175) x (-0.035 – 0.03) + 0.25 x (0.5 – 0.175) x (0.03 – 0.03)

= - 0.001

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

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

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

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

$= 0.0595$

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

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

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

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

$= 0.1308$

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

CV(X) = 0.2586/0.175 = 1.478

CV(Y) = 0.115/0.055 = 2.091

CV(Z) = 0.0456/0.005 = 9.12

CV(YZ) = 0.0595/0.03 = 1.983

CV(XYZ) = 0.1308/0.1025 = 1.276

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

Section II : Corporate Laws and Corporate Governance

Q. 19. (a) Can a member seek rectification of register of members before a Civil Court?

(b) The Memorandum of Association of a company was presented to the Registrar of Companies for registration and the Registrar issued the certificate of incorporation. After complying with all the legal formalities the company started a business according to the object clause, which was clearly an illegal business. The company contends that the nature of the business cannot be gone into as the certificate of incorporation is conclusive. The company's contention is correct or not?

(c) An allegation was leveled against Supreme Ltd. that the funds of the company are misused. Mr. Patni, one of the directors of the company wants to inspect the books of account of the company in order to ascertain whether the allegation was true. But since Mr. Patni does not have the knowledge of accounting, he appoints Mr. Ankur, his friend and practicing Cost Accountant to go through the books of account of the company on his behalf. The company seeks your advice as to whether Mr. Ankur may be allowed to inspect the books of account of the company on behalf of Mr. Patni as per the provisons of the Companies Act, 1956.

What would be your advice if Mr. Patni would have been a shareholder only and not a Director of the company?

Answer 19. (a)

There is nothing in section 111A which has the effect of taking away the common law right of a member of a company to seek rectification of register of members. At best, it could be said that after the insertion of section 111A, a member of a company has no statutory right under the Companies Act to seek rectification of register of members. His common law right, however, remains intact and he can assert that right by filling a suit before a Court of competent jurisdiction. Since the civil court is also held competent to entertain a suit for rectification of register of members at the instance of a member, it must be held logically that in such a suit, the civil court can also pass such orders as the CLB (now Tribunal) may pass in a proceeding under section 111A – **Shirish Finance & Investment (P) Ltd. v. M. Sreenivasulu Reddy [2002].**

Answer 19. (b)

The company's contention is not correct. Since, as per Section 35, certificates of incorporation is conclusive, but not memorandum, and accordingly any illegal object contained in the object clause of memorandum does not become a legal object because of operation of Section 35. Thus, if the business carried on by the company is an illegal one, the company, its directors, officers shall be liable for penalties as per law, and it shall not be a defence for the company that such business is contained in the memorandum of association.

Answer 19. (c)

Section 209(4) authorizes the directors of the company to inspect books of account and other books and papers maintained by the company during business hours either personally or through an agent. **Sugarbhai Alibhai v. Amtee Properties (P) Ltd. [1984].** But while allowing some other person to inspect the books of account of the company on behalf of any director, the Board of Directors of the company may take such reasonable undertaking from the person as it deems necessary and in the interest of the company. **M L Thukral v. Krone Communications Ltd. [1996].** From this discussion it can be concluded that Mr. Patni, being the director, can appoint Mr. Ankur to inspect the Books of Accounts of the company.

The statutory right of directors to inspect the books of account of the company cannot be restricted by making a provision in the articles. Being a statutory right, in the event of inspection being refused, it can be enforced through a petition. But it is important to note that the directors have no right to obtain a copy of the books of account.

In case Mr. Patni is the member of the company

As per the provisions of the Act the board shall from time to time determine whether and do what extent and at what times and placed and under what conditions or regulation, the accounts and books of the company, or any of them, shall be open to inspection of members not being directors. No member (not being a director) shall have any right to inspect books of account maintained by the company except as conferred by law or authorized by the board or by the company in general meeting.

In case Mr. Patni is a member of the company, he shall be able to inspect the books of account only if he is given such a right by ordinary resolution of the members or if authorized by the board. But in this case Mr. Patni would have to exercise the right personally and not through an agent.

Q. 20. (a) An unlisted public company, having a paid up equity share capital of ₹ 5.00 crores consisting of 50,00,000 equity shares of ₹ 10 each fully paid up, proposes to reduce the denomination of equity shares to less than ₹ 10 per share and make the initial public offer of equity shares at a premium. Examine whether it is possible for the company to issue shares at a denomination of less than ₹ 10 and if so, state the minimum issue price and other conditions to be fulfilled under the SEBI (Disclosure and Investor Protection) Guidelines, 2000.

(b) Moloy Ltd. (hereinafter referred to as "Seller"), manufacturer of plastic containers entered into an agreement with City Traders (hereinafter referred to as "purchaser"), for sale of its products. The agreements includes, among others, the following clauses :

(i) That the purchaser shall not deal with goods, products, articles, by whatever name called, manufactured by any person other than the seller.

(ii) That the purchaser shall not sale the goods manufactured by the Seller outside the municipal limits of the city of Kolkata.

