

**XLRI JAMSHEDPUR – PGP BMI, MID-TERM EXAMINATION SOLUTION**

Please give your answers below with reasoning for the same (at least a sentence). Answers without supporting reasoning/logic will not be acceptable.

**SECTION I**

[Total Marks: 8, Each Correct Answer: + 1 mark, Each Wrong Answer: - 1 mark]

***Identifying Value Creators Case Was Solved in The Class (Hence detailed solution is not provided)***

1. 'Even though the company had added value in the current period, investors were not optimistic about the future.' This statement is perfectly correct for:

(a) Ford in the year 2000

**(b) Hyundai in the year 2000**

(c) Both (a) and (b)

(d) None of the above

Although EVA turned out to be positive in 2000, MVA and market value of equity declined, indicating that even though the company added value the above happened

2. In case of \_\_\_\_\_ company, we can more confidently state that the return of invested capital fell short of its capital costs.

(a) Ford Motor Co.

(b) Hyundai Motor Co.

**(c) Simon Property Group**

(d) Ayala Land Inc.

In case of Simon, even though NOPAT continues to increase ... its EVA remained negative throughout the period.

3. Growth investments are investments in high growth companies (say, Infosys and Bharti Tele). Value investments are the opposite. Examples of value investment include most Indian fertilizer and financial services companies (say, Coromandal Fertilizers and Ashok Leyland Finance). So, w.r.t. our case, we can state that \_\_\_\_\_ firm is a good value investment opportunity:

(a) Ford Motor Co.

**(b) Hyundai Motor Co.**

(c) Simon Property Group

(d) Ayala Land Inc.

Although, Hyundai had generated a positive EVA its MVA remain at pathetic levels

4. Which of this do you agree to:

(a) In general, the value measures seem to be more consistent and correlated with each other for Ayala Land Inc (than Simon Property Group)

(b) In general, the value measures seem to be more consistent and correlated with each other for Ford Motor Co (than Hyundai Motor Co.)

**(c) Both (a) and (b)**

(d) None of the above

5. Which of this do you agree to:
- (a) Compared to Coca-cola, investors were relatively more optimistic about Nesmal's ability to generate positive and high EVA in the future
  - (b) Nesmal was comparatively overvalued than Coca-cola in capital market in 2000
  - (c) Both (a) and (b) i.e., either one of them or both of them
  - (d) None of the above**
6. What could be the essential reasons that both the real estate companies seem to having negative EVAs and Positive MVAs (explain within the space below):
- ✓ In real estate companies, a straightforward application of the EVA concept may create more problems. This is because capital appreciation often forms a major component of total returns from properties. Thus the initial yield from properties is low and often falls below the cost of capital. As such a negative EVA does not necessarily imply value destruction.
  - ✓ This might also suggest that the stocks were significantly overvalued in the marketplace at the time, OR
  - ✓ That investors were overly optimistic about the ability of the firms to generate positive EVA in the future.
7. If real estate companies make their decisions based on EVA, what would be the foreseeable impact on allocation of capital resources for projects of different time span.
- For Perfect Explanation i.e., both the points – Please Reward One Extra Mark***
- ✓ Then there would be a reallocation of scarce capital resources from projects with a long investment horizon to projects with a shorter investment horizon.
  - ✓ The advantages of an aggressive land banking strategy or investing in major development projects may also become less obvious.
8. What could be reason for differences (if any) between Asian and American firms (within the space below)
- For Perfect Explanation i.e., at least two of the points – Please Reward One Extra Mark***
- ✓ There are lot of differences, say size, lower risk free rate of return, lower risk premia, capital structure and there are multiple other reasons for the same like Accounting Standards / GAAP)

## **SECTION II**

### **1. Case: The Cost of Capital of Nagarjuna Fertilizers**

Mini Case Section: **THE COST OF CAPITAL OF NAGARJUNA FERTILIZERS**

#### **SOLUTION:**

We have used Beta with 5 year Weekly Returns as this better represents the riskiness of NFCL as the company has stable business model and it was not in a hot and happening industry i.e., in a dynamic/ volatile sector (such as information technology or entertainment) or in a sector where the industry structure has changed (say, steel). Also, we believe that last 5 years share price weekly returns represent a more stable picture of the company's risk profile.

