MODEL TEST PAPER - 2

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

ANSWER TO PART – I CASE SCENARIO BASED MCQS

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

ANSWERS OF PART – II DESCRIPTIVE QUESTIONS

1. (a) Calculation of Variance and Standard Deviation

Project K

Expected Net Cash Flow

= (0.10 x 11) + (0.20 x13) + (0.40 x 15) + (0.20 x 17) + (0.10 x 19)

= 1.1 + 2.6 + 6 + 3.4 + 1.9 = 15

$\sigma^2 = 0.10(11-15)^2 + 0.20(13-15)^2 + 0.40(15-15)^2 + 0.20\ (17-15)^2 + 0.10(19-15)^2$

= 1.6 + 0.8 + 0 + 0.8 + 1.6 = 4.8

$\sigma = \sqrt{4.8} = 2.19$

Project S

Expected Net Cash Flow

= (0.10 X 9) + (0.25 X 13) + (0.30 X 17) + (0.25 X 21) + (0.10 X 25)

= 0.9 + 3.25 + 5.1 + 5.25 + 2.5 = 17

$\sigma^2 = 0.1\,(9-17)^2 + 0.25(13-17)^2 + 0.30\,(17-17)^2 + 0.25(21-17)^2 + 0.10(25-17)^2$

= 6.4 + 4 + 0 + 4 + 6.4 = 20.8

$\sigma = \sqrt{20.8} = 4.56$

Calculation of Coefficient of Variation

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

$$\text{Project K} = \frac{2.19}{15} = 0.146$$

$$\text{Project S} = \frac{4.56}{17} = 0.268$$

Project S is riskier as it has higher Coefficient of Variation.

(6 marks)

(b) Buy £ 62500 × 1.2806 = $ 80037.50

Sell £ 62500 × 1.2816 = $ 80100.00

Profit **= $ 62.50**

Alternatively, if the market comes back together before December 15, the dealer could unwind his position (by simultaneously buying £ 62,500 forward and selling a futures contract. Both for delivery on December 15) and earn the same profit of $ 62.50.

(4 marks)

(c) **Peer-to-peer lending:** In this process a group of people come together and lend money to each other. Peer to peer lending has been there for many years. Many small and ethnic business groups

having similar faith or interest generally support each other in their start up endeavors.

Crowdfunding: Crowdfunding is the use of small amounts of capital from a large number of individuals to finance a new business initiative. Crowdfunding makes use of the easy accessibility of vast networks of people through social media and crowdfunding websites to bring investors and entrepreneurs together.

(4 marks)

2. (a) (i) Receipts using a forward contract

= $10,000,000/0.016129 = ₹ 620,001,240

(ii) Receipts using currency Futures

The number of contracts needed is ($10,000,000/0.016118)/24,816,975 = 25

Initial margin payable is 25 contracts x ₹ 22,500 = ₹ 5,62,500

On April 1,2015 Close at 0.016134

Receipts = US$10,000,000/0.016136 = ₹ 619,732,276

Variation Margin =

[(0.016134 – 0.016118) x 25 x 24,816,975/-]/0.016136

OR (0.000016x 25 x 24,816,975)/.016136

= 9926.79/0.016136 = ₹ 615,195

Less: Interest Cost – ₹ 5,62,500x 0.07 x 3/12 = ₹ 9,844

Net Receipts ₹ 620,337,627

(iii) Receipts under different methods of hedging

Forward contract	₹ 620,001,240
Futures	₹ 620,337,627
No hedge (US$ 10,000,000/0.016136)	₹ 619,732,276

The most advantageous option would have been to hedge with futures. **(10 marks)**

(b) The financial risk can be evaluated from different point of views as follows:

(i) From stakeholder's point of view: Major stakeholders of a business are equity shareholders and they view financial gearing i.e. ratio of debt in capital structure of company as risk since in event of winding up of a company they will be least prioritized.

Even for a lender, existing gearing is also a risk since company having high gearing faces more risk in default of payment of interest and principal repayment.

(ii) From Company's point of view: From company's point of view if a company borrows excessively or lend to someone who defaults, then it can be forced to go into liquidation.

