

Mock Test Paper - Series I: November, 2025

Date of Paper: 19th November, 2025

Time of Paper: 2 P.M. to 5 P.M.

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

Time Allowed – 3 Hours

Maximum Marks – 100

1. *The question paper comprises two parts, Part I and Part II.*
2. *Part I comprises Case Scenario based Multiple Choice Questions (MCQs)*
3. *Part II comprises questions which require descriptive type answers.*

PART I – Case Scenario based MCQs (30 Marks)

Part I is compulsory.

Case Scenario I

X and Y are two friends. Since Y has earned a lot of profit from trading in financial derivative market, X is also considering speculating on Gamma Corporation's shares which is currently trading at ₹ 700 per share through taking positions in options in stocks of same company. Accordingly, X took following contract positions in the options on Gama Corporation's stock:

- (i) Purchasing one contract of 2-month call option with a premium of ₹ 35 and an exercise price of ₹ 750.
- (ii) Purchasing one contract of 2-month put option with a premium of ₹ 25 and an exercise price of ₹ 600.

After some time, trading in Option Market and understanding the nitty-gritties of same, X being CEO in an organization advised his team to implement the concept of Financial Options in the Capital Budgeting decisions called 'Real Option'.

Based on the above information answer the following questions:

1. Assuming that the contract size of each option contract is 100 and the price of Gama Corporation's share after two months falls to ₹ 550, the net pay-off of X will be.....
 - (a) ₹ 1,000 loss
 - (b) ₹ 1,000 profit
 - (c) ₹ 3,000 profit
 - (d) ₹ 3,000 loss

2. The per share price of Gama Corporation's stock after 2 months at which X shall be at Break Even is.....
- ₹ 540
 - ₹ 600
 - ₹ 625
 - ₹ 785
3. Which of the following statement is false regarding Real Options?
- Real Options methodology is an approach to capital budgeting that relies on Option Pricing theory to evaluate projects.
 - Real options approach is intended to supplement, and not replace, capital budgeting analyses based on standard Discounted Cash Flow (DCF) methodologies.
 - Real options are different from financial options as their periods start from the end of 1st year and are higher than financial options.
 - Real options are normally traded in the market and are priced. **(3 x 2 = 6 Marks)**

Case Scenario II

P Ltd. is studying the possible acquisition of Q Ltd. by way of merger. The following data are available:

Firm	After-tax earnings	No. of equity shares	Market price per share	Book Value Per share
P Ltd.	₹ 10,00,000	2,00,000	₹ 75	₹ 210
Q Ltd.	₹ 3,00,000	50,000	₹ 60	₹ 105

The merger shall be gone through by exchange of equity shares and the exchange ratio is set according to different weights assigned to different basis as mentioned below :-

EPS	50%
Market Price	25%
Book Value	25%

4. The swap ratio based on given weights shall be.....
- 0.825
 - 0.925

- (c) 0.952
(d) 0.752
5. Based on swap ratio as per assigned weights the total number of shares issued by P Ltd to Q Ltd. shall be.....
- (a) 46250
(b) 41250
(c) 47600
(d) 37600
6. Post merger the EPS of the P Ltd. shall be.....
- (a) 5.39
(b) 5.25
(c) 5.28
(d) 5.47
7. In case Q Ltd. wants to be sure that its EPS is not diminished by the merger, the relevant exchange ratio to achieve the same objective should be.....
- (a) 0.83
(b) 1.20
(c) 1.30
(d) 1.10

(4 x 2 = 8 Marks)

Case Scenario III

The following information is available in respect of Bond A and Bond B.

	Bond A	Bond B
Face value, redeemable at par	₹ 1000	₹ 1000
Coupon rate, payable annually (%)	6%	10%
Time to maturity (years)	5	3

An investor has the portfolio consisting of 75% of Bond A and 25% of Bond B. The current YTM's prevailing in the market is 10%.

Year (n) :	1	2	3	4	5
PVIF (10%, n) :	0.9091	0.8264	0.7513	0.6830	0.6209

From the information given above, choose the correct answer to the following questions:

8. The price and duration of the Bond B shall be approximatelyrespectively.
 - (a) ₹ 826.43 and 2.49
 - (b) ₹ 1,000 and 2.74
 - (c) ₹ 924.85 and 2.74
 - (d) ₹ 1,000 and 2.49
9. The price and duration of the Bond A shall be approximatelyrespectively.
 - (a) ₹ 848.34 and 4.41
 - (b) ₹ 811.09 and 4.38
 - (c) ₹ 1,227.44 and 4.41
 - (d) ₹ 658.15 and 3.90
10. The price sensitivity of the portfolio approximately is.....
 - (a) -4.03
 - (b) -2.49
 - (c) -3.63
 - (d) -3.98

(3 x 2 = 6 Marks)

Case Scenario IV

XYZ Ltd. is a mid-sized manufacturing company that produces industrial equipment. The company is considering a new investment project—a state-of-the-art automated production line, which is expected to improve production efficiency. The details of the same project are as follows:

	₹
Initial Cost of the project	10,00,000
Sales price/unit	60
Cost/unit	40
Sales volumes	
Year 1	20000 units
Year 2	30000 units
Year 3	30000 units

The applicable discount rate is 10% p.a.

