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## PAPER 6B: FINANCIAL SERVICES AND CAPITAL MARKETS - ELECTIVE PAPER

*The Question Paper comprises five case study questions. The candidates are required to answer any* ***four*** *case study questions out of five.*

*While answering the multiple choice question, candidates are required to indicate the alphabet of their choice in capital letters.*

*In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question (s) answered shall be ignored.*

### CASE STUDY - 1

*West Coast Metals Limited (WCML) is the premier inventor, developer, and producer of nickel and copper alloy with a portfolio of over 70 alloy compositions, wrought products, and welding consumables. WCML got listed on the stock exchange a few years ago and since then there has been no instances of non- compliances, shareholder's grievances. However, the Company's shareholders are unhappy with the returns because the stock always returned below its peers and the stock index. WCML's share price closed at an all-time high of INR 250 on the stock exchange on Friday, August18, 2023. The surge in the stock price is driven by WCML's robust first-quarter earnings and it's first-ever buy-back proposal of INR 2750 million. Before the announcement of WCML's buy-back of shares, an investor Mr. Tulip shorted 1,000 shares of WCML at INR 220 per share, using a 50% margin. Mr. Tulip's initial margin account's balance was INR 1,10,000 in the form of equity shares of XYZ and an equal amount in the form of debt instrument. WCML is an all-equity-financed firm with 100 million shares outstanding and has reported INR 1225 million of earnings after tax in FY 2022-23. An extract of the Company's financials for the year ending March 31, 2023 is tabulated below.*

***Extract of WCML for the year ended on March 31, 2023***

| *Particulars* | *Amount* |
|---|---:|
| *Earnings Before Interest and Tax (EBIT) (INR million)* | *1750* |
| *Interest (INR million)* | *0* |
| *Taxable Income (INR in million)* | *1750* |
| *Taxable @ 30% (INR million)* | *525* |
| *Net Income (INR million)* | *1225* |
| *No. of shares outstanding* | *100 million* |
| *Earnings Per Share (INR)* | *12.25* |

*The Company's market value as of August 18, 2023 is INR 25,000 million (considering the closing price on August 18, 2023).*

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***Share Buy-Back Proposal***

*After realizing that WCML's shares are undervalued in the market mainly because the Company is not currently enjoying tax advantages on the interest, the CFO Ms. Alva has been asked to evaluate buy-back of shares. She is in the process of evaluating a proposal to buy-back shares at a fixed price of INR 275 per share. The CFO is in a dilemma, whether to fund the buy-back of shares from its retained earnings or borrow at a competitive interest rate by issuing debt securities and use the proceeds to finance the buyback.*

***Option 1:*** *To avail of a tax shield on debt, WCML plans to borrow INR 2750 million at 12% interest by issuing debt securities and use the proceeds to buy- back 10% of outstanding shares. The Company's marginal tax rate is 30%.*

***Option 2:*** *The total estimated buyback value is INR 2750 million. Therefore, borrow INR 1750 million at a 10% interest rate and use INR 1000 million from its retained earnings.*

*The CFO is confident that, after the buyback, WCML's share will trade at the industry average price-to-earnings (P/E) ratio of 25x. The CFO also wants to ensure that buy-back is in compliance with the SEBI regulations.*

***Interview of Ms. Alva***

*Robust performance in the last quarter and possibility of a buy-back are the reasons many financial newspapers have started covering WCML. A leading financial newspaper has carried a detailed interview with Ms. Alva regarding performance of WCML. In the interview, she mentioned that the Company might consider a buy-back proposal every year if share price is not reflecting its true value. The objective of this statement was to give signal to the market about its current and future performances. In addition to this, she discussed many issues; excerpts of the same are given below.*

***Newspaper:*** *Of course, your Company's share price is not doing that great! Why did you propose the buy-back of shares.?*

***CFO:*** *One way to create shareholder value is to keep paying dividends. The Company has enough surplus beyond the requirements of the operations, so the Company decided to go for buyback,*

***Newspaper:*** *Some practitioners contend that share buy-back represents short- term thinking that doesn't create any real value. Do you agree?*

***CFO:*** *That's true only in some situations; companies do a buy-back for various reasons. For example, when a company thinks its shares are undervalued, and wants to signal optimism to the stock market or find another way to distribute profits to shareholders, it goes for buy-back of its shares.*

***Newspaper:*** *Your Company is into the metal's business. What are your views on rising commodity prices, sticky inflation, and interest rates? Do they affect WCML's performance?*

***CFO:*** *After a series of increases in benchmark interest rates by the RBI, interest rates have peaked. However, we hope for the rest of the year, metal prices are to be stable if interest rates are dropped towards the end of 2023. Therefore, it depends on the obvious monetary policy. As per the RBI reports on the Indian economy, it looks like a 7.5% GDP growth with a 4%-6% inflation band. So I'm confident, we will have stable metal prices and it may be a correction down towards the end of the year.*

***Newspaper:*** *Considering the GDP growth and projected inflation, what is your advice to foreign portfolio investors?*

***CFO:*** *It's important to note that there be inflation, currency prices, and stock prices can be complex and vary depending on various including the magnitude of inflation, the central bank's response, market sentiment, and global economic conditions. Investors should consider these factors, risk tolerance, and investment goals when making decisions in an inflationary environment. The return to foreign institutional Investors must be adjusted for currency appreciation/depreciation.*

***Newspaper:*** *Thank you for enlightening our readers and sparing your valuable time CFO: It's my pleasure.*

***CFO:*** *It's my pleasure.*

*The CFO is extensively engaged in the next quarter accounts finalization, presentation to the Board and communication to media on a regular basis. She has some work to do which has been requested by a Board member named Mr. Padnabhan. As she has not been able to focus on the issues, she sought your help. The relevant information related to the issues is given below.*

*(A) Mr. Padnabhan holds the American Depository Receipts (ADRs) of a foreign company called "Smart Tech." Smart Tech announced a dividend of EURO 2.50 per share to its shareholders. The ADR-to-underlying share ratio is 1 ADR for every 2 underlying shares. The current exchange rate is 1 FURO = USD1.20. There are 5 million ADRs of Smart Tech that are outstanding.*

*(B) WCML wants to make investment in a small country named Windland. The real GDP growth rate is one of the key factors for deciding the proposed investment. The nominal GDP of Windland was USD 500 billion in FY 2021 and USD 550 billion in FY 2022. The GDP deflator was 120 in FY 2021 and 130 in FY 2022.*

*(C) In 2022, India's government bond yield curve flattened after RBI announced monetary policy amid tight domestic liquidity. The spread between one-year and 10-year bond yields has dropped to its lowest over four years.*

*(D) Mr. Raman is a close friend of Mr. Padnabhan. Mr. Raman, after working for three decades in the United States, returned to India. In Mr. Raman's understanding many Indian companies reward their shareholders better than US companies. On April 1,2021, he sold shares worth USD 1,00,000 in US markets and invested in an Indian company, ABC Limited, at a price of INR 3200 per share. On April 1, 2021, the exchange rate of USD to INR was INR 84.00. After two years, i.e., on March 31, 2023, the ABC stock price has increased to INR 3850 per share, and the exchange rate USD to INR was INR 85.00. Raman sold his shares on March 31, 2023. He also received INR 200 per share as dividend for FY 2022 and an interim dividend of INR 150 per share was paid to him in March 2023.*

***Choose the correct alternative for the following (MCQs):***

*1.1 Once the share price of WCML reached to INR 250, Mr. Tulip received a maintenance margin call. At this point, Mr. Tulip must transfer sufficient funds to bring margin account in equity back to 50%. How many additional funds must be added to the margin account of Mr. Tulip assuming no change in the share price of XYZ?*

*(A) INR 65,000*

*(B) INR 55,000*

*(C) INR 45,000*

*(D) INR 30,000* ***(2 Marks)***

*1.2 Which one of the following is correct regarding per ADR dividend in USD that Mr. Padnabhan will receive ?*

