MODEL TEST PAPER 8

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

ANSWER TO PART – I CASE SCENARIO BASED MCQS

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

ANSWERS OF PART – II DESCRIPTIVE QUESTIONS

1. **(a)**

Particulars	Amount (₹)
Amount available in bank account	7,00,000
Minimum balance to be kept	1,000
Available amount which can be used for potential exposure in market for 4 days	6,99,000
Maximum Loss for 4 days at 99% level	6,99,000

Maximum Loss for 1 day at 99 % level = Maximum Loss for 4 days / √No. of days = 699000/ √4	3,49,500
Z Score at 99% Level	2.33
Volatility in terms of Rupees (Maximum Loss/ Z Score at 99% level) = 349500/ 2.33	1,50,000
Maximum Possible Exposure (Volatility in Rupees/Std Deviation) = 150000/.015	1,00,00,000

(b) D_0 = ₹ 4

D_1 = ₹ 4 (1.20) = ₹ 4.80

D_2 = ₹ 4 $(1.20)^2$ = ₹ 5.76

D_3 = ₹ 4 $(1.20)^2$ (1.10) = ₹ 6.34

$$P = \frac{D_1}{(1+k_e)} + \frac{D_2}{(1+k_e)^2} + \frac{TV}{(1+k_e)^2}$$

$$TV = \frac{D_3}{k_e - g} = \frac{6.34}{0.15 - 0.10} = 126.80$$

$$P = \frac{4.80}{(1+0.15)} + \frac{5.76}{(1+0.15)^2} + \frac{126.80}{(1+0.15)^2}$$

= 4.80 x 0.8696 + 5.76 x 0.7561 + 126.80 x 0.7561

= 4.17 + 4.36 +95.87

= 104.40

(c) A Unicorn is a privately held start-up company which has achieved a valuation US$ 1 billion. This term was coined by venture capitalist Aileen Lee, first time in 2013. Unicorn, a mythical animal represents the statistical rarity of successful ventures.

A start-up is referred as a Unicorn if it has following features:

(i) A privately held start-up.

(ii) Valuation of start-up reaches US$ 1 Billion.

(iii) Emphasis is on the rarity of success of such start-up.

(iv) Other common features are new ideas, disruptive innovation, consumer focus, high on technology etc.

However, it is important to note that in case the valuation of any start-up slips below US$ 1 billion it can lose its status of 'Unicorn'. Hence a start-up may be Unicorn at one point of time and may not be at another point of time.

In September 2011, InMobi, an ad-tech startup, became the first Unicorn of India. SoftBank invested US$ 200 million in InMobi valuing the mobile advertising company at over US$ 1 billion, making it India's first unicorn. InMobi was founded in 2007 and took four years to achieve the Unicorn status in 2011 In 2018, Udaan, a B2B e-commerce marketplace, became the fastest growing startup by becoming a Unicorn in just over two years' time.

2. (a) (i) Rupee – Dollar Selling Rate: = ₹ 82.85

Dollar – Hong Kong Dollar Buying Rate: = H.K.$ 7.8880

Hong Kong Dollar (Selling) Cross Rate: = ₹ 82.85 / 7.8880

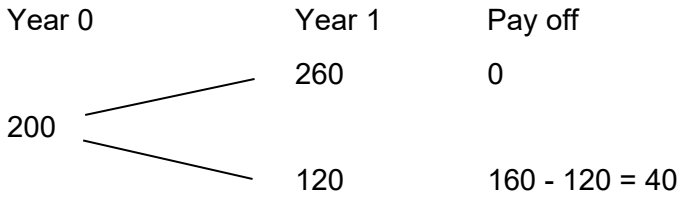
= ₹10.5033

(ii) Profit / Loss to the Bank

Amount received from customer (HK$ 10 million×10.55)	₹ 10,55,00,000
Amount paid on cover deal (HK$ 10 million× ₹ 10.5033)	₹ 10,50,33,000
Profit to Bank	₹ 4,67,000

(iii) To some extent I agree with views of Internal Auditor as the gain on the same transaction is bit lesser keeping in view the amount involved.

(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 x 30% + (1-p) x (-40%)

$0.08 = 0.30\ p - 0.40 + 0.40p$

$p = \frac{0.48}{0.70} = 0.686$

The value of abandonment option will be as follows:

Expected Payoff at Year 1

= p x 0 + [(1-p) x 40]

= 0.686 x 0 + [0.314 x 40]

= ₹ 12.56 crore

Since expected pay off at year 1 is ₹ 12.56 crore. Present value of expected pay off will be:

$\frac{12.56}{1.08}$ = ₹ 11.63 crore.

This is the value of abandonment option (Put Option).