(iii) From Government's point of view: From Government's point of view, the financial risk can be viewed as failure of any bank or (like Lehman Brothers) down grading of any financial institution leading to spread of distrust among society at large. Even this risk also includes willful defaulters. This can also be extended to sovereign debt crisis. **(4 marks)**

3. (a) Workings:

Asset turnover ratio	= 1.1
Total Assets	= ₹ 600
Turnover ₹ 600 lakhs × 1.1	= ₹ 660 lakhs
Effective interest rate	$= \frac{\text{Interest}}{\text{Libilities}} = 8\%$
Liabilities	= ₹ 125 lakhs + 50 lakhs = 175 lakh
Interest	= ₹ 175 lakhs × 0.08 = ₹ 14 lakh
Operating Margin	= 10%
Hence operating cost	= (1 - 0.10) ₹ 660 lakhs = ₹ 594 lakh
Dividend Payout	= 16.67%
Tax rate	= 40%

(i) Income statement

	(₹ Lakhs)
Sale	660
Operating Exp	594
EBIT	66
Interest	14
EBT	52
Tax @ 40%	20.80
EAT	31.20
Dividend @ 16.67%	5.20
Retained Earnings	26.00

(ii) SGR = ROE (1-b)

$$ROE = \frac{PAT}{NW} \text{ and } NW = ₹\,100\,lakh + ₹\,300\,lakh = 400\,lakh$$

$$ROE = \frac{₹\,31.2\ lakhs}{₹\,400\ lakhs} \times 100 = 7.8\%$$

$$SGR = 0.078(1 - 0.1667) = 6.5\% \text{ or } \frac{0.078 \times 0.8333}{1-0.078 \times 0.8333} = 6.95\%$$

(iii) Calculation of fair price of share using dividend discount model

$$P_o = \frac{D_0(1+g)}{k_e - g}$$

$$\text{Dividends} = \frac{₹\,5.2\ lakhs}{₹\,10\ lakhs} = ₹\,0.52$$

Growth Rate = 6.5% or 6.95%

$$\text{Hence } P_o = \frac{₹\,0.52(1+0.065)}{0.15-0.065} = \frac{₹\,0.5538}{0.085} = ₹\ 6.51 \text{ or } \frac{0.52(1+0.0695)}{0.15-0.0695}$$

$$= \frac{0.5561}{0.0805} = ₹\ 6.91$$

(iv) Since the current market price of share is ₹ 14, the share is overvalued. Hence the investor should not invest in the company. **(10 marks)**

(b) In a securitization transaction, investors are exposed to several risks at each stage of the transaction. The various types of risks in any securitization transaction are as follows:

Credit risk or Counterparty risk

It is the prime risk wherein investors are prone to the risk of bankruptcy and non-performance of the servicer.

Legal risks

Since in the Indian context it is a recently developed concept there is an absence of conclusive judicial precedent or explicit statutory provisions on securitization transactions. As a result, any dispute over the legal ownership of the assets is likely to result in uncertainty regarding investor pay-outs from the pool cash flow.

Market risks

Market risks represent risks external to the transaction and include market-related factors that impact the performance of the transaction. Some of these risks are as follows:

(a) **Macroeconomic risks:** The performance of the underlying loan contracts depends on macroeconomic factors, such as industry downturns or adverse price movements of the underlying assets. For example, in the transportation industry a continuous decline in industrial production may lead to a downtrend in the use of services of the Commercial Vehicles (CVs) adversely impacting the cash flow of CVs operators. This in turn, may impact repayments on CV loans. Similarly, a fall in the prices of the CVs may increase chances of default as the borrower may wilfully default the loan and let the finance company repossess and sell the underlying vehicle instead of retaining it and continuing to pay instalments on time.

(b) **Prepayment risks:** A change in the market interest rate represents a difficult situation for investors because it is a combination of prepayment risk and volatile interest rates. With a reduction in interest rates generally prepayment of retail loans increases, resulting in reinvestment risk for investors because investors may receive their monies ahead of schedule and may not be able to reinvest the amount at the same yield.

(c) **Interest rate risks:** This risk is prominent where the loans in the pool are based on a floating rate and investor pay-outs are based on a fixed rate or vice versa. It results in an interest rate mismatch and can lead to a situation where the pool cash inflow, even at 100% collection efficiency, is not sufficient to meet investor pay-outs. Interest rate swaps can be used to hedge this type of risk to some extent.