*(A) USD 1.50 per share*

*(B) USD 6.00 per share*

*(C) USD 5.00 per share*

*(D) USD 5.50 per share* ***(2 Marks)***

*1.3 What was the real GDP growth of Windland between FY 2021 and FY 2022?*

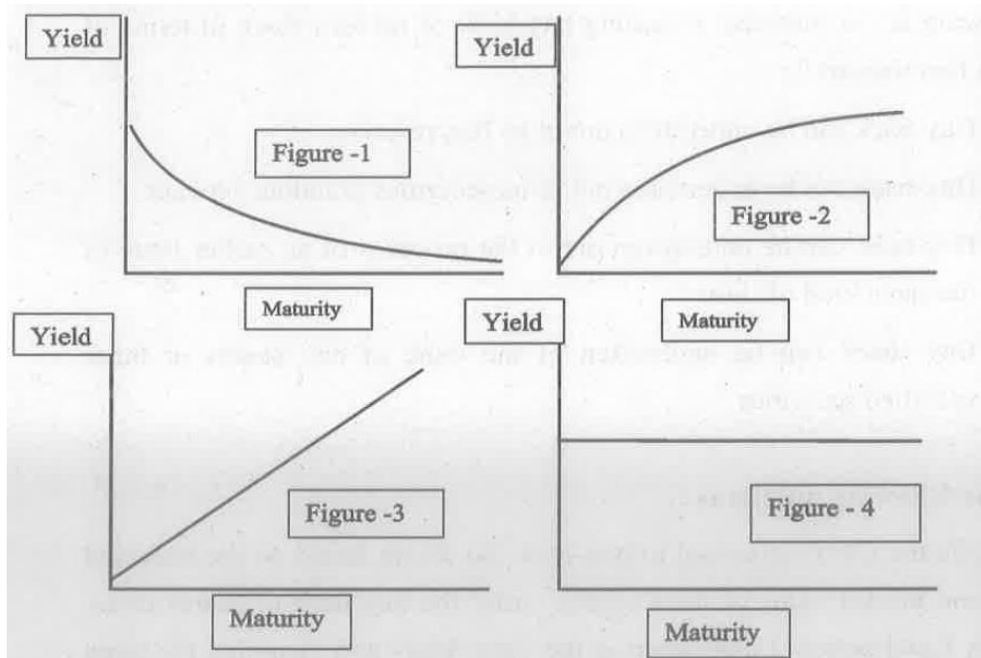
*(A) 1.54%*

*(B) 1.65%*

*(C) 1.50%*

*(D) 1.45%* ***(2 Marks)***

1.4 *Mr. Padnabhan wants to understand different types of yield curves. Structures of four yield curves are depicted below.*




*Refer to the above yield curves and decide which of the following statements are correct regarding yield curve?*

(A) *Figure -1 is an inverted yield curve, and Figure -2 is a normal yield curve*

(B) *Figure -2 is a normal yield curve, and Figure- 3 is an inverted yield curve*

(C) *Figure-4 is a normal yield curve, and Figure 3 is an inverted yield curve*

(D) *Figure-1 is a normal yield curve, and Figure 2 is an inverted yield curve* ***(2 Marks)***

1.5 *Suppose you are asked to supervise buy-back of WCML. Which one of the following is not incorrect regarding buy-back of its own share in terms of SEBI Regulations?*

(A) *Buy-back can be undertaken out of its free reserves*

(B) *Buy-back can be undertaken out of its securities premium account*

(C) *Buy-back can be undertaken out of the proceeds of an earlier issue of the same kind of share*

(D) *Buy-back can be undertaken of the issue of any shares or other specified securities*

***2 Marks)***

***Answer the following questions:***

*1.6 Evaluate the CFO's proposal to buy-back the shares based on the expected EPS and market value of the Company after the buy-back of shares under option 1 and option 2 mentioned in the Case Study and assuming the same level of EBIT.* ***(7 Marks)***

*1.7 Refer to the CFO's interview with the Newspaper and based on the conversation, highlight the role of monetary policy in containing inflation and how it would impact interest rates.*

***(4 Marks)***

*1.8 Calculate annualized return on Raman's investment in USD.* ***(4 Marks)***

**ANSWER TO CASE STUDY - 1**

**1.1 (C)**

**1.2 (B)**

**1.3 (A)**

**1.4 (A)**

**1.5 (C)**

**1.6**

**(₹ In millions)**

| | Before Buyback | Option 1 | Option 2 |
|---|---|---|---|
| EBIT | 1750 | 1750 | 1750 |
| Less: Interest | 0 | 330 | 175 |
| Taxable Income | 1750 | 1420 | 1575 |
| Less: Tax @ 30% | 525 | 426 | 472.5 |
| Net Income | 1225 | 994 | 1102.5 |
| No. of O/S shares | 100 million | 90 million (100-10) | 90 million (100-10) |
| EPS | 12.25 | 11.04 | 12.25 |
| MPS * | 250 as on Buyback proposal date (18/08/23) | 276 (after buyback) | 306.25 (after buyback) |
| P/E | 20.41 | 25 | 25 |

***Note: The current market price is due to the announcement of the buyback of shares, and the actual traded price was much lower.**

**Evaluation**

1. EPS is same before buyback as well as in option 2. But EPS has declined in option 2.

2. The MPS of the company is escalated to 276 in option 1 and ₹ 306.25 in option 2 after buyback.

Hence, it can be said that investors who have not availed the buyback have reaped capital gain on account of increase in share prices after buyback. Though, EPS is same after buyback if the company has opted for option 2, it has also benefitted because of high share prices.

Furthermore, the option to borrow ₹ 1750 million at a 10% would be a better option.

**1.7** One of the foremost responsibilities of RBI is to control inflation and maintain the stability of prices.

Achieving economic growth is also one of the most important objectives of Credit Policy of RBI. In fact, the primary objective is to maintain a judicious balance between maintenance of price stability and achieving economic growth. So, achieving economic growth is not a direct objective. GDP growth and job creation is primarily the government function. Credit policy is primarily targeted to keep inflation in check and maintain sufficient liquidity into the system which will spurs demand and leads to economic growth.

The RBI plays an important role in management of rate of interest. And the fate of many industries depends upon the interest rate policy pursued by the Central Bank. They expect that interest rates be reduced so that loans can be available at cheaper rate. On the other hand, in case of inflation, general perception is to increase the rate of interest. Therefore, the RBI evaluates the pros and cons of its every prospective decision and decides interest rate policy to be pursued.

Hence, the role of RBI is to tread on a cautious path. People expect that inflation shall be contained and stay within a reasonable limit so that goods and services are available to them in a cheap manner. At the same time, people expect that unemployment should be reduced and more and more jobs should be available. So, trade-off is required between controlling inflation and rising unemployment.

**Alternative Answer**

Monetary policy, through interest rate adjustments and control of the money supply, is a potent tool for containing inflation. These actions directly impact Interest rates, influencing borrowing costs and economic activity. They also indirectly affect currency exchange rates by altering the relative attractiveness of the domestic currency to investors and traders. Therefore, central banks must carefully consider the potential consequences of their monetary policy decisions on both inflation and broader economy.

1. **Containing Inflation:**

   - **Interest Rates:** Central banks use monetary policy tools to Influence Interest rates. One primary tool is the policy Interest; by adjusting this rate, central banks can control the cost of borrowing for banks and, subsequently, for consumers and businesses.

- **Money Supply:** Central banks can influence the money supply through open market operations, reserve requirements, and discount rates. Tightening monetary policy involves reducing the money supply, making borrowing more expensive, and encouraging saving rather than spending, which can help rein inflation.

**2. Impact on Interest Rates:**

- **Raising Interest Rates:** When a central bank raise Interest rates to combat inflation, it becomes more expensive for individuals and businesses to borrow money. As a results, consumers spending, and investment tend to decrease.
- **Lowering Interest Rates:** During economic slowdown or low inflation periods, central banks may lower interest rates to stimulate borrowing and spending. Lower interest rates make borrowing money for consumption and investment cheaper, boosting economic activity. However, this can lead to currency depreciation if investors seek higher returns elsewhere.

**1.8** Annualized Yield on the Investment of USD 1,00,000 on 1st April,2021 and sold on 31st March 2023 is shown below.

| Details of Investment and Sale Proceeds | $ |
|---|---|
| 1st April,2021, Investment (USD@84.00) | 8400000 |
| The stock price at the time of purchase was ₹ | 3200 |
| Total Number of shares purchased | 2625 |
| Dividend Income in 2021-22@ ₹200 per share | 525000 |
| Dividend Income in 2022-23 @150 per share | 393750 |
| Total Dividend Income ₹ | 918750 |
| On 31st March,2023 Sold stock at ₹3850 – Sale Proceeds | 10106250 |
| Total Proceeds from the Investment | 11025000 |
| USD to INR on 31st March 2023 ₹ | 85.00 |
| Total Proceeds (equivalent value in USD on 31st March 2023) | 129706 |

Annualized Rate of Return (%) = [(Ending Value / Beginning Value) ^ (1/n) – 1] x 100

Where:

- Ending Value = $ 129,706
- Beginning Value = $ 100,000
- n=2 years

Now, put these values into the formula:

Annualized Rate of Return (%) = [$129,706 / $100,000) ^ (1/2) – 1] x 100

Annualized Rate of Return (%) = [(1.29706) ^ (1/2) -1] x 100

Annualized Rate of Return (%) = [1.1394) -1] x 100

Annualized Rate of Return (%) = 13.94%

The annualized rate of return for this investment over the two years is 13.94%.