Note: Given that the following computations were made in the first quarter of 2008 the current values of a few items below (such as risk free rate of return) would change to that extent.

#### **Cost of Equity**

- Market Return on CNX S&P Nifty 500 = 14.40%
- Risk Free Rate = 7.88%
- Using CAPM

$$K_e = R_f + B(R_m - R_f)$$

### Cost of Equity Based on 5 Year Beta

Rf	7.88%
Beta	1.37
Rm	14.40%
<b>Cost Of Equity</b>	<b>16.79%</b>

### Cost of Debt based on Market Value & YTM

- Since the company's debt securities are not listed and the maturity period of these debt securities is not available from the annual report or from databases, we cannot use this method to calculate the Cost of Debt.

### Cost of Debt based on Peer company credit ratings

- Credit Rating of Tata Chemicals is BBB- which translates to a Cost of Debt of 10.876%
- Credit Rating of RCF is A+ which translates to a Cost of Debt of 8.576%
- Credit Rating of Chambal Fertilizers is AAA which translates to a Cost of Debt of 8.226%
- Taking an average of these 3 Companies, we get **Cost of Pre-Tax Debt of 9.226%**

### Cost of Debt based on the last Debt Issue

- The last debt issue of NFCL involved issuance of 75,00,000 Secured Redeemable Non-convertible Debentures issued @ coupon payment of 14.5% of Rs.100 each. Thus the **Cost of Pre-Tax Debt is 14.5%**.<sup>1</sup>

### Cost of Debt based on the Interest Expense/Book Value of Debt Ratio

- Interest Expense from Income Statement is Rs. 137.79 crores. Total Interest Bearing Liabilities from Balance Sheet is Rs. 1,393.63 crores. Hence, we get Interest Expense/Book Value ratio as 9.88%. Thus the **Cost of Pre-Tax Debt is 9.88%**<sup>2</sup>

### Final Cost of Debt

- Taking an average of the Cost of Pre-Tax Debt calculated using the above methods, we get the **Final Cost of Debt as 11.20%**
- An alternate solution would be arguing that one method of computing the debt cost is much more robust than the other methods and making use of the same (In this case, if the debt issues of recent then we would have preferred the figure of 14.5%).

### WACC – Weighted Average Cost Of Capital

$$WACC = K_e \times (E/V) + K_d \times (D/V) (1-t)$$

<sup>1</sup> But, we really do not know when this issue was made (for example, this could have been made in 1997 when the interest rates were very high compared to the current interest rates). Hence, it may also be a good idea to not depend on this figure.

<sup>2</sup> Ideally, one should have taken the average of total interest bearing liabilities during the year (instead of the year end figure).

<b>WACC</b>	
Market Cap (E) (In Rs Cr)	3,562.47
Debt (In Rs Cr)	1,393.63 <sup>3</sup>
Value (In Rs Cr)	4956.1
Ke	16.79%
Ke*(E/V)	<b>12.07%</b>
Kd	11.20%
Marginal Tax Rate	34.17% <sup>4</sup>
Kd (D/V)(1-t)	<b>2.07%</b>
<b>WACC</b>	<b>14.14%</b>

Please look at Pages 433-434 and answer the following queries from the case. Give your answers below with reasoning/ computation for the same (at least a sentence). Answers without supporting reasoning/ logic will not be acceptable.

[Total Marks: 4, Each Correct Answer: + 1 mark]

9. The total value of the company works out to approximately:
  - (a) Approximately Rs 3,500 crores
  - (b) Approximately Rs 900 crores
  - (c) Approximately Rs 2,300 crores
  - (d) Approximately Rs 5,000 crores**
  - (e) None of the above
10. Using the Five-Year Beta, the cost of equity works out to:
  - (a) Approximately 12.8%
  - (b) Approximately 14.8%
  - (c) Approximately 16.8%**
  - (d) Approximately 18.8%
  - (e) None of the above
11. The Company's cost of debt can be computed using:
  - (a) Using peer company credit ratings
  - (b) Using last debt issue details
  - (c) Using interest expense-to-book value of debt ratio
  - (d) All of the above**
  - (e) None of the above
12. Taking a pre-tax cost of debt as 11.20%, the cost of the capital works out to approximately:
  - (a) 14.14%**
  - (b) 12.14%
  - (c) 10.14%
  - (d) 8.14%
  - (e) None of the above

<sup>3</sup> Again making an assumption that book value of debt and market value of debt are very near to each other. One can make use of the estimating the market value of debt using the synthetic valuation of a bond route (see, Damodaran on Valuation by Aswath Damodaran). For that we need to know the average life span of debt (i.e., year-wise maturity schedule would be best). We have made use of that method in computing the WACC of Wockhardt.