(c) Some of the Qualitative factors that need to be taken into account in addition to Quantitative Factors are as follows: -

(1) *Quality of Portfolio:* Quality of stocks and securities in the portfolio of the Mutual Funds is an important qualitative parameter. The reason is that the quality of the portfolio plays a big role in achieving superior returns. The qualitative characteristic of portfolio of Equity Mutual Fund involves allocation of funds in top Blue-chip companies, large companies and how diversified is the portfolio. The style followed can be growth, value or blend of the same. In Debt Funds, the quality of portfolio is measured on the basis of credit quality, average maturity and modified duration of the fixed asset securities.

Not only that it is necessary that Mutual Fund should hold good quality stocks or securities, but it is also necessary the investment should be as per the objective of the Fund. Under normal circumstances, the fund having lower Portfolio Turnover ratio is considered to be better.

(2) *Track record and competence of Fund Manager:* - Since Fund Manager decides about the selection of securities and takes

investment decisions, his/her competence and conviction plays a very big role. The competence of a Fund Manager is assessed from his/her knowledge and ability to manage in addition to past performance.

(3) *Credibility of Fund House Team:* - Team of Fund House also plays a big role towards the investors' interest. In addition to investment decisions, there are some other administrative tasks also such as redemption of units, crediting of dividend, providing adequate information etc. which play a crucial role in qualitative assessment of any mutual fund house.

3. (a) (i) Mr. A's position in the two securities are +1.50 in security X and -0.5 in security Y. Hence the portfolio sensitivities to the two factors:-

λ_1 =1.50 x 0.80 + (-0.50 x 1.50) = 0.45

λ_2 = 1.50 x 0.60 + (-0.50 x 1.20) = 0.30

(ii) Mr. A's revised position:-

Security X ₹ 9,00,000 / ₹ 3,00,000 = 3

Security Y - ₹ 3,00,000 / ₹ 3,00,000 = -1

Risk free asset - ₹ 300000 / ₹ 300000 = -1

λ_1 = 3.0 x 0.80 + (-1 x 1.50) + (- 1 x 0) = 0.90

λ_2 = 3.0 x 0.60 + (-1 x 1.20) + (-1 x 0) = 0.60

(iii) Expected Return = Risk Free Rate of Return + Risk Premium for each sensitivity factor

Accordingly

15 = 10 + 0.80 λ_1 + 0.60 λ_2

20 = 10 + 1.50 λ_1 + 1.20 λ_2

On solving equation, the value of λ_1 = 0

Yes, Mr. D is correct in his observation.

(b) To compute the value of A Ltd. first, we shall calculate WACC of the company. Since its share is not trading in the market, we shall use proxy beta to calculate the cost of equity. Since the unlevered beta of the industry is 1.8 the levered beta of the company will be:

1.8[1+(1-0.3)*40/60)] = 2.64

The Cost of equity in accordance with CAPM = r (f) + β (Rm – Rf)

= 5% + 2.64 (11% - 5%) = 20.84%

The WACC = Cost of Equity + Cost of Debt

= 20.84 (60/100) + 12.0 (1-0.3) (40/100) = 15.864

Finally, the future cash flows can be discounted at the WACC obtained above as under –

	Year 1	Year 2	Year 3
Future Cash flows	10	12	15
Discount factor	0.863	0.745	0.643
PVs of cash flows	8.63	8.94	9.645
Value of X Pvt. Ltd. (₹ Crore)			27.215

(c) The various types of Swaps are as follows:

(i) *Plain Vanilla Swap:* Also called Generic Swap or Coupon Swap and it involves the exchange of a fixed rate loan to a floating rate loan over a period of time and that too on notional principal. Floating rate basis can be LIBOR, MIBOR, Prime Lending Rate etc.

For example, Fixed interest payments on a generic swap are calculated assuming each month has 30 days and the quoted interest rate is based on a 360-day year. Given an All-In-Cost of the swap, the semi-annual fixed-rate payment would be:

(N)(AIC)(180/360),

Where,

N denotes the notional principal amount of the agreement.

AIC denotes the fixed rate

Then, the floating-rate receipt is determined by the formula:

(N)(R)(dt/360)

Where,

dt denotes the number of days since the last settlement date

R denotes the reference rate such as LIBOR, MIBOR etc.

(ii) *Basis Rate Swap:* Also, called Non-Generic Swap. Similar to plain vanilla swap with the difference that payments are based on the difference between two different variable rates. For example, one rate may be 1 month LIBOR and other may be 3-month LIBOR. In other words, two legs of swap are floating but measured against different benchmarks.

(iii) *Asset Swap:* Like plain vanilla swaps with the difference that it is the exchange fixed rate investments such as bonds which pay a guaranteed coupon rate with floating rate investments such as an index.