**CASE STUDY- 2**

*Mr. Anand is an active investor. The portfolio of Mr. Anand contains investment in mutual funds, stocks of select companies, corporate (convertible) bonds, GOI bonds and preference shares. He always looks for better opportunities for investment. Information related to his investment in mutual fund and proposed investment in various securities are presented below for necessary analysis.*

***Mutual Fund Investment***

(A) *Mr. Anand invested INR 10,00,000 in the Growth-Equity Fund and INR 5,00,000 in the High-Grade Bond Fund on April 1, 2022. Mr. Anand is examining the scheme information documents of the mutual funds he invested in. He observed that the Growth-Equity Fund returned 20.5% per annum over one year, ending March 31, 2023. At the same time, the High- Grade Bond Fund returned 13% per annum. From a naive total return perspective, the Growth-Equity Fund's performance has been better than High-Grade Bond Fund. However, the average market (represented by the NIFTY 50 Equity Index) returned 22% over the same period, while the NIFTY Composite Debt Index returned 8.5%.*

***Investment Performance***

| *Particulars* | *Growth-Equity Found* | *NIFTY 50 Equity Index* | *High-Grade Bond Fund* | *NIFTY Composite Debt Index* | *Treasury Bill* |
|---|---|---|---|---|---|
| *Actual Return ($R_i$)* | *20.50%* | *22.00%* | *13.00%* | *8.50%* | *6.5%* |
| *Downside Risk ($\sigma_D$)* | *10.25%* | *11.90%* | *5.00%* | *1.75%* | *0* |
| *Total Risk ($\sigma_T$)* | *13.60%* | *14.85%* | *5.50%* | *2.00%* | |

*After reading the scheme information documents, Mr. Anand was puzzled over one question; as an investor, he is only concerned about the downside risk. Therefore, he wants to understand the performance of his investments in mutual funds, considering both the downside risk and total risk.*

(B) *Mr. Anand has further made investment in a Fast Growth-Equity Fund. A further analysis of Mr. Anand's investment in Fast Growth-Equity Fund as on August 30, 2023, indicates the following:*

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| *Sl. No.* | *Name of the Company* | *No of Shares* | *Market Price (INR)* |
|---|---|---|---|
| | | | *August 30, 2023* |
| *1* | *XYZ Limited* | *1250* | *574* |
| *2* | *PTC Limited* | *5500* | *310* |
| *3* | *ABC Limited* | *1200* | *132* |
| *4* | *PQR Limited* | *4250* | *359* |
| *5* | *XYU Limited* | *3250* | *275* |

*(C) Relevant information of Mr Anand's investment in SunStar Mutual Fund is given below:*

*SunStar Fund starts the year with a NAV of INR 12. By year end NAV equals INR 12.10. At the beginning of the year the fund was selling at 2% premium to the NAV and at the end of the year it is selling at a 7% discount to NAV. The Fund paid year end distributions of income and capital gains of INR 1.50.*

***Proposed investment in MNR Ltd.***

*Mr. Anand is considering investing in the equity of a blue-chip company, MNR Limited. The stock returned 28.175% in the current year, and its beta (B) value is 1.45. On the other hand, the broad market index returned 18%, and the Treasury-Rill returned 6.5% during the same period. After making risk - adjusted analysis, he may consider investing in the same. MNR Ltd. has minimum required number of directors and it falls in the top 2000 listed companies. However, MNR Ltd. does not have a regular non-executive chairperson. MNR Ltd. has asked you to carry out compliance audit covering fees, compensations, sitting fees and stock options paid to the directors.*

***PQR Ltd.***

*Mr. Anand has prompted a company named PQR Limited. The Company is known far and wide for its innovative technology products and commitment to excellence. However, like many companies, PQR needs to raise capital to fund its expansion plans. PQR has issued 3- year bond with a face value of INR 1,000 each, a coupon rate of 8.5%, and a maturity of three years, designed to attract investors seeking a balance of steady income and moderate risk. The market price of the bond on the issue date is INR 950. After three years, the redemption price of the bond is INR 1000.*

***Sky Jet Ltd. ("Sky Jet")***

*Mr. Anand along with his friends has promoted another company which operates airline business in India and abroad. The airline industry has been one of the most affected sectors due to unprecedented Covid-19 pandemic and is taking longer time to recoup considering the present economic condition and geo-political factors. Due to cascading effect of Covid-19 pandemic and other factors, Sky Jet's outstanding dues towards its vendors, aircraft lessors, creditors etc. have increased enormously in the last few years.*

*In order to restructure outstanding lease liabilities towards certain aircraft lessors, the Board of Directors of Sky Jet in its meeting held on April 27, 2023 has proposed to issue equity shares on a preferential basis to these aircraft lessors consequent upon conversion of their existing outstanding lease payment liabilities equivalent to an amount not exceeding US$29.5 million at price of INR 48.00 per equity share or such price as may be determined in accordance with SEBI ICDR Regulations, whichever is higher, in accordance with the relevant provisions of the Companies Act, 2013 and other applicable laws and subject to approval of the shareholders of the Company and receipt of applicable regulatory approvals.*

***Choose the correct alternative for the following (MCQ):***

2.1 *Which of the following is correct regarding Jenson alpha ($\alpha$) of MNR Ltd.'s equity stock?*

(A) 21.33%

(B) 5.00%

(C) 16.67%

(D) 18.33% **(2 Marks)**

2.2 *Which of the following is correct regarding each unit's Net Asset Value (NAV) of Fast Growth- Equity Fund as on August 30, 2023, given that the number of Mutual Fund units outstanding was 1,25,000?*

(A) INR 41.00

(B) INR 39.00

(C) INR 40.00

(D) INR 40.29 **(2 Marks)**

2.3 *Which one of the following is the correct return for the year of Sun Star Fund based on the information given in the Case Study?*

(A) 2.29%

(B) 4.19%

(C) 3.59%

(D) 5.39% **(2 Marks)**

2.4 *Which one of the correct regarding minimum independent directors on the Board of MNR Ltd.?*

(A) 3

(B) 2

(C) 4

(D) None of the above **(2 Marks)**

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2.5 *Which of the following is incorrect regarding fees, compensation sitting fees and stock options given to directors of MNR Ltd.?*

(A) *After recommendation by the Board all fees, compensation paid to non-executive directors including independent directors require approval of shareholders in general meeting except payment of sitting fees to non-executive directors.*

(B) *After recommendation by the Board all fees, compensation paid to non-executive directors including independent directors require approval of shareholders in general meeting except payment of sitting fees to non-executive directors provided it is within the limit prescribed under the Companies Act, 2013 which does not require approval of the Central Government.*

(C) *Non-executive directors can get stock option provided it is within limit approved by the Board.*

(D) *Independent directors cannot get stock option.* ***(2 Marks)***

***Answer the following questions:***

2.6 *Compute and comment on the risk-adjusted performances of Growth Equity Fund and High-Grade Bond Fund which meet the requirements of Mr. Anand based on the information given in the Case Study.* ***(5 Marks)***

2.7 *The standard deviation of stock PTC Limited included in Fast Growth- Equity Fund based on daily returns is 1.25%. Assuming there are 252 trading days in a year, what would be the annualized volatility of stock PTC Ltd.* ***(2 Marks)***

2.8 (A) *Calculate the duration and modified the duration of the three-year bond issued by PQR Ltd given that the current market interest rate is 10%.* ***(3 Marks)***

(B) *In the case of a decrease in market interest rates by 2%, what will be the impact on the value of the three-year bond?* ***(1 Marks)***

2.9 *Whether the proposed issue of equity shares on a preferential basis adjusting the money payments to be made to the aircraft lessors, who will be allotted new equity shares, shall be a part of preferential issue in terms of ICDR regulations and whether the lock-in period of six months from the date of trading approval will be imposed on aircraft lessors. Give your reasoned answer?* ***(4 Marks)***

**ANSWER TO CASE STUDY - 2**

**2.1 (B)**

**2.2 (C)**

**2.3 (B)**

**2.4 (A) or (B)**

**2.5 (A)**

**2.6** Risk adjusted return based only on downside risk = Sortino Ratio = $\frac{R_p - R_f}{\sigma_d}$

Where:

$R_p$ = Actual or expected portfolio return

$R_f$= Risk tree rate

$O_d$= downside volatility

Risk adjusted return based on total risk = Sharpe Ratio = $\frac{E(R_p - R_f)}{\sigma_t}$

Where:

$R_p$ = Actual portfolio return

$R_f$= Risk free rate

$\sigma_t$ = Total Volatility

| Performance Indicator | Growth Equity Fund | NIFTY 50 Equity Index | High-Grade Bond Fund | NIFTY Composite Debt Index |
|---|---|---|---|---|
| Sortino Ratio | 1.37 | 1.30 | 1.30 | 1.14 |
| Sharpe Ratio | 1.03 | 1.04 | 1.18 | 1.00 |

Based on Sortino ratio both Growth Equity Fund and High-Grade Bond Funds have outperformed the respective indices but based on Sharpe ratio, the Growth Equity Fund has underperformed the index whereas High-Grade Bond Fund has outperformed the index. As investor is mainly concerned with negative volatility and, hence, based on this, Growth Equity Fund has outperformed High- Grade Bond Fund.