<sup>4</sup> We have made use of average tax rates here (ideally, one could have gone ahead and taken a marginal tax rate of approximately 35% + surcharges, etc.)

**SECTION III****2. Case: Ravi's BITS of Learning****SOLUTION FOR PAGE 377 CASE**

1.

- The increase in beta estimates for Jet Airways using one-year data as compared to five-year data is because of the fact that the business risk for Jet Airways has increased over the last five years is primarily because of the drastic increase in business risk (more competition now – previously it was the only private player on the Indian skies; geography wise also their business has changed from just domestic to a couple of international sectors).
- The increase in beta for HINDALCO over the past five years is probably because Aluminium has become much more cyclical today than in the past also HINDALCO carries a wider geographical business profile than in the past (factories spread abroad). Also, the firm has gone in for a Leveraged Acquisition of a large player in Canada (increasing its financial risk).
- The beta estimates for Linc Pen & Plastics has remained more or less constant because of no significant change in its business risk and the profile of its product markets (in terms of risk-return profile). Linc Pens debt-to-equity ratio or the degree of its operating leverage has also not changed.

**SOLUTION FOR PAGE 405 CASE**

4. If there are a series of unexpected announcements on the global aluminium sector, then the most affected stocks in the portfolio would be Hindalco and Nalco. Hindalco would be much more volatile than Nalco because it has more international operations and a higher beta. The effect on other stocks would be very low.

Please look at Pages 377-78, Page 405 and answer the following from the case. Give your answer below with reasoning/ computation for the same (at least a sentence). Answers without supporting reasoning/ logic will not be acceptable.

[Total Marks: 4, Each Correct Answer: + 1 mark; Each No Attempt: - 1 mark]

13. For Question 4 in Page 405, the following would be an implication:

- (a) The most affected stocks in the portfolio would be Hindalco and Nalco.
- (b) Hindalco would be more volatile than Nalco due to its higher international operations
- (c) Hindalco would be more volatile than Nalco due to its higher beta
- (d) All of the above**
- (e) None of the above

14. Jet Airways Beta has changed because:

- (a) Of a change in its Degree of Operating Leverage
- (b) Of a change in its Business Risk**
- (c) Both (a) and (b)
- (d) None of the above

15. Hindalco's Beta has changed because:

- (a) Of a change in its Degree of Operating Leverage
- (b) Of a change in its Business Risk
- (c) Both (a) and (b)
- (d) **None of the above** (Explanation: To my knowledge, it has to be primarily Degree of Financial Leverage due to Acquisition of a large company (twice its size) in Canada using borrowings as a

prime source. Degree of Operating Leverage of doing aluminum business hasn't changed much as the basic technology, etc remains same. Business risk has changed but not to a large enough extent to be the biggest reason.)

16. Linc Pen & Plastics has a lower beta than Indian Hotels because:

- (a) Of lower Degree of Operating Leverage
- (b) Of lower Business Risk
- (c) Of lower Financial Risk
- (d) None of the above

### SECTION IV

### 3. Case: East Coast Yachts, Parts 1 and 2 Solution

## *CHAPTER 9*

# A JOB AT EAST COAST YACHTS

1. The biggest advantage the mutual funds have is instant diversification. The mutual funds have a number of assets in the portfolio.
2. Both the APR and EAR are infinite. The match is instantaneous, so the number of periods in a year is infinite.
3. The advantage of the actively managed fund is the possibility of outperforming the market, which the fund has done over the past ten years. The major disadvantage is the likelihood of underperforming the market. In general, most mutual funds do not outperform the market for an extended period of time, and finding the funds that will outperform the market in the future beforehand is a daunting task. One factor that makes outperforming the market even more difficult is the management fee charged by the fund.
4. The returns are the most volatile for the small cap fund because the stocks in this fund are the riskiest. This does not imply the fund is bad, just that the risk is higher, and therefore, the expected return is higher. You would want to invest in this fund if your risk tolerance is such that you are willing to take on the additional risk in expectation of a higher return.