From the information given above, choose the correct answer to the following questions:

11. Sensitivity analysis helps to identify.....
- (a) the exact profitability of the project
 - (b) the break-even point.
 - (c) the degree to which a change in each variable affects the NPV.
 - (d) the amount of investment required
12. The sale price per unit so that the project would break even with zero NPV shall be approximately.....
- (a) ₹ 40.00
 - (b) ₹ 55.26
 - (c) ₹ 60.00.
 - (d) ₹ 44.74
13. The cost per unit so that the project would break even with zero NPV shall be approximately.....
- (a) ₹ 40.00
 - (b) ₹ 55.26
 - (c) ₹ 60.00.
 - (d) ₹ 44.74
14. Overallin the sale volume will lead to the project to break even with zero NPV.
- (a) increase of 23.68%
 - (b) fall of 23.68%
 - (c) Increase of 31.03%
 - (d) fall of 31.03%
15. A/anin the initial outlay will lead to the project to break even with zero NPV.
- (a) increase of 23.68%
 - (b) fall of 23.68%
 - (c) Increase of 31.03%
 - (d) fall of 31.03%
- (5 x 2 = 10 Marks)**

PART – II DESCRIPTIVE QUESTIONS

Question No.1 is compulsory. Candidates are required to answer any four questions from the remaining five questions.

Working notes should form part of the answers.

Maximum Marks – 70 Marks

1. (a) True Life Inc., a US based company, has won a contract to implement a project in India. The project will require an initial investment of ₹ 8000 million. The whole project along with the equipment will be sold to the Indian Government for ₹ 9600 million in one-year time. Since the Indian Government will pay for the amount in Indian Rupee (₹), the company is worried about exposure due to exchange rate volatility.
- (i) Construct a swap that will help the True Life Inc. to reduce the exchange rate risk.
- (ii) Assume that the Indian Government offers a swap at spot rate which is ₹/USD 80 in one year. The spot rate after one year is expected to be ₹/USD 84. Further, you may also assume that the True Life Inc., can also take a USD loan at 6% per annum.

Advise whether the company should opt for this option or just do nothing.

(6 Marks)

- (b) XY Ltd., paid a dividend of ₹ 3 for the current year. The dividend is expected to grow at 30% for the next 5 years and at 15% per annum thereafter. The return on 182 days T-bills is 12% per annum and the market return is expected to be around 16% with a variance of 24%.

The Co-Variance of XY's return with that of the market return is 30%.

You are required to:

- (i) Calculate the Required Rate of Return
- (ii) Calculate the Intrinsic Value of the Stock

The PVF at 17% is given below:

Year	1	2	3	4	5
PVF (17%)	0.855	0.731	0.624	0.534	0.456

(4 Marks)

- (c) Explain the various steps involved in the Business Succession Strategy. **(4 Marks)**

2. (a) The Closing values of NSE Nifty from 2nd January, 2024 to 12th January, 2024 were as follows:

Days	Date	Day	Nifty
1	2	TUE	21,742
2	3	WED	21,665
3	4	THU	21,517
4	5	FRI	21,462
5	6	SAT	No Trading
6	7	SUN	No Trading
7	8	MON	21,238
8	9	TUE	21,182
9	10	WED	20,997
10	11	THU	20,926
11	12	FRI	20,901

You are required to:

- (i) Calculate Exponential Moving Average (EMA) of Nifty during the above period. The previous day exponential moving average of Nifty can be assumed as 21,500, The value of exponent for 31 days EMA is 0.062
- (ii) Give brief analysis on the basis of your calculations. **(6 Marks)**

Note: Round off calculations upto two decimal points.

- (b) A firm is considering a proposal to set up a cement manufacturing plant with an initial investment of ₹ 150 crore. The firm has the option to abandon the project after one year by selling it to a competitor for ₹ 100 crore if the market conditions are unfavorable and the demand is low, the project's value will decline by 60%. However, if the market conditions turn out to be favorable and the demand for cement is high, the value of the project at the end of year 1 will increase by 50%. Given that the risk free rate of interest as 8%, what will be the value of the abandonment option? **(4 Marks)**
- (c) Explain how Distributed Ledger Technology (DTL) is already in use in fields like financial services, healthcare, travel industry and economic forecasts. **(4 Marks)**
3. (a) A Japanese company imports hi-tech printer cartridges from US worth \$1 million. The chief financial officer of the company wishes to know the best strategy for protection against uncertainty, for the payment that has to be made at the end of

3 months. Financial team of the company has collected the following options for evaluation:

Table-1: Exchange rates quoted in FOREX Market:

¥/\$ Quotations	Bid Price	Offer/Ask Price
Spot Rates	146.03	146.63
3M – Forward Rates	144.03	145.00
6M – Forward Rates	146.35	146.70

Table-2: Options Market rates for European options with 3 months expiry:

Type of Option	Strike Price (X) (¥/\$)	Premium (%) for Call & Put Options
Call & Put	145.20	1.6766% (Call) & 1.7414% (Put)
Call & Put	146.00	1.3505% (Call) & 2.1006% (Put)

The expected spot price at expiry is ¥/\$: 144.90/145.05

Suggest the best strategy for CFO of the Japanese Company to protect against uncertainty, with respect to the following alternatives:

- (i) Forward Hedge
 - (ii) Buy 3 months call, X = 145.20
 - (iii) Sell 3 months put, X = 145.20
 - (iv) Buy call & sell put both having X = 146.00 **(6 Marks)**
- (b) Shares of V Ltd. are being quoted at a trailing Price Earning (PE) ratio of 8 times. The company retains ₹ 5 per share which is 45% of its Earning Per Share.

You are required to compute:

- (i) The cost of equity to the company if the market expects a growth rate of 15% p.a.
- (ii) If the anticipated growth rate is 16% per annum, calculate the indicative market price with the same cost of capital.
- (iii) If the company's cost of capital is 20% p.a. & the anticipated growth rate is 19% p.a., calculate the market price per share.

Note: Round off calculations upto 2 decimals. **(4 Marks)**

Either

- (c) Explain Berkus Approach for valuing Startups. **(4 Marks)**

Or

- (c) Explain two approaches that are used to calculate External Funding Requirement (EFR) and the type of funding. **(4 Marks)**

4. (a) A company is considering Projects X and Y with following information:

Project	Expected NPV (₹)	Standard deviation
X	1,22,000	90,000
Y	2,25,000	1,20,000

- (i) Which project will you recommend based on the above data?
- (ii) Explain whether your opinion will change, if you use coefficient of variation as a measure of risk.
- (iii) Which measure is more appropriate in this situation and why? **(4 Marks)**

- (b) ANP Plan, a hedge fund currently has assets of ₹ 20 crore. CA. X, the manager of fund charges fee of 0.10% of portfolio asset. In addition to it he charges incentive fee of 2%. The incentive will be linked to gross return each year in excess of the portfolio maximum value since the inception of fund. The maximum value the fund achieved so far since inception of fund about one and half year ago was ₹ 21 crores.

You are required to compute the fee payable to CA. X, if return on the fund this year turns out to be:

- (i) 29%, (ii) 4.5%, (iii) -1.8% **(6 Marks)**

- (c) Explain the advantages and disadvantages of Foreign Currency Convertible Bonds. **(4 Marks)**

5. (a) Mr. Abhishek is interested in investing ₹ 2,00,000 for which he is considering following three alternatives:

- (i) Invest ₹ 2,00,000 in Mutual Fund X (MFX)
- (ii) Invest ₹ 2,00,000 in Mutual Fund Y (MFY)
- (iii) Invest ₹ 1,20,000 in Mutual Fund X (MFX) and ₹ 80,000 in Mutual Fund Y (MFY)

Average annual return earned by MFX and MFY is 15% and 14% respectively. Risk free rate of return is 10% and market rate of return is 12%.

Covariance of returns of MFX, MFY and market portfolio Mix are as follow:

	MFX	MFY	Mix
MFX	4.800	4.300	3.370
MFY	4.300	4.250	2.800
Mix	3.370	2.800	3.100

You are required to calculate:

- (i) variance of return from MFX, MFY and market return,
- (ii) portfolio return, beta, portfolio variance and portfolio standard deviation,
- (iii) expected return, systematic risk and unsystematic risk; and
- (iv) Sharpe ratio, Treynor ratio and Alpha of MFX, MFY and Portfolio Mix.

(8 Marks)

- (b) XYZ Limited borrows £ 15 Million of six months SONIA + 10.00% for a period of 24 months. The company anticipates a rise in SONIA, hence it proposes to buy a Cap Option from its Bankers at the strike rate of 8.00%. The lump sum premium is 1.00% for the entire reset periods and the fixed rate of interest is 7.00% per annum. The actual position of SONIA during the forthcoming reset period is as under:

Reset Period	SONIA
1.	9.00%
2.	9.50%
3.	10.00%

You are required to show how far interest rate risk is hedged through Cap Option.

For calculation, work out figures at each stage up to three decimal points and amount nearest to £. It should be part of working notes.