**2.7 Annualized volatility of PTC Ltd.**

= 1.25% x $\sqrt{252}$ trading days

= 19.84

**2.8 (A)** Duration of the bond

= (PV of cash flows x Time)/PV of cash flows

| Time | Cash Flow | PVF @ 10% | PV | PV x Time |
|---|---|---|---|---|
| 1 | 85 | 0.909 | 77.265 | 77.265 |
| 2 | 85 | 0.826 | 70.21 | 140.42 |
| 3 | 1085 | 0.751 | 814.84 | 2444.52 |
| | | | **962.32** | **2662.21** |

So, Duration = 2662.21/962.32 = 2.77 years

Modified Duration = Duration/ (1+ Market Price at the time of Issue)

= 2.77/ (1 + 0.10) = 2.52 years

**(B)** If the yield decreases (market interest decrease by 2%) i.e., from 10% to 8%, % change in the value of bond = - 2.52 x (-2) = 5.04%

**2.9** Regulation 158 (1) of SEBI (ICDR) Regulations, 2018 specifically states that the provisions of this Chapter shall not apply where the preferential issue of equity shares is made pursuant to conversion of a loan or an option attached to convertible debt instruments in terms of sub-section (3) and (4) of section 62 of the Companies Act, 2013, whichever is applicable.

However, lease repayments are different from loan. So, it seems that the proposed preferential issue can take place as per the SEBI (ICDR) Regulations, 2018.

As per Regulation 167 (2) of the said regulations, the specified securities allotted on a preferential basis to persons other than the promoters and promoter group and the equity shares allotted pursuant to exercise of options attached to warrants issued on preferential basis to such persons shall be locked-in for a period of six months from the date of trading approval.

Provided that in case of convertible securities or warrants which are not listed on stock exchanges, such securities shall be locked in for a period of one year from the date of allotment.

**Alternative Solution**

In this case, the company has an outstanding liability of paying rent to the aircraft lessors and it has opted to issue preferential equity shares to the lessors as a means of fulfilling its rental obligations. This would amount to issuing preferential shares in lieu of cash, being the monetary liability which the company is subjected to.

In view of the above, the proposed issuance of equity shares, which will serve to offset monetary obligations owed to the aircraft lessors and will be allocated to these lessors as new equity shares, will not be covered under the provisions of Regulation 163(3) of the ICDR Regulations.

It has further been observed that Regulation 167(2) of the SEBI (ICDR) Regulations shall apply to the proposed issuance of equity shares and a lock in period of six months will be imposed on such aircraft lessors from the date of trading approval.

**CASE STUDY - 3**

***Auto Components Company (ACC)***

*ACC was founded in 1980. It is a privately owned and independently operated auto component manufacturing company. ACC manufactures pistons, bearings, and gears. Over the years,*

*automobile sales and the demand for auto components have skyrocketed globally. At ACC, the Company ensures that they always succeed in delivering the required products to the customers on time with the promised quality. Due to increasing demand, the Company is gearing up to increase its plant capacity to match the demand in the future. However, the Company is also worried about rising Whole sale Price Index (WPI) and Consumer Price Index (CPI).*

*The capacity expansion plan would require an additional investment of INR 200 million and a working capital of INR 50 million. The Company is proposing to raise INR 250 million through an equity offering and has appointed a lead manager. The Company is exploring two options: book building and fixed price issue. The management of ACC has asked to you explain the role of a lead manager on observations made by the SEBI during pre-issue management.*

***Fixed Price IPO:*** *The IPO is a fixed-price issue at INR 50.00 per share, and the total issue size is INR 250 million. Thus, the number of shares to be issued is 50,00,000, with a face value of INR 10.00 per share. Recently, a few IPOs were subscribed but got listed below the issue price. Therefore, investors are skeptical about the upcoming IPO issues. The Company is concerned about the likely under subscription to the IPO. Hence, ACC entered an agreement with an underwriter named Stock Merchant.*

***Underwriting Agreement:*** *The primary responsibility of Stock Merchant is to reduce price volatility and support the stock's trading within a certain price range. Stock Merchant will act as a price stabilization agent and provide Green Shoe option, market-making, and information-gathering services.*

***Price Stabilizing Agent:*** *Stock Merchant will act as a stabilizing agent to the extent of 15% of the issue size, and the stabilization period is 30 days from the date of listing.*

***Green Shoe Option:*** *The underwriting agreement also includes a Green Shoe option, which allows Stock Merchant to sell an additional 15% of shares (million shares) at a price of INR 50 per share. As per the agreement, the promoters of ACC would lend 0.75 million (15%) shares to Stock Merchant for 30 days from the listing date.*

| *ACC – IPO details* | |
|---|---|
| *IPO Date* | *August 18 to August 22, 2023* |
| *Listing Date* | *August 30,2023* |
| *Face Value* | *INR 10.00* |
| *Issue Price* | *INR 50.00* |
| *Issue Size* | *50,00,000 shares* |
| *Fresh Issue* | *50,00,000 shares* |
| *Issue Type* | *Fixed Price* |
| *Lot Size* | *200 shares* |
| *Shareholding Pre-Issue* | *1,00,00,000 shares* |
| *Shareholding Post Issue* | *1,50,00,000 shares* |

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***PharmBig***

*PharmBig is a listed subsidiary of ACC. It is a mid-size manufacturer of pharmaceuticals located in Indore. It could not grow its business due to financial constraints. Particularly, PharmBig needs help for financing its permanent as well as temporary working capital needs. It is facing growth constraints as result of working capital problem. In this context, PharmBig is evaluating three alternative proposals.*

***Proposal 1: Convertible Debentures***

*It can issue to the public 15% convertible debentures of INR 100 each at par with a maturity period of 6 years for INR 1000 lakhs. On maturity, each debenture will be converted into 1.5 equity shares of the Company. The risk free rate of return is 10%, market risk premium is 18% and beta is 1.25. PharmBig has paid dividend of INR12.76 per share which is growing @ 5% per annum growth rate.*

***Proposal 2: Bank loan***

*An alternative source of financing is available from StarBank. It has offered a short-term loan @ 17%.*

***Proposal 3: Factoring***

*PharmBig has unusually high trade receivables at the moment with a carrying amount of INR 2800 lakhs. The sales are mainly in the domestic market. The average collection period is 90 days and presently its receivable collection cost is INR 35 lakhs p.a. so it could therefore be sold to a Factor to improve cash position. As per terms of factoring arrangement, the Factor will provide for an advance payment of 80% (maintaining factor reserve of 20% to provide for disputes and deductions relating to the bills assigned) of the value of factored receivables for 90 days. The advance will carry a rate of interest of 12% per annum. In addition to interest, the Factor will charge factoring commission @ 2.5% of the value of factored receivables. Both the interest and commission shall be collected by the Factor on upfront basis.*

*While the management of PharmBig is waiting for the evaluation of all three proposals they have identified certain issues and provided certain information that need to be addressed by the CFO in the next meeting for answering questions of the management.*

*(A) Whether PharmBig can go for Forfaiting instead of Factoring.*

*(B) PharmBig has issued a 90-day Commercial Paper with a face value of INR 10,00,000. The Commercial Paper is sold at a discount of INR 9,75,000. The management objective always has been to offer yield to the investors at least equal to what competitors are offering*

*(C) It has come to the notice of the management of PharmBig that a company XYZ is offering a rights issue to its existing shareholders. The details of the rights issue are as follows:*

*Market Price of Company XYZ's Stock during the ex-right period: INR 50 per share*

*Subscription Price for Right Share: INR 40 per share*

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*The ratio of Right Share to Existing Shares: 1 Right Share for every two shares held*

***Choose the correct alternative for the following (MCQs):***

*3.1 The price discovery in the IPO market is dynamic and market-driven, which is possible only in case of*

*(A) Fixed Price IPO*

*(B) Book Building*

*(C) Private Placements*

*(D) Qualified Institutional Buyers (QIBs)* ***(2 Marks)***

*3.2 Factoring and Forfaiting are both financial transactions that involve the sale of accounts receivable (usually invoices) to a third party for cash. Which one of the following is correct regarding Factoring and Forfaiting?*