The higher expenses of the fund are expected. In general, small cap funds have higher expenses, in large part due to the greater cost of running the fund, including researching smaller stocks.

5. The Sharpe ratio for each of the mutual funds and the company stocks are:

$$\text{Bledsoe S\&P 500 Index Fund} = (11.48\% - 3.8) / 15.82\% = .4855$$

$$\text{Bledsoe Small-Cap Fund} = (16.68\% - 3.8) / 19.64\% = .6558$$

$$\text{Bledsoe Large Company Stock Fund} = (11.85\% - 3.8) / 15.41\% = .5224$$

$$\text{Bledsoe Bond Fund} = (9.67\% - 3.8) / 10.83\% = .5420$$

$$\text{East Coast Yachts Stock} = (18\% - 3.8) / 70\% = .2029$$

The Sharpe ratio is most applicable for a diversified portfolio, and is least applicable for the company stock.

## PART 2

1. There should be little, if any, money allocated to the company stock. The principle of diversification indicates that an individual should hold a diversified portfolio. Investing heavily in company stock does not create a diversified portfolio. This is especially true since income also comes from the company. If times get bad for the company, employees face layoffs, or reduced work hours. So, not only does the investment perform poorly, but income may be reduced as well. We only have to look at employees of Enron or WorldCom to see the potential for problems with investing in company stock. At most, 5 to 10 percent of the portfolio should be allocated to company stock.
2. This is not the portfolio with the least risk. By adding stocks, a riskier asset, the overall risk of the portfolio will decline. This will be demonstrated in the next questions.
3. We can use the equations for the expected return of the portfolio, and the portfolio standard deviation, that is:

$$E(R_p) = w_E E(R_E) + w_D E(R_D)$$

$$\sigma_p = (w_E^2 \sigma_E^2 + w_D^2 \sigma_D^2 + 2w_E w_D \sigma_E \sigma_D \rho_{D,E})^{1/2}$$

Using these equations and equity portfolio weights from zero to 100 percent at intervals of 10 percent, we get the following portfolio expected returns and standard deviations:

Weight of stock fund	Portfolio E(R)	Portfolio standard deviation
0%	9.67%	10.8300%
10%	9.89%	10.1531%
20%	10.11%	9.7319%
30%	10.32%	9.6001%
40%	10.54%	9.7693%
50%	10.76%	10.2247%
60%	10.98%	10.9305%
70%	11.20%	11.8420%
80%	11.41%	12.9158%
90%	11.63%	14.1149%
100%	11.85%	15.4100%

5. To find the weights of each asset in the minimum variance portfolio, we begin with the equation for the variance of the portfolio. Using S to represent the large company fund and B to represent the bond fund, the variance of a portfolio of two assets equals:

$$\sigma_p^2 = w_S^2 \sigma_S^2 + w_B^2 \sigma_B^2 + 2w_S w_B \sigma_S \sigma_B \rho_{S,B}$$

Since the weights of the assets must sum to one, we can write the variance of the portfolio as:

$$\sigma_p^2 = w_S^2 \sigma_S^2 + (1 - w_S)^2 \sigma_B^2 + 2w_S(1 - w_S)\sigma_S \sigma_B \rho_{S,B}$$