(iii) That the purchaser shall sale the goods manufactured by the seller at the price as embossed on the label of the plastic container. However, the purchaser is allowed to sale the containers at price lower than those embossed on the price label.

Answer 20. (a)

Regulation 31 of the Securities and Exchange Board of India (Issue of Capital and Disclosure Requirements) Regulations, 2009 provides that an issuer making an initial public offer may determine the face value of the equity shares in the following manner :

(i) If the issue price per equity share is five hundred rupees or more, the issuer shall have the option to determine the face value at less than ten rupees per equity share :

Provided that the face value shall not be less than one rupee per equity share;

(ii) If the issue price per equity share is less than five hundred rupees, the face value of the equity shares shall be ten rupees per equity share :

Provided that nothing contained in this sub-regulation shall apply to initial public offer made by any government company, statutory authority or corporation or any special purpose vehicle set up by any of them, which is engaged in infrastructure sector.

Therefore, the amount of premium proposed to be changed by the company will be determining factor for the face value of shares.

Answer 20. (b)

Section 3(1) of the Competition Act, 2002 prohibits any agreement for goods and/or services that may have an appreciable adverse effect on competition in India and Section 3(2) of the said Act provides that any agreement entered into in contravention of provision of section 3(1) of the said Act shall be void.

Section 3(3) and 3(4) describe the agreements which are to be treated as contravening the provisions of the said section 3(1). As per section 3(4), any agreement among enterprises at different stages 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 including the following shall be treated as agreements in contravention of the said section 3(1) :

(i) Tie-in arrangement

(ii) Exclusive supply agreement

(iii) Exclusive distribution agreement

(iv) Refusal to deal

(v) Re-sale price maintenance

The clauses of the agreement given in the question are covered by above-mentioned provisions.

Clause at (i) comes under exclusive supply agreement; Clause at (ii) comes under exclusive distribution agreement and Clause at (iii) is covered by re-sale price maintenance.

According to explanation (b), exclusive supply agreement includes any agreement restricting in any manner, the purchaser in the course of his trade from acquiring or otherwise dealing in any goods other than those of the seller or any other person.

According to explanation (e), "resale maintenance" include any agreement to sell goods on condition that the price to be charged on the resale by the purchaser shall be the price stipulated by the seller unless it is clearly stated that prices lower than those prices may be charged.

Thus, in view of the above provisions, validity of the clauses of the agreement as given in the question can be determined as follows :

(i) Clause (i) restricts the purchaser to deal in the goods of manufacturers other than the seller. Hence, this is in contravention of the provisions of section 3(1) of the said Act.

(ii) Clause (ii) restricts the purchaser to sell the goods within a specified area. Hence this is in contravention of the provision of section 3(1) of the said Act.

(iii) Clause (iii) stipulates the resale price, but it allows the purchaser to sell the goods at lower prices than the stipulated price. Hence this is a valid clause.

But, the Act provides that an agreement containing any of the prohibited clauses shall be void. Therefore, even if the agreement contains some valid clauses, it shall still be termed as void.

Q. 21. Following information is available from the audited Balance Sheet as at 31st March, 2012 of Success Ltd.

Liabilities	₹	***Assets***	₹
Share capital : Equity share capital (5,00,000 shares of ₹ 10 each fully paid up in cash)	**50,00,000**	**Goodwill**	**10,00,000**
Less : Calls in arrear	**50,000**	**Land and building**	**75,00,000**
	49,50,000	**Plant and machinery**	**1,50,00,000**
Preference share capital	**15,00,000**	**Furniture and other assets**	**2,50,000**
Share application money	**10,00,000**	***Investments* :**	
***Reserves and surplus* :**		**Investment in wholly owned subsidiary company TCS Ltd.**	**12,50,000**
Securities premium	**15,00,000**	**Equity shares representing 90% share capital of BHEL Ltd.**	**4,50,000**

Capital redemption reserve	**10,00,000**	**Debentures in FCI Ltd.**	**12,00,000**
Fixed asset revaluation reserve	**10,50,000**	**Preference shares in ITC Ltd.**	**5,00,000**
Sinking fund reserve	**11,00,000**	**Capital A/c. balance in Partnership firm ABC & Co.**	**8,00,000**
General reserve	**40,00,000**	***Current assets* :**	
Profit and loss account	**22,00,000**	**Stocks and book debts**	**14,00,000**
Dividend equalization reserve	**6,00,000**	**Cash and bank balance**	**1,00,000**
Cash credit from bank	**1,00,00,000**	***Loans and advances* :**	
Fixed deposit from public – maturing after 31.12.2012	**20,00,000**	**Inter corporate deposit**	**25,00,000**
Current liabilities	**12,50,000**	**Business advances**	**14,00,000**
Provision for taxation	**12,00,000**		
	3,33,50,000		**3,33,50,000**

The directors of the company want to make further investments stated below by taking a decision in the meeting of Board of Directors without seeking approval of the shareholders :

(i) Loan to TCS Ltd. ₹ 25,00,000

(ii) Loan to BHEL Ltd. ₹ 15,00,000

(iii) Purchase of further debentures in FCI Ltd. ₹ 8,00,000

(iv) Purchase of shares from the open market in Reliance Ltd. ₹ 15,00,000

You are required to state, with reference to the relevant provisions of the Companies Act, 1956, whether the directors can do so and mention the relevant calculations.