*(A) Forfaiting is typically used for longer-term international transactions, whereas Factoring is typically used for short-term, domestic transactions.*

*(B) Factoring is typically used for longer-term international transactions, whereas Forfaiting is typically used for short-term, domestic transactions.*

*(C) Forfaiting is typically used for the import of goods on credit, whereas Factoring is typically used to export goods on credit.*

*(D) Forfaiting is typically a short-term bank loan, whereas Factoring is typically used for export credit.* ***(2 Marks)***

*3.3 Which of the following is incorrect regarding WPI and CPI?*

*(A) WPI reflects change in average price for bulk sale of commodities whereas CPI reflects the average change in prices at retail level*

*(B) WPI is used as deflator for estimating GDP*

*(C) CPI is used as deflator for estimating GDP*

*(D) Global investors track both CPI and WPI* ***(2 Marks)***

*3.4 Which of the following is the correct yield on the Commercial Paper discussed in the Case Study? (Use 360 days in a year as a convention)*

*(A) 10%*

*(B) 10.26%*

*(C) 9.26%*

*(D) 11.26%* ***(2 Marks)***

*3.5 Which one of the following is correct regarding the theoretical value of a right based on the information given in the Case Study?*

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*(A) INR 10.00*

*(B) INR 5.00*

*(C) INR 5.50*

*(D) None of the above* ***(2 Marks)***

***Answer the following questions:***

*3.6 The underwriter Stock Merchant is evaluating two possible scenarios and wants to understand the possible profit or loss to them.*

***Scenario 1:*** *ACC stock is listed at INR 45 per share, i.e., 10% below the issue price.*

***Scenario 2:*** *ACC stock is listed above the issue price at INR 60 per share.*

*Explain the financial implications of both scenarios to Stock Merchant and ACC*

***(4 Marks)***

*3.7 Answer the following questions related to the funding proposals of PharmBig mentioned in the Case Study?*

*(A) Provide a reasoned recommendation, advising whether it is appropriate to choose the proposal of the Factor in comparison to short-term bank loan or convertible debentures? (Use 360 days in a year as a convention).* ***(7 Marks)***

*(B) Whether your advice would be changed if the clause of 'on recourse basis' is negotiated on non-recourse basis' keeping the other terms of agreement with the Factor as the same. The experience indicates that bad debt losses on sales are 2% of sales.* ***(1 Mark)***

*3.8 What role does the lead manager play after the issuance of observations by SEBI during pre-issue management?* ***(3 Marks)***

**ANSWER TO CASE STUDY - 3**

**3.1 (B)**

**3.2 (A)**

**3.3 (D)**

**3.4 (B)**

**3.5 (B)**

**3.6** The Stock Merchant's responsibility is to manage the price volatility after the issue. As the fact regarding the listing of the stock is given in the question, the allotment is assumed to have been already done and the underwriter has already sold 15% more shares considering the Green Shoe option.

Underwriter will sell 50,00,000 plus 7,50,000 shares to the pubic @ ₹ 50. Initially, will treat extra 7,50,000 share sold as short position by the underwriter in the shares.

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Financial implication on underwriter:

**(A) If Price lists at ₹ 45.**

Underwriter will not exercise the Green Shoe option and rather will prefer to buy the shares from the market and give it back to company. In other words, underwriter will buy the shares from the market to cover its short position in shares. Underwriter buying in open market which will provide support to the price and help in curbing volatility. The difference between the average buying price and ₹ 50 (issue price) shall be the profit of Underwriter apart from the underwriting commission.

The investors of ACC will suffer as the company lists below the issue price. Consequently, the company may suffer because the future investors will be less inclined to invest in the company and affects its profitability position in prospective years also.

**(B) If the Price Lists at ₹ 60.**

Underwriter will exercise the Green Shoe option and will get extra 7,50,000 shares form the company and shall give it back to the company. In this case Underwriter will not be able to make any profit from its short position of 7,50,000 shares and will get only the underwriting commission.

The investors will rake in profits as there will be an opportunity for capital gain. The company's profitability position may get a boost as more and more investors will be looking to invest in the company.

**3.7 (A)** Average level of receivables = ₹ 2800 lakhs x 90/360 = ₹ 700 lakhs

Factoring commission = ₹ 700 x 2.5/100 = ₹ 17.5 lakhs

Factoring reserve = ₹ 700 x 20/100 = ₹ 140 lakhs

Amount available in advance = 700 – (17.5 + 140) = ₹ 542.5 lakhs

Factor will deduct his interest at 12%

Interest = $542.5 \times \frac{12}{100} \times \frac{90}{360}$ = ₹ 16,27,500

Amount to be paid = ₹ 5,42,50,000 - ₹ 16,27,500 = ₹ 5,26,22,500

**Annual cost of Factoring**

Factoring commission (₹ 17,50,000 x 360/90) = ₹ 70,00,000

Interest charges (₹ 16,27,500 x 360/90) = ₹ 65,08,000

Total = ₹ 1,35,08,000

**Firms' savings on taking factoring services.**

Receivables collection cost = ₹ 35,00,000

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Net cost to the firm = ₹ 1,35,08,000 – ₹ 35,00,000 = ₹ 1,00,08,000

Effective rate of interest to the firm = $\frac{1,00,08,000}{5,26,22,500}$ x100 = 19.02%

**Calculation of Cost of Convertible Debentures:**

Ke = Rf + β (Rm – Rf)

= 10% + 1.25(18%) = 32.50%

**Price of share after 6 years**

= 12.76 (1.05) ^ 0.325 – 0.05

= 12.76 x 1.407/0.275

= ₹ 65.28

**Redemption Value of Debentures**

= ₹ 65.28 x 1.5 = ₹ 97.92

Cost of Debentures = 15 + (97.92 – 100)/6 ÷ (97.92 + 100)/2

= 14.81%

Since the effective annual cost of factoring i.e., 19.02% is higher than the cost of short-term loan i.e., 17% and cost of debenture i.e., 14.81%, it is not appropriate to choose the factoring of receivables in comparison to short term loan or debentures.

So, option of proposal 1: Convertible Debentures is acceptable.

**Alternative Solution**

The calculation upto factoring is same. So, the effective annual cost of factoring is 19.02%. S.T. bank loan is better as rate of interest is 17%

The cost of convertible debentures is 15%. So, it is even better.

So, option of proposal 1: Convertible Debentures is acceptable.

**(B)** On a non-recourse basis, bad debts will be considered in the firms' savings.

So, Saving = ₹ 35,00,000 + 56,00,000 = 91,00,000

Net Cost = ₹ 1,35,08,000 – ₹ 91,00,000 = ₹ 44,08,000

Effective rate of interest to the firm = $\frac{44,08,000}{5,26,22,500}$ x100 = 8.38%

Thus, PharmBig should consider the factoring proposal if it is on a non-recourse basis.

**Alternative Solution**

If terms of agreement are negotiated from Recourse Factoring to Non-Recourse Factoring keeping the other terms of agreement same, it is not advisable to opt for 'on Non-Recourse Basis' clause since it will reduce the effective cost of factoring to 17.02% (19.02% - 2.00%) which is lower than the cost of short-term loan i.e. 18% but still higher than the cost of debentures i.e. 16.06%.

**3.8** The lead manager(s) shall submit the following documents to the Board after issuance of observations by the Board or after expiry of the period stipulated in sub-regulation (4) of regulation 25 if the Board has not issued observations:

(a) a statement certifying that all changes, suggestions and observations made by the Board have been incorporated in the offer document;

(b) a due diligence certificate as per Form C of Schedule V, at the time of registering of the offer document;

(c) a copy of the resolution passed by the board of directors of the issuer for allotting specified securities to promoter(s) towards amount received against promoters' contribution, before opening of the issue;

(d) a certificate from a statutory auditor, before opening of the issue, certifying that promoters' contribution has been received in accordance with these regulations, accompanying therewith the names and addresses of the promoters who have contributed to the promoters' contribution and the amount paid and credited to the issuer's bank account by each of them towards such contribution;

(e) a due diligence certificate as per Form D of Schedule V, in the event the issuer has made a disclosure of any material development by issuing a public notice pursuant to para 4 of Schedule IX.