(6 Marks)

6. (a) PQR Ltd. is considering a project in US, which involve an initial investment of ₹ 124.50 Crore. The project will have useful life of 5 years Current spot exchange rate is INR/USD is 83. The risk free rate in US is 4.186% and the same in India is 6.9768%. Cash inflows in USD from the project are as follows:

Year	1	2	3	4	5
Cash inflow	30,00,000	40,00,000	50,00,000	60,00,000	70,00,000

PQR Ltd. is expecting net surplus of ₹ 1858.08 lakh to be received after closure of the project. There is no salvage value. PQR Ltd. want to take a forward cover to protect itself from exchange rate fluctuations.

N	1	2	3	4	5
PVIF (6.976%, n)	0.935	0.874	0.817	0.764	0.714
PVIF (4.186%, n)	0.959	0.921	0.884	0.849	0.815
PVIF (12%, n)	0.893	0.797	0.712	0.636	0.567

You are required to recommend one INR/USD rate for the forward cover, if required rate of return on this project in Indian Rupee is 15%? **(8 Marks)**

- (b) SAM Ltd. has just paid a dividend of ₹ 2 per share and it is expected to grow @ 6% p.a. After paying dividend, the Board declared to take up a project by retaining the next three annual dividends. It is expected that this project is of same risk as the existing projects. The results of this project will start coming from the 4th year onward from now. The dividends will then be ₹ 2.50 per share and will grow @ 7% p.a.

An investor has 1,000 shares in SAM Ltd. and wants a receipt of at least ₹ 2,000 p.a. from this investment.

Show that the market value of the share is affected by the decision of the Board. Also show as to how the investor can maintain his target receipt from the investment for first 3 years and improved income thereafter, given that the cost of capital of the firm is 8%. **(6 Marks)**

Mock Test Paper - Series I: November, 2025

Date of Paper: 19th November, 2025

Time of Paper: 2 P.M. to 5 P.M.

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

ANSWER TO PART – I CASE SCENARIO BASED MCQS

1. Option (a)
2. Option (a)
3. Option (d)
4. Option (b)
5. Option (a)
6. Option (c)
7. Option (b)
8. Option (b)
9. Option (a)
10. Option (c)
11. Option (c)
12. Option (b)
13. Option (d)
14. Option (b)
15. Option (c)

ANSWERS OF PART – II DESCRIPTIVE QUESTIONS

1. (a) (i) The following swap arrangement can be entered by True Life Inc.
 - (1) Swap a US\$ loan today at an agreed rate with any party to obtain Indian Rupees (₹) to make initial investment.
 - (2) After one year swap back the Indian Rupees with US\$ at the agreed rate. In such case the company is exposed only on the profit earned from the project.

(ii) With the swap

	Year 0 (Million US\$)	Year 1 (Million US\$)
Buy ₹ 8000 million at spot rate of 1 US\$ = ₹ 80	(100.00)	-----
Swap ₹ 8000 million back at agreed rate of ₹ 80		100.00
Sell ₹ 1600 million at 1 US\$ = ₹ 84		19.05
Interest on US\$ loan @6% for one year		(6.00)
	(100.00)	113.05

Net result is a net receipt of US\$ 13.05 million.

Without the swap

	Year 0 (Million US\$)	Year 1 (Million US\$)
Buy ₹ 8000 million at spot rate of 1 US\$ = ₹ 80	(100.00)	
Sell ₹ 9600 million at 1 US\$ = ₹ 84		114.29
Interest on US\$ loan @6% for one year		(6.00)
	(100.00)	108.29

Net result is a net receipt of US\$ 8.29 million.

Decision: Since the net receipt is higher in swap option the company should opt for the same. **(6 marks)**

(b) (i) $\beta = \frac{\text{Covariance of Market Return and Security Return}}{\text{Variance of Market Return}}$

$$\beta = \frac{30\%}{20\%} = 1.25$$

$$\begin{aligned} \text{Required Rate of Return} &= R_f + \beta (R_m - R_f) \\ &= 12\% + 1.25(16\% - 12\%) \\ &= 12\% + 5.00\% = 17.00\% \end{aligned}$$

(ii) Intrinsic Value

Year	Dividend (₹)	PVF (17%,n)	Present Value (₹)
1	3.90	0.855	3.33
2	5.07	0.731	3.71
3	6.59	0.624	4.11
4	8.57	0.534	4.58
5	11.14	0.456	5.08
			20.81

$$\text{PV of Terminal Value} = \frac{11.14 \times 1.15}{0.17 - 0.15} \times 0.456 = ₹ 292.09$$

$$\text{Intrinsic Value} = ₹ 20.81 + ₹ 292.09 = ₹ 312.90$$

(4 Marks)

(c) Following steps are involved in Business Succession Strategy

Step 1 – Evaluate key leadership positions: - To evaluate which roles are critical, risk or impact assessment can be performed. Generally, these are such positions which would bring transformation to the entire business or create strategic direction for the organization.

Step 2 – Map competencies required for above positions: - In this step, one needs to identify qualifications, behavioral and technical competencies required to perform the role successfully.

Step 3 – Identify competencies of current workforce: - Identifying what are possible internal options that can deliver results as expected in Step-2, and also if there is a need for training and development of certain skills required. The organization should also place weight on whether is there a need to search outside the organization.