Answer 21.

Limit for inter-corporate loans etc.

Section 372A(1) provides that the Board of directors of a company may, directly or indirectly –

(i) Make any loan to any body corporate

(ii) Given any other person to, or to any other person by, any body corporate; and

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

Upto sixty percent of the paid-up share capital and free reserves, or hundred per cent of its free reserves whichever is more.

Where the aggregate of the loans and investments so far made, the amounts for which guarantee or security so far provided to or in all other bodies corporate, along with the investment, loan, guarantee or security proposed to be made or given by the Board, exceeds 60% of the aggregate of the paid up capital and free reserves or 100% of free reserves, whichever is more, then no investment or loan shall be made or guarantee shall be given or security shall be provided unless previously authorized by a special resolution passed in a general meeting.

Prior approval of PFI

According to section 372A(2), a public company shall not make any loan or investment or provide any security or guarantee except with the prior approval of the public financial institution referred to in section 4A where any term loan is subsisting but prior approval or public financial institution will not be required if –

(i) The aggregate of loans or investments so made or the amount for which security or guarantee is provided to or in all other bodies corporate together with the loans or investments to be made or

security or guarantee to be provided does not exceed 60% of the aggregate of the company's paid-up capital and free reserves; and

(ii) There is no default in repayment of loan installment or payment of interest thereon as per the terms and conditions of the loan agreement.

Particulars	₹
Equity share capital (5,00,000 shares of ₹ 10 each fully paid up in cash)	50,00,000
Less : Calls in arrear	50,000
	49,50,000
Preference share capital	15,00,000
Total of paid share capital	64,50,000
Free reserves : Securities Premium Account	15,00,000
General reserves	40,00,000
Profit and loss account	22,00,000
Dividend equalization reserve	6,00,000
Total free reserves	**83,00,000**

As per explanation to the said section, "Free Reserves" means those reserves which, as per the latest audited balance sheet of the company, are free for distribution as dividend and shall include balance to the credit of the securities premium account but shall not include share application money.

Accordingly, for the purpose of calculating the amount of free reserves, the amounts lying in the accounts of Share Application Money and reserves not available for distribution as dividend being Capital Redemption Reserves, Fixed Assets Revaluation Reserve and Sinking Fund Reserve are excluded.

(i) Computation of the limit :

	₹
Total of paid up share capital and free reserves	1,47,50,000
Ceiling limit for investments :	
60% of paid up share capital and free reserves (i.e. 60% of ₹ 1,47,50,000)	88,50,000
100% of free reserves (i.e. 100% of ₹ 83,00,000)	83,00,000

Since 60% of paid up share capital and free reserves is ₹ 88,50,000 which is higher than 100% of free reserves, the directors of Success Ltd., can advance loans and make investments in other bodies corporate upto a total limit of ₹ 88,50,000 without obtaining prior approval from the shareholders.

For arriving at a decision for further investments, the extent of present investment is to be determined and the directors can make further loans and investments upto the residual amount.

The present investments and loans of Success Ltd. calculated as per the provisions of section 372A of the Companies Act, 1956 are as follows :

Computation of the limit of the Board of Directors for the proposed investment :

Equity shares in wholly owned "subsidiary company" – TCS Ltd. (not to be counted since as per provisions of section 372(8)(e), investments in wholly owned subsidiary company is outside the purview of this section)	
Equity share representing 90% share capital of BHEL Ltd.	4,50,000
Debentures in FCI Ltd.	12,00,000
Preference shares in ITC Ltd.	5,00,000
Inter-corporate deposits	25,00,000

Total investments of Success Ltd. within the meaning of section 372A	46,50,000
Limit upto which directors can make investments as calculated above	88,50,000
Less : Existing investments	46,50,000
Further investments which directors can make without shareholders' special resolution	42,00,000

Proposed additional investment within the meaning of section 372A is to be calculated as follows :

Loan to TCS Ltd.—(not to be counted since as per provisions of section 372 (8)(c) loan to wholly owned subsidiary company is outside the purview of this section)	
Loan to BHEL Ltd.	15,00,000
Purchase of further debentures in FCI Ltd.	8,00,000
Purchase of share from the open market in Reliance Ltd.	15,00,000
Total	**38,00,000**

Since the proposed additional investment is within the amount permissible as calculated above, the directors, by passing a unanimous resolution in a Board Meeting, can make the proposed additional investment. Since the total investments do not exceed the limit as calculated above, the directors are not required to obtain the approval of shareholder. In absence of any term loan from any public financial institution, the question of their permission does not arise. Moreover, the fixed deposits from public are not yet due for repayment and hence there is no default on this account. In the light of above, it can be concluded that the directors can make the proposed investments.

Q. 22. (a) Modern builders Ltd. decided to pay 3.5% of the value of Debentures as Underwriting Commission to the Underwriters but the Articles of the Company authorize only 3% Underwriting Commission on debentures. The Company further decides to pay the Underwriting Commission in the form of Flats. Examine the validity of the arrangements under the provisions of the Companies Act, 1956.