(4 Marks)

4. (a) Computation of Business Value

			(₹ Lakhs)
Profit before tax $\frac{77}{1-0.30}$			110
Less: Extraordinary income			(8)
Add: Extraordinary losses			10
			112
Profit from new product		(₹ Lakhs)	
Sales		70	
Less: Material costs	20		
Labour costs	12		
Fixed costs	10	(42)	28
			140.00
Less: Taxes @30%			42.00
Future Maintainable Profit after taxes			98.00
Relevant Capitalisation Factor			0.14
Value of Business (₹98/0.14)			700

(6 marks)

(b) The Challenges to the Efficient Market Theory are as follows:-

(i) **Information inadequacy** – Information is neither freely available nor rapidly transmitted to all participants in the stock market. There is a calculated attempt by many companies to circulate misinformation.

(ii) **Limited information processing capabilities** – Human information processing capabilities are sharply limited. According to Herbert Simon every human organism lives in an environment which generates millions of new bits of information every second but the bottlenecks of the perceptual apparatus does not admit more than thousand bits per seconds and possibly much less.

David Dreman maintained that under conditions of anxiety and uncertainty, with a vast interacting information grid, the market can become a giant.

(iii) **Irrational Behaviour** – It is generally believed that investors' rationality will ensure a close correspondence between market prices and intrinsic values. But in practice this is not true. J. M. Keynes argued that all sorts of consideration enter into the market valuation which is in no way relevant to the prospective yield. This was confirmed by L. C. Gupta who found that the market evaluation processes work haphazardly almost like a blind man firing a gun. The market seems to function largely on hit or miss tactics rather than on the basis of informed beliefs about the long term prospects of individual enterprises.

(iv) **Monopolistic Influence** – A market is regarded as highly competitive. No single buyer or seller is supposed to have undue influence over prices. In practice, powerful institutions and big operators wield great influence over the market. The monopolistic power enjoyed by them diminishes the competitiveness of the market. **(4 marks)**

(c) The key decisions falling within the scope of financial strategy are as follows:

1. **Financing decisions:** These decisions deal with the mode of financing or mix of equity capital and debt capital.

2. **Investment decisions:** These decisions involve the profitable utilization of firm's funds especially in long-term projects (capital projects). Since the future benefits associated with such projects are not known with certainty, investment decisions necessarily involve risk. The projects are therefore evaluated in relation to their expected return and risk.

3. **Dividend decisions:** These decisions determine the division of earnings between payments to shareholders and reinvestment in the company.

4. **Portfolio decisions:** These decisions involve evaluation of investments based on their contribution to the aggregate performance of the entire corporation rather than on the isolated characteristics of the investments themselves.

OR

CDS can be defined as an insurance (not in stricter sense) against the risk of default on a debt which may be debentures, bonds etc.

Under this arrangement, one party (called buyer) needing protection against the default pays a periodic premium to another party (called seller), who in turn assumes the default risk. Hence, in case default takes place then there will be settlement and in case no default takes place no cash flow will accrue to the buyer alike option contract and agreement is terminated. Although it resembles the options but since element of choice is not there it more resembles the swap arrangements.

Amount of premium mainly depends on the price of underlying and especially when the credit risk is more.

Following are the main purposes for which CDS can be used:

(i) **Hedging -** Main purpose of using CDS is to neutralize or reduce a risk to which CDS is exposed to. Thus, by buying CDS, risk can be passed on to CDS seller or writer.

(ii) **Arbitrage -** It involves buying a CDS and entering into an asset swap. For example, a fixed coupon payment of a bond is swapped against a floating interest stream.

(iii) **Speculation -** CDS can also be used to make profit by exploiting price changes. For example, a CDS writer assumed

risk of default, will gain from contract if credit risk does not materialize during the tenure of contract or if compensation received exceeds potential pay-out. **(4 marks)**

5. (a) Financial Analysis whether to set up the manufacturing units in India or not may be carried using NPV technique as follows:

I. Incremental Cash Outflows

	$ Million
Cost of Plant and Machinery	500.00
Working Capital	50.00
Release of existing Working Capital	(15.00)
	535.00

II. Incremental Cash Inflow after Tax (CFAT)

(a) Generated by investment in India for 5 years

	$ Million
Sales Revenue (5 Million x $80)	400.00
Less: Costs	
Variable Cost (5 Million x $20)	100.00
Fixed Cost	30.00
Depreciation ($500Million/5)	100.00
EBIT	170.00
Taxes@35%	59.50
EAT	110.50
Add: Depreciation	100.00
CFAT (1-5 years)	210.50