(iv) *Amortising Swap:* An interest rate swap in which the notional principal for the interest payments declines during the life of the swap. They are particularly useful for borrowers who have issued redeemable bonds or debentures. It enables them to do interest rate risk hedging attached with redemption profile of bonds or debentures.

OR

There are four principles of an Active Portfolio Strategy (APS). These are:

(i) *Market Timing:* This involves departing from the normal i.e., strategy for long run asset mix to reflect assessment of the prospect of various assets in the near future. Market timing is based on an explicit or implicit forecast of general market movement. In most cases investors may go largely by their market sense. Those who reveal the fluctuation in the market may be tempted to play the game of market timing but few will succeed in this game. Further an investment manager has to forecast the market correctly and 75% of the time he is only able to break even after taking into account the cost of errors and cost of transactions.

(ii) *Sector Rotation:* Sector or group rotation may apply to both stock and bond component of the portfolio. It is used more compulsorily with respect to strategy. The components of the portfolio are used when it involves shifting. The weighting for various industry sectors is based on their asset outlook.

With respect to bond portfolio sector rotation it implies a shift in the composition of the bond portfolio in terms of quality as reflected in credit rating, coupon rate, term of maturity etc.

(iii) *Security Selection:* Security selection involves a search for under-priced security. If one has to resort to active stock selection he may employ fundamental / technical analysis to identify stocks which seems to promise superior return and concentrate the stock components of portfolio on them.

As far as bonds are concerned security selection calls for choosing bonds which offer the highest yields to maturity and at a given level of risk.

(iv) *Use of Specialised Investment Concept:* To achieve superior return, one has to employ a specialised concept/philosophy particularly with respect to investment in stocks. The concept which have been exploited successfully are growth stock, neglected or out of favour stocks, asset stocks, technology stocks and cyclical stocks.

4. **(a)** (i) Receipts using a Forward Contract = US$ 10 Million/0.012195 = ₹ 820,008,200

(ii) Receipts using Currency Futures

The number of contracts needed is (US$ 10 Million/ 0.012189)/32,816,474 = 25

Initial margin payable is 25 contracts x ₹ 27,500 = ₹ 687,500

On April 1,2023 Close at 0.012198

Receipts = US$ 10 Million/0.012199 = ₹ 819,739,323

Variation Margin =

[(0.012198 – 0.012189) x 25 x 32,816,474]/0.012199

OR

(0.000009 x 25 x 32,816,474)/.012199 = 7383.71/0.012199

= ₹ 605,272

Less: Interest Cost – ₹ 6,87,500 x 0.07 x 3/12 = ₹ 12,031

Net Receipts ₹ 820,332,564

(iii) Receipt if exposure is kept unhedged

US$ 10 Million/0.012199 ₹ 819,739,323

Advise: The most advantageous option would to hedge with Futures because it has highest receipt.

(b) (i) Conversion rate is 14 shares per bond.

Market price of share is ₹ 400 then

Stock Value of Bond shall be: 14 × ₹ 400 = ₹ 5,600

(ii) Premium over Conversion Value (₹ 7375 - ₹ 5600) = $\frac{1775}{5600} \times 100 = 31.70\%$

(c) Yes, this statement is correct since the securitization is based on the pools of assets rather than the originators, the assets must be assessed in terms of its credit quality and credit support available. Rating agency assesses the following:

- ❖ Strength of the Cash Flow.
- ❖ Mechanism to ensure timely payment of interest and principle repayment.
- ❖ Credit quality of obligors.
- ❖ Liquidity support.
- ❖ Strength of legal framework.

5. **(a)** Working Notes:

To prepare Revised Balance Sheet we need to calculate swap ratio, number of shares to be issued to Weak Bank and Capital Reserve or Goodwill on merger as follows:

(1) Calculation of Book Value per Share

Particulars	**Weak Bank (W)**	**Strong Bank (S)**
Share Capital (₹ Lakhs)	300	1,000
Reserves & Surplus (₹ Lakhs)	160	11,000

	460	12,000
Less: Preliminary Expenses (₹ Lakhs)	100	--
Net Worth or Book Value (₹ Lakhs)	360	12,000
No. of Outstanding Shares (Lakhs)	30	100
Book Value Per Share (₹)	12	120

(2) Swap Ratio

Gross NPA	1:8	1/8 x 30%	0.0375
CAR	5:16	5/16 x 28%	0.0875
Market Price	12:96	12/96 x 32%	0.0400
Book Value Per Share	12:120	12/120x 10%	0.0100
			0.1750

Thus, for every share of Weak Bank, 0.1750 share of Strong Bank shall be issued.