(b) A limited company issued certain number of fully paid shares 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? Decide with reference to the provisions of the Companies Act, 1956.

Answer 22. (a)

As per Section 76 of the Companies Act, 1956, the payment of Underwriting Commission should be authorized by the Company's Articles of Association (AOA). An authority in the Memorandum of Association (MOA) is not sufficient. [**Republic of Bolivia Exploration Syndicate Ltd.**]. Any amount prescribed by AOA, (even if it is lesser than the rates prescribed) shall be the maximum amount that can be paid by way of Underwriting Commission. Underwriting commission, subject to above limits, may be paid – (i) in cash, or (ii) in kind or (ii) as lump sum, or (iv) by way of percentage. [**Booth *vs*. New African Gold Mining Co.**]

In the given case :

Modern Builders should pay maximum 3% (as prescribed by AOA) as Underwriting Commission.

The company can pay the Underwriting Commission in the Form of Flats, if there is no prohibition in the AOA.

Answer 22. (b)

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. If the company has allotted shares for part of the

face value, it may issue call notice for the balance money in one or more installments. So, 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.

If the consideration for the shares has been received by the company in a form other than cash (i.e. Promissory Note), and 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 under P/N. It cannot forfeit those shares after 5 years from the date of allotment.

Right to recover call money expires 3 years after the date of allotment. Forfeiture after this period is hence, invalid. [**K Md. Farooq Ahmed *vs*. FC Electronics (P) Ltd.**].

Q. 23. (a) Ram, a member of Bharat Ltd., appoints Laxman as his Proxy to attend the General Meeting of the Company. Later he (Ram) also attends the meeting. Both Ram and Laxman voted on a particular resolution in the Meeting. Ram's vote was declared invalid by the Chairman stating that since he has appointed the Proxy and Laxman's vote has been considered as valid. Ram objects to the decision of the Chairman. Decide, whether Ram's objection is valid.

(b) After serious disagreement and difference of opinion among the share-holders of the company in the last annual general meeting, some of the directors took the steps as noted below. Discuss the validity and effect of the following :

(i) Mr. A, the managing director sends his notice of resignation

(ii) Mr. B, an ordinary director verbally resigns and not in writing.

(iii) Mr. C, another ordinary director, had sent his resignation, but withdrew it before the board meeting was held for accepting his resignation.

Answer 23. (a)

The right of the shareholder to vote in person is paramount to the right of the Proxy. Presence of shareholder does not avoid the instrument of Proxy, but if he votes before his proxy has voted for him, he impliedly revokes the proxy. A shareholder has a right to revoke the proxy's authority by voting himself before the proxy has revoked **[Knight vs Bulkeley].**

But once the proxy has voted, the member cannot retract his authority. **[Cousins *vs.* International Brick Co. Ltd.]**

If the member has voted before the proxy, his vote is valid. If the proxy has voted already, the member cannot retract his authority.

In the given case :

If Ram has voted before Laxman, his vote is valid. If Laxman has voted already, Ram cannot retract his authority.

Answer 23. (b)

The resignation takes effect immediately without any need for its acceptance where the articles do not contain any provision relating to resignation of directors or where the articles allow the director to resign at any time. However, a managing director cannot resign by merely sending a resignation. His resignation becomes effective only when the company accepts the resignation and relieves him from the office. This is because he occupies two positions, viz., one that of a director and other that of an employee of the company. An employee cannot resign at his pleasure by giving notice. Instead, his resignation is required to be approved and accepted by the company to relieve him from his duties and responsibilities **[Achutha Pai *vs.* ROC (1966)].**

Any form of resignation, whether oral or written, is sufficient, provided the intention to resign is clear. However, it is advisable that the resignation is in writing and states the time form which it is to take effect. A verbal resignation shall be effective, if it is made in the general meeting and is accepted at the general meeting **[Latchford Premier Cinema Ltd. *vs.* Ennion (1931)].** A resignation once made cannot be withdrawn except with the consent of the shareholders or the Board of directors even if such withdrawal is sought before the general meeting or the Board considers the resignation **[Glossop *vs.* Glossop (1907).**

Thus, in the given case,

(i) The managing director, Mr. A, cannot resign merely by giving a notice. He shall continue as managing director until his resignation is accepted.

(ii) Mr. B is an ordinary director and so a verbal notice of resignation is sufficient in his case. The resignation shall be effective from the date of notice of resignation.

(iii) Mr. C, cannot withdraw his resignation without the consent of the company even though such withdrawal was sought before the Board considered his resignation.

Q. 24. (a) A scheme of amalgamation was approved by overwhelming majority of members of both the merging companies. The exchange ratio was fixed by a firm of reputed Chartered Accountants. When the scheme of amalgamation awaiting sanction of the court, the exchange ratio was questioned by a small group of dissenting shareholders of the merging companies. Examine with reference to decided case law whether the objection is likely to be sustained. What would be your answer in case similar objection was raised by the Central Government and not by the members of the merging companies.