**CASE STUDY - 4**

*FinEX gold and diamonds is a brand owned by Fine Quality Gold Limited (FQGL) with a legacy of over two decades. The promoters of FQGL are well known in the gold and diamond market in India. The Company was incorporated in 2003 in Hyderabad and it is known for its innovative designs and gold quality. The Company imports gold from Switzerland but is invoiced in USD. As per the demand forecast, it requires 5,000 ounces of gold (oz) for its jewelry manufacturing unit in the next three months.*

*The CFO of FQGL learned that derivatives can be used to hedge against commodity price risk, and this can be done by using commodity futures and options. Therefore, the CFO gathered the data from the spot and futures markets. The correlations of spot prices (S) and futures contracts (F) of Gold are given by the following correlation matrix:*

| | *S* | *F* |
|---|---|---|
| *S* | *1.0000* | *0.8950* |
| *F* | *0.8950* | *1.0000* |

*The standard deviations of the returns on these assets are given by:*

$\sigma(S) = 0.32$

$\sigma(F) = 0.25$

*Each gold future contract is 100 oz, and the CFO also collected the current trading prices of gold in the spot market and future market:*

***Gold Spot Price: USD 1450 per oz***

*Three-month Gold futures contract price: USD 1525 per oz*

*The Company can borrow at 6.25%.*

*The CFO wants to find the optimal hedge ratio using Gold futures contracts and check whether any arbitrage opportunities exist at the above market conditions.*

*There are number of issues relating to credit derivatives like Credit Default Swaps (CDS), Collateralized Debt Obligations (CDOs), mezzanine financing that need to be discussed in the next Board meeting along with Reverse Mortgage possibility for an employee who would be retiring in next few months. The Board also directed the CFO to make a presentation on the market risk, financial risk external and internal business risk of FQGL and Master Direction issued by the RBI on credit derivatives. You have agreed to help the CFO in these respects.*

***CDO***

*Mr. Ashav who is son of MD & CEO of FQGL has interest in debt market. He has no interest in the commodity market and therefore he has not joined FQGL even after obtaining an MBA degree from a leading B-School in the USA. On the advice of MD & CEO he joined as a Credit Analyst in a Credit Rating firm. During the orientation program, he was introduced to practical elements of CDO. One of the instructors explained about the CDO as under:*

- *CDOs are structured Asset-Backed Security (ABS) that allow for pooling various types of debt, such as mortgages, auto loans, credit card debt, and more.*
- *CDOs are meant to create a diversified portfolio; different types of debt are collected and pooled together as a pool of debt.*
- *The pooled debt is divided into different tranches based on risk characteristics.*
- *As the underlying debt generates cash flows, those cash flows are used to pay the investors in the different tranches.*

*The junior, mezzanine, and senior debt tranches receive interest and principal proceeds in the order of their seniority. Most senior tranche holders receive their payments first, more junior tranche investors receive payments only if more prioritized payments are in line with the*

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*documentation of the structure.*

*Mr. Ashav needs clarification about the importance of correlations among defaults of the underlying assets and how such correlations affect the value of the tranches.*

***Estimation of Credit Risk***

*Mr. Ashay is tasked with analyzing the credit risk of GSP Limited which is a steel manufacturing company located in Chhattisgarh State.*

*Recently, many mid-sized steel manufacturing firms defaulted on loans, leading to debate on the credit risk steel industry. Like any other industry, the steel industry also faces credit risk. However, the credit risk of steel manufacturing firms has been on the rise due to various reasons.*

*GSP borrowed three times its equity capital. Of course, it generates around 40% operating profits, but considering the debt/equity ratios, the lenders are concerned about the repaying capacity of the Company. To know the probability of default of GSP, Ashav explored different approaches to credit risk assessment and finally decided to use Altman's Z score to evaluate credit risk and prepare a report.*

*Ashav collected the most recent relevant financial information from the annual reports of GSP, which are presented below.*

***Financials of GSP*** ***(INR lakhs)***

| | FY 2022-23 | FY 2021-22 |
|---|---|---|
| Revenue | 27500 | 25600 |
| EBIT | 11250 | 9575 |
| Total Current Assets | 18500 | 16750 |
| Goodwill and Intangibles | 0 | 0 |
| Total Assets | 65250 | 58550 |
| Total Current Liabilities | 13500 | 12400 |
| Total Liabilities | 43250 | 42150 |
| Retained Earnings | 25400 | 22530 |
| Market Capitalization | 80250 | 74500 |

*Ashav started working on assessing the credit risk of GSP. He knew that the below-mentioned five ratios are used in estimating the Z-score and interpreting the credit risk level.*

*X1 = Working Capital/Total Assets.*

*X2 =Retained Earnings/Total Assets*

*X3 =Earnings Before Interest and Taxes/Total Assets*

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*X4 =Market Value of Equity/Book Value of Total Liabilities*

*X5 =Sales/Total Assets*

*Where working capital is = (Current Assets - Current Liabilities) and*

*Z =1.21 X1 +1.4 X2 + 3.3 X3 + 0.6 X4 +1 X5*

*Mr. Ashav has also been provided with the following information for making a final conclusion based on Altman's Z score.*

*Zones of discrimination:*

*Z>2.99"safe" zone*

*1.81<Z < 2.99 – "grey" zone*

*Z < 1.81 – "distress" zone*

***Choose the correct alternative for the following (MCQs):***

4.1 *Type of risks along with their explanations are listed below.*

| | ***List - 1*** | | ***List - 2*** |
|---|---|---|---|
| *(i)* | *Market Risk* | *(a)* | *Associated with the efficiency with which a firm conducts its operations within the broader environment imposed upon it.* |
| *(ii)* | *Financial Risk* | *(b)* | *Arises due to change in operating conditions caused b conditions thrust upon the firm which are beyond its control.* |
| *(iii)* | *External Business Risk* | *(c)* | *Variations in price sparked off due to real, social, political and economic events.* |
| *(iv)* | *Internal Business Risk* | *(d)* | *Associated with the capital structure of a firm.* |

*Which one of the following combination is correct?*

*(A) (1)-(a), (ii)-(b), (iii)-(c), (iv)-(d)*

*(B) (1)-(c), (ii)-(d), (iii)-(b), (iv)-(a)*

*(C) (1)-(c), (ii)-(a), (iii)-(b), (iv)-(d)*

*(D) (i)-(d), (ii)-(c), (iii)-(a), (iv)-(b)* ***(2 Marks)***

4.2 *Mezzanine financing is (i)___ and its default risk is (ii)___*

*(A) (i) is unsecured subordinated debt (ii) low*

*(B) (i) is unsecured subordinated debt (ii) high*

*(C) (i) secured subordinated debt (ii) high*

*(D) (i) subordinated debt (ii) low* **(2 Marks)**

*4.3 As per Master Direction issued by the Reserve Bank of India (RBI), "Market-makers" are required to report all OTC CDS transaction to the*

*(A) Clearing Corporation of India Limited (CCIL) within 30 (thirty) minutes of such transaction.*

*(B) Securities and Exchange Board of India (SEBI) within 60 (sixty) minutes of such transaction.*

*(C) Reserve Bank of India (RBI) within 60 (sixty) minutes of such transaction.*

*(D) National Securities Depository Limited within 30 (thirty) minutes of such transaction.*

**(2 Marks)**

*4.4 As per the Master Direction issued by the RBI which of the following entities is not eligible to act as market-makers in credit derivatives?*

*(A) Scheduled Commercial Banks*

*(B) Small Finance Banks*

*(C) Non-Banking Financial Companies (NBFCs)*

*(D) Export Import Bank of India* **(2 Marks)**

*4.5 Which one of the following is correct regarding "Reverse Mortgage"?*

*(A) Homeowners, typically senior citizens, can convert a portion of their home equity into taxable cash without selling their home or paying monthly mortgage payments.*

*(B) Homeowners, typically senior citizens, can convert a portion of their home equity into tax-free cash without selling their home and paying only monthly mortgage payments.*

*(C) Homeowners, typically senior citizens, can convert a portion of their home equity into cash with an agreement to sell the house within ten years.*

*(D) Homeowners, typically senior citizens, convert a portion of their home equity into tax-free cash without having to sell their home or make monthly mortgage payments.*

**(2 Marks)**

***Answer the following questions:***

*4.6 Suppose you have been hired by the CFO of FQGL to answer the following questions based on the information given in the Case Study.*

*(A) Estimate the optimal hedge ratio to minimize the variance based on the information provided in the Case Study regarding Gold spot and future prices, and related correlation.* **(1 Mark)**

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*(B) Should FQGL go long or short in Gold futures position and how many Gold futures contracts should they trade?* ***(2 Marks)***

*(C) Do any arbitrage opportunities exist? Explain with calculations.* ***(3 Marks)***

*4.7 As number of assignments given to Mr. Ashav are still pending, he requested you to help him in assessing credit risk of GSP using Altman's Z score. Refer to GSP's financial information given in the Case Study and comments on the credit risk of GSP using Altman's Z-score.* ***(5 Marks)***

*4.8 Suppose you are evaluating a CDO with three tranches. Tranche 'A' comprises a pool of debt and gets the first claim for all the cash flows from the collateral. Tranche 'B' gets a second claim. Tranche 'C' is the equity tranche. What would be the likely impact on the values of two tranches 'A' & 'B' assuming that the level of default risk increases but the correlations among defaults of individual assets within the pool decrease?* ***(4 Marks)***

**ANSWER TO CASE STUDY - 4**

**4.1 (B)**

**4.2 (B)**

**4.3 (A)**

**4.4 (B)**

**4.5 (D)**

**4.6 (A)** Optimal Hedge Ratio = ρ x (σs / σf)

i.e., Coefficient of Correlation x (Standard Deviation of Spot/ Standard Deviation of Future)

| | |
|---|---|
| px | 0.895 |
| σ Spot | 0.32 |
| σ Futures | 0.25 |
| **Optimum Hedge Ratio =** | **1.1456** |

**(B)** No, the company FQGL shall neither buy nor sell Future. It will rather take loan @6.25% p.a. and take the delivery of gold right now.