Step 4 – Bridge Leader: - In family owned business appointment of an outsider as 'bridge leaders' will help to develop the business and prepare young family members for leadership role.

(4 marks)

2. (a) (i)

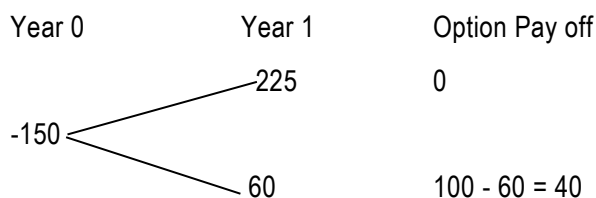
Date	1 Nifty	2 EMA for Previous Day	3 1 - 2	4 3x0.062	5 EMA 2 ± 4
2	21742	21500.00	242.00	15.00	21515.00
3	21665	21515.00	150.00	9.30	21524.30

4	21517	21524.30	-7.30	-0.45	21523.85
5	21462	21523.85	-61.85	-3.83	21520.02
8	21238	21520.02	-282.02	-17.49	21502.53
9	21182	21502.53	-320.53	-19.87	21482.66
10	20997	21482.66	-485.66	-30.11	21452.55
11	20926	21452.55	-526.55	-32.65	21419.90
12	20901	21419.90	-518.90	-32.17	21387.73

- (ii) *Conclusion* – The market is bearish. The market is likely to remain bearish for short term to medium term if other factors remain the same. On the basis of this indicator (EMA) the investors/brokers can take short position.

(6 marks)

- (b) Decision Tree showing pay off



First of all, we shall calculate probability of high demand (p) using risk neutral method as follows:

$$8\% = p \times 50\% + (1-p) \times (-60\%)$$

$$0.08 = 0.50p - 0.60 + 0.60p$$

$$p = 0.68/1.10 = 0.618 \text{ or } 0.62$$

The value of abandonment option will be as follows:

Expected Payoff at Year 1

$$= p \times 0 + [(1-p) \times 40]$$

$$= 0.618 \times 0 + [0.382 \times 40]$$

$$= ₹ 15.28 \text{ crore}$$

Since expected pay off at year 1 is ₹ 15.28 crore. Present value of expected pay off will be:

$$\frac{15.28}{1.08} = ₹ 14.15 \text{ crore}$$

Thus, the value of abandonment option is ₹ 14.15 crore. **(4 marks)**

(c) The already existing use of DTL or Blockchain in various fields are discussed below:

- (a) Financial Services: Blockchain can be used to provide an automated trade lifecycle in terms of the transaction log of any transaction of asset or property - whether physical or digital such as laptops, smartphones, automobiles, real estate, etc. from one person to another.
- (b) Healthcare: Blockchain provides secure sharing of data in healthcare industry by increasing the privacy, security, and interoperability of the data by eliminating the interference of third party and avoiding the overhead costs.
- (c) Government: At the government front, there are instances where the technical decentralization is necessary but politically should be governed by governments like land registration, vehicle registration and management, e-voting etc. Blockchain improves the transparency and provides a better way to monitor and audit the transactions in these systems.
- (d) Travel Industry: Blockchain can be applied in money transactions and in storing important documents like passports/other identification cards, reservations and managing travel insurance, loyalty, and rewards thus, changing the working of travel and hospitality industry.
- (e) Economic Forecasts: Blockchain makes possible the financial and economic forecasts based on decentralized prediction markets, decentralized voting, and stock trading, thus enabling the organizations to plan and shape their businesses. **(4 marks)**

3. (a) (i) Forward Hedge

Amount payable after 3 months	\$ 1000000
3 month applicable buying rate	¥ 145/\$
Amt. payable in Yen	¥ 145 million

(ii) Buy 3 month call option $X = ¥ 145.20$

If expected spot price after 3 month is ¥ 145.05

Then company would not exercise its option. Accordingly, the cost of import will be:

Buying Yen in spot Market after 3 month	¥ 145.05 million
Add: Premium Paid ¥ 145.20 x 1.6766% x \$ 1 million	¥ 2.43 million
	¥ 147.48 million

(iii) Selling 3 month Put at X = ¥ 145.20

If expected spot price after 3 month ¥ 144.90, then Put Option buyer will exercise his /her option.