(b) Referring to the provision of the Companies Act, 1956, as contained in section 397 of the Act, examine whether the following acts of the company amount to oppression?

(i) Allotment of shares by the directors of the company by which the existing majority is reduced to minority.

(ii) Allotment of shares by the directors by which the existing minority shareholders are made to majority?

Answer 24. (a)

On an application made to the court for sanctioning a scheme of amalgamation or reconstruction, the court may make an order sanctioning it. Once statutory formalities are complied with, the onus lies on those opposing the scheme to satisfy the court that the scheme is unfair or unreasonable or fraudulent **[Re. Hindustan General Electric Corporation Ltd. (1959); Re. Sussex Brick Co Ltd. (1960)]**.

Where, the valuation is confirmed to be fair by eminent firm of Chartered Accountants and is also approved by overwhelming majority, the court will not find fault with the exchange ratio **[Re. Tata Oil Mills Co. Ltd., Re. Hindustan Lever Ltd.]**.

Where the exchange ratio was fixed by two reputed firms of Chartered Accountants who had examined the accounts, annual reports, working results and financial positions of the two companies and certified on that basis that the share exchange ratio of 5:2 was fair and reasonable, and the scheme was widely advertised, unanimously approved and no objection was raised by any of the affected quarters, and the Central Government had not affirmatively established that the valuation of assets was unfair or inequitable, the court refused to interfere **[M . G. Investment & Industrial Co. Ltd. vs. New Shorrock Spg. & Mfg. Co. Ltd.]**

Thus, if an overall consideration the court is satisfied as to feasibility of the scheme, it should not hesitate to grant sanction **[Re. Ucal Fuel Systems Ltd.]**.

Applying the above court rulings, the given problems are answered as under :

(i) The dissenting shareholders shall not succeed unless they satisfy the court that the valuation is grossly unfair **[Re. Piramal Spg. & Wvg. Mills Ltd.]**.

(ii) Even if exchange ratio is objected by the Central Government, the court may sanction the scheme, since the representation or opinion made by the Central Government to the court under section 394A is not binding on the court.

Answer 24. (b)

Issue of further shares amounts to oppression if it is proved that the idea of issuing further shares was to benefit one group to the detriment of the other **[Piercy *vs.* Mill(s) & Co. (1920)]**. Further issue of shares must be made for the benefit of the company. If the directors use their fiduciary power of issuing of shares for an extraneous purpose like maintenance or acquisition of control over the affairs of the company, it would amount to oppression **[Needle Industries Case]**. It is not open to the directors to issue and allot shares in a manner by which an existing majority of shareholders is reduced to a minority. If the issue of shares disturbs the existing majority of the shareholders and if it is not bonafide, it will amount to oppression **[Re, Gluco Series (P) Ltd.]**.

Thus,

(i) Allotment of shares by the directors of the company by which the existing majority is reduced to minority shall amount to oppression, if the directors have acted malafide.

(ii) Allotment of shares by the directors by which the existing minority shareholders are made to majority shall amount to oppression, if the directors have acted malafide.

Q. 25. (a) Examine with reference to the provisions of the Companies Act, 1956 whether winding up can be ordered by the Court in case the Board of directors of the company decides to discontinue one of its business. Would your answer differ in case the company suspends the entire business? Explain.

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

Answer 25. (a)

If a company does not commence its business within 1 year from its incorporation or suspends its business for one year, the Court may order the company to be wounded up. **[Section 433 (c)].**

Where a company having many businesses discontinues one of them, it cannot be said to have suspended its business. For invoking section 433 (c), it must be shown that the entire business of the company has been suspended **[Paramjit Lal Badhwar *vs.* Prem Spg. & Wvg. Mills Ltd. (1986)].**

In the present case, the company decided to discontinue one of its businesses. Since the discontinuance of business relates only to a part of the business of the company, it cannot be a ground for winding up by the court.

In case the company suspends the entire business and such suspension continues for one year, the conditions prescribed under section 433 (c) will be satisfied and the court shall have the jurisdiction to order winding up of the company. However, the court may examine whether it will be possible for the company to resume its business **[Paramjit Lal Badhwar *vs.* Prem Spg. & Wvg. Mills Ltd. (1986)].** The court shall have the discretion to order the winding up since section 433 does not confer on any person a right to seek a winding up order.

Answer 25. (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.

Q. 26. (a) In respect of The Right to Information Act, give the definition of the following :

(i) Competent Authority

(ii) Appropriate Government

(b) On ABC Company Ltd.'s inability to pay debts, the company was placed under winding up. Thereafter, a scheme for reviving the company was proposed by 80% of the shareholders. After that, a better scheme was proposed by D an outsider who agreed to purchase 80% shares and to satisfy the creditors by paying their debts. The scheme was accepted by the parties concerned and was also acted upon by them. A better scheme was later on proposed by J, who wanted the court to accord its approval to the scheme. D objects to the proposal made by J on the ground that when the proposal made by the former (D) was already accepted and he (D) had acted upon it, the proposal made by J had no validity. Decide giving reasons and referring to the provisions of the Companies Act, 1956 :

(i) Whether D's objection will sustain?