Futures Price = Spot price x [1+ rf (days to expiry/365)]– d

| | |
|---|---|
| Where, Spot price | = 1450 |
| Rf | = Risk free rate of interest |
| d | = Dividend |

So, futures price =1450 x [1 + 0.0625 (3/12)]-0

= 1472.62625

We can use 6.25% as risk free rate of interest as the decision has to be taken between taking loan now and buying the spot today or buying future and taking the delivery later.

Thus no point in buying the future, rather it would be beneficial to raise money @6.25% and buy the Spot right now.

Calculation :

**If Buy3 months Future**

(i) Loss incurred as Future expires at Spot price

75 (1525-1450)

| Lot Size 100 Oz | For 100 Oz | | for 5000 Oz | |
|---|---|---|---|---|
| Loss | | 75 | **USD** | 3750 |
| | | | | |

Amount of loan 1450 USD

(for 100 Oz Gold)

Interest @ 6.25 % for 3 months

= 1450 x 6.25/100 x 3/12

= $ 22.65625 for 100 oz

And, for 5000 oz = 1132.8125

buying 3-month future today is not profitable option

Selling Future is not recommended as the company needs Gold after 3 months

Thus, the company shall take loan and buy Spot.

Moreover, the number of contracts to be purchased = 5000/100 x 1.1456

= 50 x 1.1456 = 57.28 or **57 contracts**

**(C)** Yes, arbitrage opportunity is available here

Justified Future price is 1472.66

Actual Future price is 1525

Thus, future is overvalued and therefore an arbitrage opportunity for buy Spot and Sell Future

Assume 1 lot is taken

Buy spot @ 1450 and sell 3 months future @1525

Future will expire at spot price thus the gain of 75 USD per 100 oz.

Raise loan to buy spot and the cost of loan is less than the benefit availed.

through arbitrage.

**4.7**

| No | Ratios | 2022-23 | 2021-22 | Weights | Score 2022-23 | Score 2021-22 |
|---|---|---|---|---|---|---|
| 1 | Working Capital /Total Assets. | 0.0766 | 0.0743 | 1.2 | 0.0920 | 0.0892 |
| 2 | Retained Earnings / Total Assets | 0.3893 | 0.3848 | 1.4 | 0.5450 | 0.5387 |
| 3 | Earnings Before Interest and Taxes / Total Assets | 0.1724 | 0.1635 | 3.3 | 0.5690 | 0.5397 |
| 4 | Market Value of Equity/ Book value of Total Liabilities | 1.8555 | 1.7675 | 0.6 | 1.1133 | 1.0605 |
| 5 | Sales / Total Assets | 0.4215 | 0.4372 | 1 | 0.4215 | 0.4372 |
| | Z-Score | | | | 2.7407 | 2.6653 |

Based on the above criteria and estimated Z score for both years, the company is not in the safe zone and just below the safe zone. Therefore, it is categorized as a grey zone. However, the company can improve its financials regarding earnings, efficient utilization of assets and increasing sales.

**4.8** In a CDO with multiple tranches like the one mentioned in the question, changes influence the values of these tranches in default risk and correlation of default among the underlying assets. Let's break down the likely impact on the values of the two tranches, if the level of default risk increases but correlations decrease:

**1. Tranche A:**

- Tranche A is the senior most tranche and has the first claim on all cash flows from the collateral. It is the least exposed to default risk among the three tranches.
- As default risk increases across the entire pool of assets, Tranche A's value may decrease slightly due to the likelihood of individual defaults within the pool. However, it is still relatively safe because the lower tranches protect it.
- The decrease in correlation among defaults can potentially benefit Tranche A. If individual assets' defaults become less correlated, the likelihood of multiple defaults occurring simultaneously decreases. This can enhance the

diversification effect and provide some protection to Tranche A, helping to stabilize its value.

2. **Tranche B:**

- Tranche B is the mezzanine tranche, sitting between the senior and equity tranches regarding risk exposure.
- With increased default risk, Tranche B is more vulnerable to losses than Tranche A. It may experience a more significant decrease in value as the overall pool's credit quality deteriorates.
- The decrease in correlation among defaults can have a mixed impact on Tranche B. On one hand, it reduces the likelihood of systemic shocks affecting the entire pool, which is positive. On the other hand, it increases the dispersion of individual asset defaults, which can be detrimental to Tranche B's value as it is exposes to the risk of a higher number of defaults.

The impact of decreased correlations among defaults is more nuanced, as it can provide some protection to the senior tranche (Tranche A) but may have mixed effects on the mezzanine tranche (Tranche B).

**CASE STUDY - 5**

*Mr. Collier is the sole promoter of RAMA Ltd. which is a public listed company. RAMA Ltd, manufactures copper piping for commercial and industrial use in transporting water and gas. Mr. Collier is also looking for acquisition of Shark Ltd, which is a strategic-fit for RAMA Ltd. For this acquisition, the management wants to carry out Leveraged Buy Out (LBO) analysis.*

*(A) There have been number of compliance issues in the past and the Board of the Company has taken a serious view of the same. Instances of few insiders trading were also discovered that included from the promoters family. Mr. Bharat, who is the Company Secretary of RAMA Ltd, reported to the Company on January 4, 2023 that one of the members from the promoter's family has made trading of approx. INR 20 lakhs in the shares of RAMA Ltd. on December 30, 2022. The delay in reporting was explained by Mr. Bharat as December 31, 2022 and Jan 1 2023 were non-trading days. An independent review by internal audit team revealed that Mr. Bharat reported the said transaction to the stock exchange on Jan 7, 2023. The Board is concerned whether promoter family member can trade in the shares of RAMA Ltd. and whether there is a delay in reporting of the said transaction. Further issues related to RAMA Ltd. that requires attention of the Board are discussed below:*

*(i) Few shareholders have alleged that RAMA Ltd. along with some brokers is indulging in price manipulation of the shares of RAMA Ltd. The Board wants to examine the powers of SEBI in this respect if this allegation is found to be correct.*

*(ii) The SEBI has received a complaint from Ms Koyal that the CEO of RAMA Ltd. Mr. Albert has indulged in the trading of shares of RAMA Ltd. based on Unpublished Price*

*Sensitive Information (UPSI). It is expected that SEBI will take action against Mr. Albert.*

*(iii) Mr. Sahil has obtained an order from the SEBI against RAMA Ltd. But RAMA Ltd. failed to redress the grievance of Mr. Sahil within the time fixed by the SEBI. As a result of this SEBI imposed penalty on RAMA Ltd. but the Company failed to pay the penalty.*

*(B) Mr. Collier's son run a private equity firm named PETrue that is registered with the SEBI. PETrue is considering purchase of a company named TPS Ltd. that is valued at INR 1500 million. The following information is also available about the acquisition of TPS Ltd.*

- *The acquisition will be financed with 65% debt and 35% equity.*
- *The PETrue expects to exit the investment in 4 years at a projected value of 1.60 times the initial cost.*
- *The equity investment of INR 525 million is composed of: INR 325 million in preference shares. These preference shares belong to the PETrue and offer an annual dividend of 12% (compounded annually and payable upon exit). The remaining equity of INR 200 million is divided between PETrue which hold INR 175 million and the remaining equity is held by the promoters of TPS Ltd.*
- *The PETrue firm will receive 87.5% of TPS Ltd's residual value (after accounting for payments to preference shareholders) at exit, while management will receive the remaining 12.5%.*
- *By exit, TPS expects to pay off INR 500 million of the initial INR 975 million in debt by utilizing operating cash flow.*

*(C) Mr. Collier also wants his son to supervise acquisition of Park Ltd. which is a listed company. The P/E of RAMA Ltd. is 16x and that of Park Ltd. is 13x.*