Accordingly, the import Bill will be:

Buying Yen in under option after 3 month	¥ 145.20 million
Less: Premium Receipt ¥ 145.20 x 1.7414% x \$ 1 million	¥ 2.53 million
	¥ 142.67 million

(iv) Buying Call and selling Put at X = ¥ 146

Net Premium receipt

Premium paid on call option = ¥ 146.00 x 1.3505%	¥ 1.9717 million
Premium Receipt on Put option = ¥ 146.00 x 2.1006%	¥ 3.0669 million
	¥ 1.0952 million

If expected spot Rate expiry happens to be ¥ 144.90/145.05, then call option will be lapsed and Put option by buyer will be exercised. Accordingly, the import bill will be:

Buying US\$ under Put Option	¥ 146.00 million
Less: Receipt of Net Premium	¥ 1.09520 million
	¥ 144.905 million

Decision: Since expected outflow is least in case of selling Put option, the same strategy is recommended. **(6 marks)**

(b) (i) **Cost of Capital**

Retained earnings (45%)	₹ 5 per share
Dividend (D0) (55%)	₹ 6.11 per share

EPS (E0) (100%) ₹ 11.11 per share
P/E Ratio 8 times
Market price ₹ 11.11 × 8 = ₹ 88.88

Cost of equity capital

$$= \left(\frac{\text{Div}}{\text{Price}} \times 100 \right) + \text{Growth \%} = \frac{6.11(1+0.15)}{88.88} \times 100 + 15\% = 22.97\%$$

$$\begin{aligned} \text{(ii) Market Price} &= \left(\frac{\text{Dividend}}{\text{Cost of Capital(\%)} - \text{Growth Rate(\%)}} \right) \\ &= \frac{\text{₹ } 6.11(1+0.16)}{(22.91 - 16)\%} = \text{₹ } 102.60 \text{ per share} \end{aligned}$$

$$\text{(iii) Market Price} = \frac{\text{₹ } 6.11(1+0.19)}{(20-19)\%} = \text{₹ } 727.00 \text{ per share} \quad \textbf{(4 marks)}$$

- (c) The Berkus Approach, created by American venture capitalist and angel investor Dave Berkus, looks at valuing a startup enterprise based on a detailed assessment of five key success factors:

- (1) Basic value,
- (2) Technology,
- (3) Execution,
- (4) Strategic relationships in its core market, and
- (5) Production and consequent sales.

A detailed assessment is carried out evaluating how much value the five critical success factors in quantitative measure add up to the total value of the enterprise. Based on these numbers, the startup is valued.

This method caps pre-revenue valuations at \$2 million and post-revenue valuations at \$2.5 million. Although it doesn't consider other market factor, the limited scope is useful for businesses looking for an uncomplicated tool.

(4 marks)

OR

To compute EFR and the type of funding, the following approaches can be used:

- (1) *Analytical Approach*: In this approach, we begin by analyzing each item on the balance sheet in relation to changes in sales and determine their amounts while considering prescribed conditions, such as maintaining specific Debt-to-Equity or Current Ratios, among others.
- (2) *Formula based Approach*: In this approach, we first calculate the amount of EFR using the following formula:

$$\text{EFR} = \frac{\text{TA}}{\text{Sales}} \times \Delta S - \frac{\text{Payable and Liabilities}}{\text{Sales}} \times \Delta S - mS_1(1 - d)$$

Where:

ΔS = Change in Sales

S_1 = Revised Sales

TA = Total Assets

Payable and Liabilities = Payables and liabilities that change spontaneously in accordance with level of sales.

m = Profit Multiplier or percentage of Net Profit after Tax

d = Dividend Pay-out Ratio

(4 marks)

4. (a) (i) On the basis of standard deviation project X be chosen because it is less risky than Project Y having higher standard deviation.

(ii) $CV_x = \frac{SD}{ENPV} = \frac{90,000}{1,22,000} = 0.738$

$$CV_y = \frac{1,20,000}{2,25,000} = 0.533$$

On the basis of Co-efficient of Variation (C.V.) Project X appears to be riskier and hence Y should be accepted.

- (iii) However, the NPV method in such conflicting situation is best because the NPV method is in compatibility of the objective of wealth maximisation in terms of time value. **(4 marks)**

- (b) (i) If return is 29%

	₹
Fixed fee (A) 0.10% of ₹ 20 crore	2,00,000
New Fund Value (1.29 x ₹ 20 crore)	25.80 crore
Excess Value of best achieved (25.8 crore – 21.0 crore)	4.80 crore
Incentive Fee (2% of 4.80 crores) (B)	9,60,000
Total Fee (A)+(B)	11,60,000

- (ii) If return is 4.5%

	₹
Fixed (A) 0.10% of ₹ 20 crore	2,00,000
New Fund Value (1.045 x ₹ 20 crore)	20.90 crore
Excess Value of best achieved (20.90 crore – 21.00 crore)	(₹ 0.10 crore)
Incentive Fee (as does not exceed best achieved) (B)	Nil
Total Fee (A)+(B)	2,00,000

- (iii) If return is (-1.8%)

No incentive only fixed fee of ₹ 2,00,000 will be paid. **(6 marks)**

(c) **Advantages of FCCBs**

- (i) The convertible bond gives the investor the flexibility to convert the bond into equity at a price or redeem the bond at the end of a specified period, normally three years if the price of the share has not met his expectations.
- (ii) Companies prefer bonds as it leads to delayed dilution of equity and allows company to avoid any current dilution in earnings per share that a further issuance of equity would cause.
- (iii) FCCBs are easily marketable as investors enjoy the option of conversion into equity resulting into capital appreciation. Further investor is assured of a minimum fixed interest earnings.