(ii) Whether the court will be justified in rejecting the proposal made by J?

Answer 26. (a)

(i) "Competent Authority" means—

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

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

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

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

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

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

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

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

Answer 26. (b)

In the given case, a scheme for revival of a company which was placed under winding up, was proposed by 80% of the shareholders. After that a better scheme was proposed by D, an outsider which was accepted and implemented. Thereafter 'J' came with another proposal for arrangement. Now the problem is that whether J's proposal can be rejected by the court on the ground that D's proposal has already been acted upon. The question is based on the facts of the case law **H.L. Seth *vs.* Wearall Cycle Co. (India) Ltd.** which are as follows :

Wearwell Cycle Company was under winding up. M & A were two outsiders who made an agreement with Director of the company, Mr. H L Seth for purchase of 75% shares and payment of liabilities of the company, thereby facilitating its revival and made some payments to creditors and an account payments to Mr. Seth for shares. Accordingly, M & A made some payments in this regard. Later on, Kelvinator of India Ltd. also jumped into the fray coming up with its own scheme for revival of the company and in that it was joined by one of the shareholders of the company. Subsequently, the matter was taken to the court. The court directed that, meetings of the members and creditors of the Company will be called on stipulated dates to consider both the schemes proposed by M & A, and Kelvinator of India Ltd., respectively. M & A will be treated as shareholders and creditors for the respective payments made by them for the same because their agreement with Mr. Seth was bonafide and are entitled to vote thereat. Therefore, the court has, ultimately, enjoined upon the company to hold meetings to consider the two schemes and finally accept one of the two schemes through special resolution.

The above decision is in line with the provisions of Section 391(1) of the Companies Act, 1956, which says that where a compromise or arrangement or proposal (a) between a company and its creditors or any class of them; or (b) between a company and its members or any class of them; the court may, on the application of the company or of any creditor or member of the company, or in the case of a company which is being wound up, of the liquidator, order a meeting of the creditors or class of creditors, or of the members, or class of members, as the case may be, to be called, held and conducted in such manner as the court directs.

Accordingly, in the given case, D's contention that J's scheme should altogether be rejected on the ground that his scheme has already been acted upon, does not hamper the rights of the shareholders/ creditors to decide regarding any scheme of arrangement and hence, will not sustain and the court is not justified in rejecting the proposal made by J. Rather it should refer both the schemes to the meeting(s) to be called upon under section 391 and let the matter be decided by the shareholders/ creditors themselves. As far as the payments made by D for implementation of his scheme are concerned, he may be treated as shareholder or creditor in the said meeting(s) for the respective amount paid under his scheme.

Q. 27. (a) ABC Ltd. was allotted shares of XYZ Ltd. But ABC Ltd. claimed that it had not been issued a share certificate despite repeated requests for the same. But XYZ Ltd. contended that a Director of ABC Ltd. had taken personal delivery of the certificate. How can this matter be resolved ? Discuss with reference to Case Law, if any.

(b) "A good Corporate Governance should have certain basic principles", Enumerate them.

Answer 27. (a)

If the company had failed to deliver the share certificate in spite of repeated demands and the Petitioner approached the CLB seeking directions against the company for delivery of share certificates, the company's argument on the ground that the Director of the Petitioner took physical delivery of share certificates of the company is acceptable upon submission of a conclusive proof. However, the burden of proving delivery of the share certificates is on the company and on failure of proving so, the company is not discharged. It has to deliver the share certificates specifically to the Petitioner. If XYZ Ltd. is unable to prove that a Director of ABC Ltd. had taken personal delivery of the share certificate, it must issue a fresh share certificate. **[Cardiff Chemicals Ltd. *vs.* Fortune Bio-Tech Ltd.].**

Answer 27. (b)

Principles of corporate governance : A good corporate governance should include the following principles :

(i) **Review of Operation**—There should be review of operations of the company at a regular interval. It may include comparison of monthly/quarterly production and sales targets with actual, cash flow analysis, etc.

(ii) **Compliance with Statutory and Regulatory Requirements**— The Board should ensure compliance with various statutory and regulatory requirements. It may include clearance of statutory dues, compliance with FERA regulations, following suitable accounting policies and standards, etc.

(iii) **Appointment of various committees**—There should be appointment of various committee to look after different matters. There can be following committees—(a) Audit Committee, (b) Grievance Committees, (c) Remuneration Committee and (d) Investment Committee, etc.

(a) *Audit committee*—It should meet periodically to review the effectiveness of the system of internal controls and reports to shareholders.

(b) *Grievance committee*—It should look after the grievances from customers, suppliers, creditors in respect of price, quality, discount, etc. It should also look after the problems of executives/ employees of the organization.

(c) *Remuneration committee*—Its role should be to fix remuneration of non-executive directors. It may be fixed in relation to company performance.

(d) *Investment committee*—It should look after the investment decisions. It should be in accordance with the guidelines approved by the Board. Shareholders expect that investment decisions are judicious and do not incur any losses, which affect shareholder's interest.