(3) No. of equity shares to be issued:

$\frac{300}{10} \times 0.1750$ **= 5.25 lakh shares**

(4) Calculation of Capital Reserve

Book Value of Shares	₹ 360.00 lac
Less: Value of Shares issued	₹ 52.50 lac
Capital Reserve	₹ 307.50 lac

Balance Sheet after Merger

	₹ lac		**₹ lac**
Paid up Share Capital	1052.50	Cash in Hand & RBI	5800.00
Reserves & Surplus	11000.00	Balance with other banks	4000.00

Capital Reserve	307.50	Investment	40200.00
Deposits	96000.00	Advances	61000.00
Other Liabilities	6780.00	Other Assets	4140.00
	115140.00		**115140.00**

(b) The SWIFT plays an important role in Foreign Exchange dealings because of the following reasons:

- In addition to validation statements and documentation it is a form of quick settlement as messaging takes place within seconds.
- Because of security and reliability helps to reduce Operational Risk.
- Since it enables its customers to standardise transaction it brings operational efficiencies and reduced costs.
- It also ensures full backup and recovery system.
- Acts as a catalyst that brings financial agencies to work together in a collaborative manner for mutual interest.

6. **(a)** To determine which of the two projects bears more risk for every percent of expected return first we shall calculate Variance and Standard Deviation of both the projects.

(i) **Project X**

Expected Net Cash Flow

= (0.10 x 220) + (0.20 x 260) + (0.40 x 300) + (0.20 x 340) + (0.10 x 380)

= 22 + 52 + 120 + 68 + 38 = 300

$$\sigma^2 = 0.10(220 - 300)^2 + 0.20(260 - 300)^2 + 0.40(300 - 300)^2 + 0.20\ (340 - 300)^2 + 0.10(380 - 300)^2$$

= 640 + 320 + 0 + 320 + 640 = 1920

$$\sigma = \sqrt{1920} = 43.82$$

(ii) **Project Y**

Expected Net Cash Flow

= (0.10 X 180) + (0.25 X 260) + (0.30 X 340) + (0.25 X 420) + (0.10 X 500)

= 18 + 65 + 102 + 105 + 5 = 340

$\sigma^2 = 0.10\left(180-340\right)^2 + 0.25\left(260-340\right)^2 + 0.30\left(340-340\right)^2 + 0.25\left(420-340\right)^2 + 0.10\left(500-340\right)^2 =$ 2560 + 1600 + 0 + 1600 + 2560 = 8320

$\sigma = \sqrt{8320} = 91.21$

Now we shall calculate Coefficient of Variation

$$\text{Coefficient of Variation} = \frac{\text{Standard Deviation}}{\text{Mean}}$$

$$\text{Project X} = \frac{43.82}{300} = 0.146 \text{ or } 14.60\%$$

$$\text{Project Y} = \frac{91.21}{340} = 0.268 \text{ or } 26.80\%$$

Project Y bears more risk for every percent of expected return.

(b) (i) Determination of Economic Value Added (EVA)

	$ Million
EBIT	360.00
Less: Taxes @ 35%	126.00
Net Operating Profit after Tax	234.00
Less: Cost of Capital Employed [W. No.1]	145.20
Economic Value Added	88.80

(ii) Determination of Market Value Added (MVA)

	$ Million
Market value of Equity Stock [W. No. 2]	1000
Equity Fund [W. No. 3]	850
Market Value Added	150

Working Notes:

(1)	Total Capital Employed	
	Equity Stock	$ 200 Million
	Reserves and Surplus	$ 650 Million
	Loan	$ 360 Million
		$ 1210 Million
	WACC	12%
	Cost of Capital employed $ 1210 Million x 12%	$ 145.20 Million
(2)	Market Price per equity share (A)	$ 50
	No. of equity share outstanding (B)	20 Million
	Market value of equity stock (A) x (B)	$ 1000 Million
(3)	Equity Fund	
	Equity Stock	$ 200 Million
	Reserves & Surplus	$ 650 Million
		$ 850 Million

(c) As the name suggests, venture capital firms have made this famous. Such investors seek a return equal to some multiple of their initial investment or will strive to achieve a specific internal rate of return based on the level of risk they perceive in the venture.

The method incorporates this understanding and uses the relevant time frame in discounting a future value attributable to the firm.

The post-money value is calculated by discounting the rate representing an investor's expected or required rate of return.

The investor seeks a return based on some multiple of their initial investment. For example, the investor may seek a return of 10x, 20x, 30x, etc., their original investment at the time of exit.

New-age startups are disruptors in their own right and a necessary tool for global innovation and progress. By their very nature, startups disrupt set processes and industries to add value. In that process, they transcend traditional indicators of success like

revenues, profitability, asset size, etc. Accordingly, it is no mean feat to uncover the actual value of a startup.

While the traditional methods fall short, there is no shortage of new innovative methods used to value startups based on their value drivers. However, the valuation of a startup is much more than the application of ways – it is about understanding the story of the future trajectory and communicating that narrative using substantial numbers.