To find the minimum for any function, we find the derivative and set the derivative equal to zero. Finding the derivative of the variance function, setting the derivative equal to zero, and solving for the weight of the stock fund, we find:

$$w_S = (\sigma_B^2 - \rho_{S,B}) / (\sigma_S^2 + \sigma_B^2 - 2\rho_{S,B})$$

Using this expression, we find the weight of the stock fund, must be:

$$w_S = (.1083^2 - .27) / [.1541^2 + .1083^2 - 2(.27)]$$

$$w_S = .2729$$

This implies the weight of the bond fund is:

$$w_B = 1 - w_S$$

$$w_B = 1 - .2729$$

$$w_B = .7271$$

The expected return of this portfolio is:

$$E(R) = .2729(.1185) + .7271(.0967)$$

$$E(R) = .1026 \text{ or } 10.26\%$$

The variance of the portfolio is:

$$\sigma_p^2 = w_S^2 \sigma_S^2 + w_B^2 \sigma_B^2 + 2w_S w_B \sigma_S \sigma_B \rho_{S,B}$$

$$\sigma_p^2 = (.2729^2)(.1541^2) + (.7271^2)(.1083^2) + 2(.2729)(.7271)(.1541)(.1083)(.27)$$

$$\sigma_p^2 = .009758$$

And the standard deviation is:

$$\sigma = .009758^{1/2}$$

$$\sigma = .09878 \text{ or } 9.88\%$$

This question can also be solved directly. The goal is to maximize the Sharpe ratio, so we can use the expression for the Sharpe ratio, set the derivative equal to zero, and solve for the weight of equity (or debt). Doing so, the resulting expression for the weight of equity in the Sharpe optimal portfolio is:

$$w_E = \frac{[E(R_E) - R_f]\sigma_D^2 - [E(R_D) - R_f]\sigma_E\sigma_D\rho_{E,D}}{[E(R_E) - R_f]\sigma_D^2 + [E(R_D) - R_f]\sigma_E^2 - [E(R_E) - R_f + E(R_D) - R_f]\sigma_E\sigma_D\rho_{E,D}}$$

Using this equation, we find the weight of equity in the Sharpe optimal portfolio is:

$$w_E = \frac{[.1185 - .038].1083^2 - [.0967 - .0380](.1541)(.1083)(.27)}{[.1185 - .0380].1083^2 + [.0967 - .0380].1541^2 - [.1185 - .0380 + .0967 - .0380](.1541)(.1083)(.27)}$$

$$w_E = .3973$$

and the weight of debt is:

$$w_D = 1 - .3973$$
$$w_D = .6027$$

So, the expected return and standard deviation of the Sharpe optimal portfolio is:

$$E(R) = .3973(.1185) + .6027(.0967)$$
$$E(R) = .1054 \text{ or } 10.54\%$$

$$\sigma = [.3973^2(.1541)^2 + .6027^2(.1083)^2 + 2(.3973)(.6027)(.1541)(.1083)(.27)]^{1/2}$$
$$\sigma = .1008 \text{ or } 10.08\%$$

KAKANI

Please look at Pages 330-31, Page 377 and answer the following from the case. Give your answer below with reasoning/ computation for the same (at least a sentence). Answers without supporting reasoning/ logic will not be acceptable.

[Total Marks: 4, Each Correct Answer: + 1 mark; Each No Attempt/ Each Wrong Answer: - 1 mark]

17. For Question 1 in Page 377, the following would be a response:
- (a) A large portion of the money (50-60%) should be allocated to the company stock.
  - (b) There should be little, if any, money allocated to the company stock.**
  - (c) 90 to 95 per cent of the portfolio should be allocated to company stock
  - (d) None of the above
18. For Question 2 in Page 377, the following would be a response:
- (a) This is not the portfolio with the least risk
  - (b) By adding stocks, the overall risk of the portfolio will decline
  - (c) Both (a) and (b)**
  - (d) None of the above
19. For Question 5 in Page 331, we can agree with the following regarding the mutual funds:
- (a) The Sharpe ratio is least for Bledshoe bond fund
  - (b) The Sharpe ratio is highest for Bledshoe small-cap fund**
  - (c) Both (a) and (b)
  - (d) None of the above
20. In general, small cap funds have higher expenses of running the fund because:
- For Perfect Explanation i.e., at least three of the points – Please Reward One Extra Mark***
- ✓ Of higher research costs for tracking small cap stocks
  - ✓ Of higher bid-ask spread
  - ✓ Of higher market impact costs
  - ✓ Of higher brokerage fees / transaction costs
21. For Question 6 in Page 377, the following would be a response:
- (a) The expected return of the Sharpe optimal portfolio is 10.09% approximately
  - (b) The standard deviation of the Sharpe optimal portfolio is 10.54% approximately
  - (c) Both (a) and (b)
  - (d) None of the above**