(iv) **Contribution of employees' Union**—Employees or worker's union should also contribute significantly to good corporate behaviour by promoting work culture. In this case, inclusion of employees or worker's representative on the board may be thought of.

(v) **Contribution to Community Development**—A good corporate governance should help community development programme by active participation. It should adopt measures for pollution control, and follow fair and ethical business practices. Good corporate governance calls for accountability for all concerned. The Shareholders, directors, auditors, executives, advisers and other staff who are associated with the working of the corporate should combine their efforts to improve the system and ensure good management practices.

It can, thus, be stated that a joint stock company is of the shareholders, and has to be controlled by the shareholders and run by Boards and managers for the shareholders. The process of corporate governance has to be consistent with this, and nothing else.

Q. 28. (a) Critically discuss the role of stakeholders in corporate governance.

(b) A company issues 20 partly-paid equity shares and registered them in the name of the minor describing him as minor. The father of the minor signed the application on the minor's behalf. After some time, the company went into liquidation. The company filed a suit against father of the minor to recover the remaining amount on the shares. Whether the company will succeed? Advice.

(c) Hero Cycle Ltd. has received an application for transfer of 1500 equity shares of ₹ 10 each fully-paid up in favour of Mithun. On scrutiny of the application form, it was found that the applicant is a minor. Advice the company regarding the contractual liability of the minor and whether shares can be allotted to Mithun by way of transfer.

Answer 28. (a)

The corporate governance framework should recognize the rights of stakeholders as established by law and encourage active co-operation between corporations and stakeholders in creating wealth, jobs and the sustainability of financially sound enterprises.

(i) The corporate governance framework should assure that the rights of stakeholders that are protected by law are respected.

(ii) Where stakeholder interests are protected by law, stakeholders should have the opportunity to obtain effective redress for violation of their rights.

(iii) The corporate governance framework should permit performance-enhancing mechanisms for stakeholder participation.

(iv) Where stakeholders participate in the corporate governance process, they should have access to relevant information.

Answer 28. (b)

If an application is made by a father as guardian of his minor child and the company registers the shares in the name of the minor child, both the minor and the guardian cannot be placed on the list of contributors at the time of winding – up. The father who signed the application on the minor's behalf could not be treated as having contracted for shares, as such he could not be placed on the list of contributors when the company goes in liquidation.

Answer 28. (c)

Minor can become a member of a company by acquiring shares (by way of transfer) provided the shares are fully paid-up and no further obligation or liability is attached to them. The company can grant membership to the transferee (i.e. Mithun), a minor, because the shares are fully paid-up and no further liability or obligation is attached to them. **[Devan Singh *vs.* Minerva Films Ltd., S. L. Bagree *vs.* Britannia Industries Ltd.]**.

Q. 29. (a) Bridgestone Ltd. is an infrastructure company with paid up capital and free reserves of ₹ 2 crores and one crore respectively. The board of Directors granted a loan of ₹ 50 lacs to ABC Ltd. and also gave a guarantee to IFCI for a loan of ₹ 1 crore to MNP Co. Bridgestone Ltd. has not given any other loa or guarantee to any one. A group of shareholders of Bridgestone Ltd. objected to the above deals on the ground that they are violative of the provisions of the Companies Act, 1956. Applying the provisions of the said enactment relating to inter-corporate loans and investments in the given case, decide :

(i) Whether the objection raised by the shareholders is tenable?

(ii) Would your answer be the same in case the amount of loan granted is ₹ one and half crores?

(iii) What would be your answer in case Bridgestone Ltd. is a private company not being the subsidiary of any public limited company?

(b) Rainbow Ltd. decided to terminate the services of Mr. Narayanan, who was employed as HR Manager. However, the company feels that the HR Manager may not vacate the company's accommodation at Hyderabad. What action can be taken by the company under Copmanies Act, 1956 to regain possession of the accommodation? Is it necessary to take such action under the Companies Act before terminating the services of Mr. Narayanan? Will it make any difference, if the accommodation is not owned by the company, but taken on lease?

Answer 29. (a)

According to section 372A(1) the Board of Directors of the company is authorized to make inter-corporate loans, Investments and provide inter-corporate guarantees and securities upto 60% of the aggregate of paid-up capital and free reserves or 100% of free reserves, whichever is more. If this limit is to be exceeded it requires prior approval of members by way of a special resolution. By virtue of section 372A(8), provisions of the section are not applicable to infrastructure companies.

Thus applying the above provisions in the given case the answers to the questions shall be as under :

(i) Since provisions of section 372A are not applicable to an infrastructure company, the objection raised by the shareholders of Bridgestone Ltd. is not tenable.

(ii) In the second case also the answer remains the same as the Company is exempted from the provisions of Section 372A.

(iii) Even in the third case the provisions of Section 372A do not apply to a private company, unless it is a subsidiary of a Public Company. Thus if Bridgestone is a private company, not being a subsidiary of a public company, it can grant loans or provide guarantee without complying with the restrictions stated in section 372A. the guarantee given by a holding company in respect of loan made to the wholly owned subsidiary company is valid since the provisions of section 372A do not apply in this case also.