Disadvantages of FCCBs

- (i) Exchange risk is more in FCCBs as interest on bonds would be payable in foreign currency. Thus, companies with low debt equity ratios, large forex earnings potential only opt for FCCBs.

- (ii) FCCBs mean creation of more debt and a forex outgo in terms of interest which is in foreign exchange.
- (iii) In the case of convertible bonds, the interest rate is low, say around 3–4% but there is exchange risk on the interest payment as well as re-payment if the bonds are not converted into equity shares. The only major advantage would be that where the company has a high rate of growth in earnings and the conversion takes place subsequently, the price at which shares can be issued can be higher than the current market price. **(4 marks)**

5. (a) (i) Variance of Returns

$$\text{Cor}_{i,j} = \frac{\text{Cov}(i,j)}{\sigma_i \sigma_j}$$

Accordingly, for MFX

$$1 = \frac{\text{Cov}(X,X)}{\sigma_X \sigma_X}$$

$$\sigma_X^2 = 4.800$$

Accordingly, for MFY

$$1 = \frac{\text{Cov}(Y,Y)}{\sigma_Y \sigma_Y}$$

$$\sigma_Y^2 = 4.250$$

Accordingly, for Market Return

$$1 = \frac{\text{Cov}(M,M)}{\sigma_M \sigma_M}$$

$$\sigma_M^2 = 3.100$$

Alternatively, by referring diagonally the given Table these values can be identified as follows:

$$\text{Variance}_X = 4.800$$

$$\text{Variance}_Y = 4.250$$

$$\text{Variance}_M = 3.100$$

(ii) Portfolio return, beta, variance and standard deviation

$$\text{Weight of MFX in portfolio} = \frac{1,20,000}{2,00,000} = 0.60$$

$$\text{Weight of MFY in portfolio} = \frac{80,000}{2,00,000} = 0.40$$

Accordingly, Portfolio Return

$$0.60 \times 15\% + 0.40 \times 14\% = 14.60\%$$

Beta of each Fund

$$\beta = \frac{\text{Cov (Fund,Market)}}{\text{Variance of Market}}$$

$$\beta_x = \frac{3.370}{3.100} = 1.087$$

$$\beta_y = \frac{2.800}{3.100} = 0.903$$

Portfolio Beta

$$0.60 \times 1.087 + 0.40 \times 0.903 = 1.013$$

Portfolio Variance

$$\sigma_{XY}^2 = w_x^2 \sigma_x^2 + w_y^2 \sigma_y^2 + 2 w_x w_y \text{Cov}_{x,y}$$

$$= (0.60)^2 (4.800) + (0.40)^2 (4.250) + 2(0.60) (0.40) (4.300) \\ = 4.472$$

Or Portfolio Standard Deviation

$$\sigma_{XY} = \sqrt{4.472} = 2.115$$

(iii) Expected Return, Systematic and Unsystematic Risk of Portfolio

$$\text{Portfolio Return} = 10\% + 1.0134(12\% - 10\%) = 12.03\%$$

$$\text{MF X Return} = 10\% + 1.087(12\% - 10\%) = 12.17\%$$

$$\text{MF Y Return} = 10\% + 0.903(12\% - 10\%) = 11.81\%$$

$$\text{Systematic Risk} = \beta^2 \sigma^2$$

Accordingly,

$$\text{Systematic Risk of MFX} = (1.087)^2 \times 3.10 = 3.663$$

$$\text{Systematic Risk of MFY} = (0.903)^2 \times 3.10 = 2.528$$

$$\text{Systematic Risk of Portfolio} = (1.013)^2 \times 3.10 = 3.181$$

$$\text{Unsystematic Risk} = \text{Total Risk} - \text{Systematic Risk}$$

Accordingly,

$$\text{Unsystematic Risk of MFX} = 4.80 - 3.663 = 1.137$$

$$\text{Unsystematic Risk of MFY} = 4.250 - 2.528 = 1.722$$

$$\text{Unsystematic Risk of Portfolio} = 4.472 - 3.181 = 1.291$$

(iv) Sharpe and Treynor Ratios and Alpha

Sharpe Ratio

$$\text{MFX} = \frac{15\% - 10\%}{\sqrt{4.800}} = 2.282$$

$$\text{MFY} = \frac{14\% - 10\%}{\sqrt{4.250}} = 1.94$$

$$\text{Portfolio} = \frac{14.6\% - 10\%}{2.115} = 2.175$$

Treynor Ratio

$$\text{MFX} = \frac{15\% - 10\%}{1.087} = 4.60$$

$$\text{MFY} = \frac{14\% - 10\%}{0.903} = 4.43$$

$$\text{Portfolio} = \frac{14.6\% - 10\%}{1.0134} = 4.54$$

Alpha

$$\text{MFX} = 15\% - 12.17\% = 2.83\%$$

$$\text{MFY} = 14\% - 11.81\% = 2.19\%$$

$$\text{Portfolio} = 14.6\% - 12.03\% = 2.57\%$$

(8 Marks)