**4. Case: East Coast Yachts Bond Issue**

## *CHAPTER 20*

# **FINANCING EAST COAST YACHT'S EXPANSION PLANS WITH A BOND ISSUE**

1. A rule of thumb with bond provisions is to determine who the provisions benefit. If the company benefits, the bond will have a higher coupon rate. If the bondholders benefit, the bond will have a lower coupon rate.
  - a. A bond with collateral will have a lower coupon rate. Bondholders have the claim on the collateral, even in bankruptcy. Collateral provides an asset that bondholders can claim, which lowers their risk in default. The downside of collateral is that the company generally cannot sell the asset used as collateral, and they will generally have to keep the asset in good working order.
  - b. The more senior the bond is, the lower the coupon rate. Senior bonds get full payment in bankruptcy proceedings before subordinated bonds receive any payment. A potential problem may arise in that the bond covenant may restrict the company from issuing any future bonds senior to the current bonds.
  - c. A sinking fund will reduce the coupon rate because it is a partial guarantee to bondholders. The problem with a sinking fund is that the company must make the interim payments into a sinking fund or face default. This means the company must be able to generate these cash flows.
  - d. A provision with a specific call date and prices would increase the coupon rate. The call provision would only be used when it is to the company's advantage, thus the bondholders' disadvantage. The downside is the higher coupon rate. The company benefits by being able to refinance at a lower rate if interest rates fall significantly, that is, enough to offset the call provision cost.
  - e. A deferred call would reduce the coupon rate relative to a call provision with a deferred call. The bond will still have a higher rate relative to a plain vanilla bond. The deferred call means that the company cannot call the bond for a specified period. This offers the bondholders protection for this period. The disadvantage of a deferred call is that the company cannot call the bond during the call protection period. Interest rates could potentially fall to the point where it would be beneficial for the company to call the bond, yet the company is unable to do so.
  - f. A make whole call provision should lower the coupon rate in comparison to a call provision with specific dates since the make whole call repays the bondholder the present value of the future cash flows. However, a make whole call provision should not affect the coupon rate in comparison to a plain vanilla bond. Since the bondholders are made whole, they should be indifferent between a plain vanilla bond and a make whole bond. If a bond with a make whole provision is called, bondholders receive the market value of the bond, which they can reinvest

in another bond with similar characteristics. If we compare this to a bond with a specific call price, investors rarely receive the full market value of the future cash flows.

- g. A positive covenant would reduce the coupon rate. The presence of positive covenants protects bondholders by forcing the company to undertake actions that benefit bondholders. Examples of positive covenants would be: the company must maintain audited financial statements; the company must maintain a minimum specified level of working capital or a minimum specified current ratio; the company must maintain any collateral in good working order. The negative side of positive covenants is that the company is restricted in its actions. The positive covenant may force the company into actions in the future that it would rather not undertake.
  - h. A negative covenant would reduce the coupon rate. The presence of negative covenants protects bondholders from actions by the company that would harm the bondholders. Remember, the goal of a corporation is to maximize shareholder wealth. This says nothing about bondholders. Examples of negative covenants would be: the company cannot increase dividends, or at least increase beyond a specified level; the company cannot issue new bonds senior to the current bond issue; the company cannot sell any collateral. The downside of negative covenants is the restriction of the company's actions.
  - i. Even though the company is not public, a conversion feature would likely lower the coupon rate. The conversion feature would permit bondholders to benefit if the company does well and also goes public. The downside is that the company may be selling equity at a discounted price.
  - j. The downside of a floating rate coupon is that if interest rates rise, the company has to pay a higher interest rate. However, if interest rates fall, the company pays a lower interest rate.
2. Since the coupon bonds will have a coupon rate equal to the YTM, they will sell at par. So, the number of coupon bonds to sell will be:

$$\text{Coupon bonds to sell} = \$30,000,000 / \$1,000 = 30,000$$

The price of the 20-year, zero coupon bond when it is issued will be:

$$\text{Zero coupon price} = \$1,000 / 1.08^{20} = \$214.55$$

So, the number of zero coupon bonds the company will need to sell is:

$$\text{Zero coupon bonds to sell} = \$30,000,000 / \$214.55 = 139,829$$

3. At maturity, the principal payment for the coupon bonds will be:

$$\text{Coupon bond principal payment at maturity} = 30,000(\$1,000) = \$30,000,000$$