*(D) Mr. N.R. Raghav, who is friend of Mr. Collier, is the founder and Chief Executive Officer of New Tech Corp Private Limited (NTC). He has been working on a detailed valuation of his latest venture, Learn Tech (learning platform), to be presented to Mr. Arjun Pandey, partner of ACE Ventures Limited, a venture capital firm, on August 14, 2023. Mr. Raghav hopes to convince ACE Ventures Limited to invest the required amount of INR 500 lakhs. Mr. Raghav wondered what valuation method he could use to reflect the fair value of his new venture, Learn Tech. The second issue is, if ACE Ventures is convinced to invest INR 500 lakhs in Learn Tech, how much stake should be offered to ACE Ventures for an investment of INR 500 lakhs?*

*ACE Ventures believes that the Educational Technology Industry will grow at 15% per annum, and currently, the e-learning market is valued at USD 100 billion. It also forecasts this value to reach USD 200 billion by 2029. As per the reports, there are about 35 EdTech unicorns in this space. Learn Tech also has the potential to become a major player in the EdTech industry in the next five years.*

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*Learn Tech incorporates a subscription-based revenue model and generates recurring revenue as customers periodically pay a fee for exclusive access to specific products and services.*

***Free Cash Flow to Equity (FCFE) Forecast (INR Lakhs)***

| | Today | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year |
|---|---|---|---|---|---|---|
| FCFE | 119 | 194 | 269 | 379 | 434 | 469 |

*Mr. Raghav indicated to Mr. Arjun that his research suggested a ten (10) times FCFE multiple at the end of the 5th year would be reasonable. Arjun was convinced by Raghav's Proposal and told him that ACE Ventures' required rate of return from this project is a minimum of 20%. Both agreed to the above terms.*

***Choose the correct alternative for the following (MCQs):***

5.1 *Which of the following is correct regarding the circumstances under which a strategic buyer can use LBO analysis?*

(A) *To determine the debt capacity of its company*

(B) *To determine the price a financial sponsor bidder can afford to pay when competing for an asset in an auction process*

(C) *For assistance in comparable company's analysis*

(D) *For assistance in common size statement preparation* **(2 Marks)**

5.2 *Assuming all else being equal and further assuming that RAMA Ltd. acquires Park Ltd. in an all-stock deal, the transaction is ________*

(A) *Accretive*

(B) *Dilutive*

(C) *Breakeven*

(D) *Cannot be determined* **(2 Marks)**

5.3 *Which of the following is incorrect regarding the power of SEBI in case price manipulation by RAMA Ltd. along with some brokers is found to be correct?*

(A) *Suspend trading of RAMA Ltd’s shares on the stock exchange.*

(B) *Cannot suspend trading of RAMA Ltd's shares on the stock exchange.*

(C) *Restrain RAMA Ltd. from accessing the security market.*

(D) *Restrain brokers to buy, sell or deal in securities market.* **(2 Marks)**

5.4 *Which of the following is incorrect regarding the power of SEBI in the matter of Ms Koyal's allegation against Mr. Albert ?*

*(A) Direction to not dispose of any asset forming part of any transaction which is under investigation*

*(B) Direction to not alienate of any asset forming part of any transaction which is under investigation*

*(C) Imprisonment of five years*

*(D) Amount disgorged pursuant to a direction can be utilised by the SEBI in accordance with regulations* ***(2 Marks)***

*5.5 Which one of the following is incorrect regarding recovery of penalty by imposed by SEBI on RAMA Ltd. in the matter of Mr. Sahil?*

*(A) Attachment and sale of movable property*

*(B) Attachment and sale of immovable property*

*(C) Attachment of bank account*

*(D) Recovery of money from the bank account equal to the penalty and transfer to the central government.* ***(2 Marks)***

***Answer the following questions:***

*5.6 Based on the information given in Part (A) of the Case Study, evaluate the transaction carried out by a family member of Rama Ltd. from compliance angle.* ***(3 Marks)***

*5.7 Calculate the amount that the debt holders, preference shareholders and equity shareholders (PETrue and the management) of TPS Ltd. will receive at the time of exit? What will be the pay-off multiple to PETrue and the management at the time of exit?*

***(6 Marks)***

*5.8 Answer the following questions based on the information given in the Case Study.*

*(A) What would be the value of Learn Tech today if the required rate of return is 20%?*

***(2 Marks)***

*(B) What percentage of the stake should be offered to ACE Ventures if their required rate of return is 20% and for an investment of INR 500 lakhs?* ***(2 Marks)***

*(C) What is its expected gain to ACE Ventures assuming it invests INR 500 lakhs for five years in Learn Tech?* ***(2 Marks)***

**ANSWER TO CASE STUDY - 5**

**5.1 (B)**

**5.2 (A)**

**5.3 (B)**

**5.4 (C)**

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**5.5 (D)**

**5.6** In case of insider trading in the shares of the company by promoter or member of the promoter group or by any director of the company, the below mentioned provision of SEBI (Prohibition of Insider Trading) Regulations 2015 would be relevant which is as follows:

**Regulation 7(2) – Continual Disclosures**

(a) Every promoter, member of promoter groups and director of every company shall disclose to the company the number of such securities acquired or disposed of within two trading days of such transaction if the value of the securities traded, whether in one transaction or a series of transactions over any calendar quarter, aggregates to a traded value more than ten lakh rupees or such value as may be specified.

(b) Every company shall notify the particulars of such trading to the stock exchange on which the securities are listed within two trading days of receipt of the disclosure or from becoming aware of such information.

(Transaction type include buy/sales /pledge/revoke/invoke)

The above disclosures shall be made in such form and such manner as specified by SEBI from time to time. Family member of promoter can do transactions. However, it was a reportable transaction as the value of transaction exceeds the prescribed limit in this respect.

The transactions were made on 30th December,2022 while it is reported to the company on 4th January,2023, the two trading days were expired on 3rd January 2023 (as 31st December,2022 and 1st January 2023 were non trading days on account of being Saturday and Sunday). Since the transactions were reported to company after the expiry of 2 trading days, it would be non- compliance of the above referred provisions by the members of the promoters group.

It would be appropriate that the company report such transactions to the concerned stock exchange within 2 days of the receipt of such information i.e. 6th January,2023. Since it was reported on Jan 7,2023 and hence it is another case of non-compliance.

**5.7** Calculating amounts that can be paid to all providers of capital at the time of exit. First, we compute the exit value:

Exit value = 1,500m x 1.6= ₹ 2,400m

Then we compute the payoffs to each of the company's providers of capital:

Debt holders receive the amount outstanding after accounting for the `500m that were paid off using operating cash flows before exit.

Payment to debt holders = 975m- 500m=`475m

Preferred shareholders receive the face value of their investment plus preferred dividends compounded over 4 years at 12%.

Payment to preferred shareholders = ₹ 325m x (1.12) ^4 = ₹ 511.39m.

Equity holders receive the residual value of the firm after preferred shareholders have been paid off:

Payments to equity holders:

- **PETrue:** (2,400-475-511.39) x 0.875 =₹1,236.91m
- **Management:** (2,400-475-511.39) x 0.125= ₹176.70m

**Calculating the payoff multiple for equity holders:**

The total payoff to the PE True equals the sum of the payoffs on its preference shares and equity stake in the company.

Total payoff for PE True = 511.39 + 1236.91 = ₹ 1748.3m

Total payoff PE True = 1,748.3/ (325+175) = 3.5 times

The total payoff to management equals its pro rata share of the company's residual value.

Total payoff for management = 176.70 million

Payoff multiple for management = 176.70/25 = 7.07 times

**5.8** **(A)** Value of Learn Tech if required rate of return is 20%

| FCFE | Year | PV Factor @ 20% | Present Value |
|---|---|---|---|
| 119 | 0 | 1 | 119 |
| 194 | 1 | 0.833 | 161.6 |
| 269 | 2 | 0.694 | 186.69 |
| 379 | 3 | 0.579 | 219.44 |
| 434 | 4 | 0.482 | 209.19 |
| 469 | 5 | 0.402 | 188.54 |
| | | | **1084.46** |

$$\text{Terminal Value} = \frac{469 \times 1.15}{0.20 - 0.15} = 10787$$

$$\text{Or } \frac{10787}{(1+0.20)^5} = 10787 \times 0.402 = 4336.37$$

So, Present Value = 1084.46 + 4336.37 = **5420.83**

**(B)** $\%\text{ of stake offered to ACE ventures } = \frac{\text{Investment}}{\text{Post money valuation}}$

Exit value = 10 x ₹ 469 lakhs = ₹ 4690 lakhs

Post money valuation = $\frac{4690}{(1.20)^5}$ = **₹ 1883.53 lakhs**

Equity % = 500/1883.53 = 26.55%

**(C)** Gain to ACE ventures

= Exit Value x Equity % of ACE Ventures – Initial Investment

= 1245.20 - 500 = **₹ 745.20 lakhs**

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