Answer 29. (b)

An officer or employee of a company shall be punishable with the fine which may extend to ₹ 10,000 in the following cases :

(i) Where he wrongfully obtains possessions of any property of a company; or

(ii) Where he being in the possession of any property of the company, wrongfully withholds it or knowingly applies it to purposes other than those expressed or directed in the articles and authorized by this Act.

The Court may order him to deliver any such property within a time to be fixed by the Court :

The question raised in the present case are answered as follows :

(i) The company can file a complaint under section 630 requesting the Court to make an order for delivering the possession of the property to the company.

(ii) The Supreme Court has held that section 630 applies both to existing officers or employees and past officers or employees **[Baldev Krishna Sahi *vs.* Shipping Corporation of India Ltd. (1987)].** Therefore, complaint under section 630 can be filed even if the services of Mr. Narayanan have been terminated.

Section 630 does not concern the asset of title, but it is exclusively confined to the aspect of possession. Accordingly, section 630 shall apply to a property, which does not belong to the company, but in respect of which the company is in exclusive possession. Accordingly, the company can make a complaint under section 630 even of the company is not the owner of the property but only has a leasehold right **[Kannankadi Gopal Krishna Nair *vs.* Prakash Chunder Juneja (1994)].**

Q. 30. (a) ABC Ltd. had taken a loan of ₹ 2 crores from a bank secured by some of its assets. The company has defaulted in the matter of payment of some installments of loan as per terms of the loan agreement. The bank has filed a petition in the High Court on the ground that the company is unable to pay its debts.

The company opposes the petition for winding up on the ground that it has employed 1,000 workers, paid their salaries regularly and that it has paid all the tax dues to the Government. The company has further contended that if the company is compelled to repay the loan immediately, it will cripple the company causing hardship to employees and other persons having business dealings with the company. The company is also supported by some major creditors.

Explain the circumstances under which a company may be ordered to be wound up by the Court on the ground of inability to pay its debts and whether the bank will succeed in this case.

(b) A, daughter of managing director of a limited company, was promoted as vice-president of the company. The appointment of A earlier to various other posts were approved by the Board and in the general meetings of the company. When the question of promotion of A came before the Board, the managing director did not disclose his interest. Discuss the implications.

Answer 30. (a)

The Court may order the winding up of a company under any of the circumstances mentioned under section 433(a) to (f). Section 433(e) provides that a company may be wound up by the Court if it is unable to pay its debts. As per section 434, a company shall be deemed to be unable to pay its debts in the following circumstances :

(i) When a company fails in paying its debts exceeding ₹ 500 within 3 weeks from the date of demand by its creditors.

(ii) When the company fails to satisfy a Court decree in favour of a creditor, whether whole or in part.

(iii) When it is proved that the company is unable to pay its debts.

Applying the principles laid down in **Tata Iron and Steel Co. *vs*. Micro Forge (India) Ltd. (2000)** to the given case, it is very likely that the Court would order winding up of the company because of the following reasons :

(i) Section 433 is indicative of the fact that even if one or more grounds mentioned in section 433 exist, it is not obligatory for the court to make an order of winding up. The court has discretionary power. The court must in each case exercise its discretion in dealing whether in the circumstances of the case, it would be in the interest of justice to wind up the company. The court would take into consideration the entire status and position of the company in the market, and the element of public policy.

(ii) The company has employed 1,000 workers and is paying their salaries regularly. Winding up the company would mean loss of employment to the existing employees. It would also result in diminishing employment opportunities.

(iii) The company is paying taxes to the Government regularly. Winding up order would result in loss of revenue to the Government.

(iv) The other creditors of the company have opposed the winding up petition which means that winding up order would not benefit the company's creditors in general. Therefore, winding up order shall not be made on a creditor's petition.

(v) The company seems to be in a temporary cash crisis. The court would give the company some time to come out of the momentary financial crisis.

(vi) The company is an ongoing concern having regular business and employment of employees. The effect of winding up would be of putting an end to the business resulting in loss of employment to several employees and loss of production and effect on the larger interest of the society.

Answer 30. (b)

Every director who is anyway, directly or indirectly, interested in a contract or arrangement shall disclose the nature of his interest (Section 299).

Where the whole body of directors is aware of interest of a director, a formal disclosure is not necessary. **[Venkatachalapati *vs*. Guntur Mills (1929)].**

The daughter of a managing director was proposed to be appointed as vice president. The director did not make a disclosure of his interest at the time of appointment. However, on earlier occasions, the managing director had disclosed his interest and had abstained from voting. Thus, the whole body of directors were already aware of this fact. It was held that the non-disclosure at this occasion did not amount to contravention of section 299, even though no formal disclosure was made at the time of appointment **[A. Sivasailem *vs*. Registrar (1995)].**

The facts of the given case are identical to that of **A. Sivasilem *vs.* Registrar** and therefore the managing director is not required to formally disclose his interest. It is implied that the Board is aware of the relationship of "A" and the managing director. Thus, the managing director has not violated the provisions of the Act. However, the managing director must not vote on the contract and if he does vote, his vote shall be void.