The principal payment for the zero coupon bonds at maturity will be:

$$\text{Zero coupon bond payment at maturity} = 139,829(\$1,000) = \$139,828,714$$

5. If the Treasury rate is 5.60 percent, the make whole call price in 7 years is:

$$P = \$40\left(\{1 - [1/(1 + .03)]^{26}\} / .03\right) + \$1,000[1 / (1 + .03)^{26}]$$

$$P = \$1,178.77$$

And, if the Treasury rate is 9.10 percent, the make whole call price in 7 years is:

$$P = \$40\left(\{1 - [1/(1 + .0475)]^{26}\} / .0475\right) + \$1,000[1 / (1 + .0475)^{26}]$$

$$P = \$889.35$$

Please look at Pages 711-712 and answer the following from the case. Give your answer below with reasoning/ computation for the same (at least a sentence). Answers without supporting reasoning/ logic will not be acceptable.

[Total Marks: 3, Each Correct Answer: + 1 mark; Each No Attempt/ Each Wrong Answer: - 1 mark]

22. For Question 2 in Page 711, the following would be a response:

- (a) The number of zero coupon bonds to sell will be 139,829**  
 (b) The price of zero coupon bond when it is issued would be \$1,000  
 (c) Both (a) and (b)  
 (d) None of the above

23. For Question 3 in Page 712, the following would be a response:

- (a) Coupon bond principal payment on maturity would be approximately \$30m.  
 (b) Zero coupon bond payment at maturity would be approximately \$140m.  
**(c) Both (a) and (b)**  
 (d) None of the above

24. For Question 5 in Page 712; If the Treasury rate is 9.1%, the make whole call price in 7 years is:

- (a) \$1,178.77 approx  
**(b) \$889.35 approx**  
 (c) \$1,000  
 (d) None of the above

## 5. Case: Stock Valuation of Graphite India

***Graphite India Case Was Solved in The Class (Hence detailed solution is not provided)***

Please look at Pages 190-191 and answer the following from the case. Give your answer below with reasoning/ computation for the same (at least a sentence). Answers without supporting reasoning/ logic will not be acceptable.

[Total Marks: 4, Each Correct Answer: + 1 mark; Each No Attempt/ Each Wrong Answer: - 1 mark]

25. For Question 2 in Page 191, the following would be a response:

- (a) Geetha should sell these shares in large lots  
**(b) Geetha should sell these shares in small lots**  
 (c) Geetha should buy these shares in large lots  
 (d) Geetha should buy these shares in small lots

*Since the current market price of Graphite India stock is given as Rs 19 i.e., its more than the computed intrinsic price of Rs. 16 (approximately), Geetha should sell these shares in small lots (due to poor liquidity mentioned in the case).*

26. For Question 3 in Page 191, the following would be a response:
- (a) Decrease in dividend payout ratio would not affect the share price
  - (b) Decrease in dividend payout ratio would increase the share price
  - (c) Both (a) and (b) (i.e., either of the scenarios would happen)
  - (d) None of the above**

*Since the Return on equity is less than cost of equity, implies that keeping the money inside the firm results in shareholder value destruction. Thus, a decrease in the dividend payout ratio would be result in decrease in the share price.*

27. For Questions 4 and 5 in Page 190-191; one can state that:
- (a) GIL would be a good buy in Q4 valuation but a good sell in Q5 valuation
  - (b) GIL would be a good sell in both Q4 and Q5 valuations
  - (c) GIL would be a good hold in both Q4 and Q5 valuations
  - (d) None of the above**

**As discussed in the class, GIL would be a good buy in Question 5 valuation**

28. For Question 6 in Page 191; one can state that:
- (a) Sundu should give a report asking for the firm to be sold as a going concern
  - (b) Sundu should give a report asking for the firm to be expanded
  - (c) Sundu should give a report asking for the firm to be liquidated**
  - (d) None of the above