(b) First of all we shall calculate premium payable to bank as follows:

$$P = \frac{rp}{\left[(1+i) - \frac{1}{i \times (1+i)^t} \right]} \times A \text{ or } \frac{rp}{PVA(3.5\%,4)} \times A$$

Where

P = Premium

A = Principal Amount

rp = Rate of Premium

i = Fixed Rate of Interest

t = Time

$$= \frac{0.01}{\left[(1/0.035) - \frac{1}{0.035 \times 1.035^4} \right]} \times £15,000,000 \text{ or } \frac{0.01}{(0.966 + 0.933 + 0.901 + 0.871)}$$

× £15,000,000

$$= \frac{0.01}{\left[(28.571) - \frac{1}{0.0402} \right]} \times £15,000,000 = £ 40,595 \text{ or } \frac{£150,000}{3.671} = £ 40,861$$

Now we see the net payment received from bank

Reset Period	Additional interest due to rise in interest rate	Amount received from bank	Premium paid to bank*	Net Amt. received from bank
1	£ 75,000	£ 75,000	£ 40,861	£34,139
2	£ 112,500	£ 112,500	£ 40,861	£71,639
3	£ 150,000	£ 150,000	£ 40,861	£109,139
TOTAL	£ 337,500	£ 337,500	£122,583	£ 214,917

Thus, from above it can be seen that interest rate risk amount of £ 337,500 reduced by £ 214,917 by using of Cap option.

* Alternatively, if premium paid is considered as £ 40,595, then above figure of £ 214,917 shall be changed to £ 215,715.

(6 Marks)

6. (a) First we shall compute the risk adjusted dollar rate for discounting as follows:

$$(1 + 0.06978) / (1 + \text{Risk Premium}) = (1 + 0.15)$$

$$\text{Or, } 1 + \text{Risk Premium} = 1.15 / 1.06978 = 1.0750$$

Therefore, Risk adjusted dollar rate is $= (1.0750 \times 1.04186) - 1 = 1.1199 - 1 = 0.1199$ say 0.12 i.e. 12%

Now we shall calculate the NPV of the project as follows:

Year	Cash flow US\$ lakh	PV Factor at 12%	PV (US\$ lakh)
1	30.00	0.893	26.79
2	40.00	0.797	31.88
3	50.00	0.712	35.60
4	60.00	0.636	38.16
5	70.00	0.567	<u>39.69</u>
			172.12
		Less: Investment	<u>150.00</u>
		NPV	<u>22.12</u>

Since PQR Ltd. is expecting a net surplus of USD 22.12 lakh after the closure of the project the recommended forward rate of INR/ USD is ₹ 84.00 (₹ 1858.08 lakh/ USD 22.12 lakh).

(8 Marks)

(b) Value of share at present $= \frac{D_1}{k_e - g}$

$$= \frac{2(1.06)}{0.08 - 0.06} = ₹ 106$$

However, if the Board implement its decision, no dividend would be payable for 3 years and the dividend for year 4 would be ₹ 2.50 and growing at 7% p.a. The price of the share, in this case, now would be:

$$P_0 = \frac{2.50}{0.08 - 0.07} \times \frac{1}{(1 + 0.08)^3} = ₹ 198.46$$

So, the price of the share is expected to increase from ₹ 106 to ₹ 198.45 after the announcement of the project. The investor can take up this situation as follows:

Expected market price after 3 years $= \frac{2.50}{0.08 - 0.07} = ₹ 250.00$

$$\text{Expected market price after 2 years} = \frac{2.50}{0.08 - 0.07} \times \frac{1}{(1 + 0.08)} = ₹ 231.48$$

$$\text{Expected market price after 1 year} = \frac{2.50}{0.08 - 0.07} \times \frac{1}{(1 + 0.08)^2} = ₹ 214.33$$

In order to maintain his receipt at least ₹ 2,000 for first 3 year, he would sell:

10 shares in first year @ ₹ 214.33 for	₹ 2,143.30
9 shares in second year @ ₹ 231.48 for	₹ 2,083.32
8 shares in third year @ ₹ 250 for	₹ 2,000.00

At the end of 3rd year, he would be having 973 shares valued @ ₹ 250 each i.e. ₹ 2,43,250. On these 973 shares, his dividend income for year 4 would be @ ₹ 2.50 i.e. ₹ 2,432.50.

So, if the project is taken up by the company, the investor would be able to maintain his receipt of at least ₹ 2,000 for first three years and would be getting increased income thereafter. **(6 Marks)**