(b) Cash flow at the end of the 5 years (Release of Working Capital) 35.00

(c) Cash generation by exports (Opportunity Cost)

	$ Million
Sales Revenue (1.5 Million x $80)	120.00
Less: Variable Cost (1.5 Million x $40)	60.00

Contribution before tax	60.00
Tax@35%	21.00
CFAT (1-5 years)	39.00

(d) Additional CFAT attributable to Foreign Investment

	$ Million
Through setting up subsidiary in India	210.50
Through Exports in India	39.00
CFAT (1-5 years)	171.50

III. Determination of NPV

Year	**CFAT ($ Million)**	**PVF@12%**	**PV ($ Million)**
1-5	171.50	3.6048	618.2232
5	35	0.5674	19.8590
			638.0822
Less: Initial Outflow			535.0000
			103.0822

Since NPV is positive the proposal should be accepted.

(10 Marks)

(b)

Sl. No. (1)	**Company Name (2)**	**Trend (3)**	**Amount (₹) (4)**	**Beta (5)**	**(₹) (6) [(4) x (5)]**	**Position (7)**
(i)	Right Ltd.	Rise	50 lakh	1.25	62,50,000	Short
(ii)	Wrong Ltd.	Depreciate	25 lakh	0.90	22,50,000	Long
					40,00,000	Short

(4 Marks)

6. (a) Duration of Bond X

Year	Cash flow	P.V. @ 10%		Proportion of bond value	Proportion of bond value x time (years)
1	1070	0.909	972.63	1.000	1.000

Duration of the Bond is 1 year.

Duration of Bond Y

Year	Cash flow	P.V. @ 10%		Proportion of bond value	Proportion of bond value x time (years)
1	80	0.909	72.72	0.077	0.077
2	80	0.826	66.08	0.071	0.142
3	80	0.751	60.08	0.064	0.192
4	1080	0.683	737.64	0.788	3.152
			936.52	1.000	3.563

Duration of the Bond is 3.563 years.

Let x_1 be the investment in Bond X and therefore investment in Bond Y shall be $(1 - x_1)$. Since the required duration is 2 years the proportion of investment in each of these two securities shall be computed as follows:

$2 = x_1 + (1 - x_1)\ 3.563$

$x_1 = 0.61$

Accordingly, the proportion of investment shall be 61% in Bond X and 39% in Bond Y respectively.

Amount of investment

Bond X	Bond Y
PV of ₹ 1,00,000 for 2 years @ 10% x 61%	PV of ₹ 1,00,000 for 2 years @ 10% x 39%
= ₹ 1,00,000 (0.826) x 61%	= ₹ 1,00,000 (0.826) x 39%
= ₹ 50,386	= ₹ 32,214
No. of Bonds to be purchased	No. of Bonds to be purchased

= ₹ 50,386/₹ 972.63 = 51.80 i.e. approx. 52 bonds	= ₹ 32,214/₹ 936.52 = 34.40 i.e. approx. 34 bonds

Note: The investor has to keep the money invested for two years. Therefore, the investor can invest in both the bonds with the assumption that Bond X will be reinvested for another one year on same returns.

Further, in the above computation, Modified Duration can also be used instead of Duration. **(8 Marks)**

(b) (i) Semi-annual fixed payment

= (N) (AIC) (Period)

Where N = Notional Principal amount = ₹ 5,00,000

AIC = All- in- cost = 8% = 0.08

$$= 5,00,000 \times 0.08 \left(\frac{180}{360}\right)$$

= 5,00,000 × 0.08 (0.5)

= 5,00,000 × 0.04 = ₹ 20,000/-

(ii) Floating Rate Payment

$$= N (LIBOR) \left(\frac{dt}{360}\right)$$

$$= 5,00,000 \times 0.06 \times \frac{181}{360}$$

= 5,00,000 × 0.06 (0.503) or 5,00,000 × 0.06 (0.502777)

= 5,00,000 × 0.03018 or 5,00,000 × 0.030166 = ₹ 15,090 or ₹ 15,083

(iii) Net Amount

= (i) – (ii)

= ₹ 20,000 – ₹ 15,090 = ₹ 4,910

or = ₹ 20,000 – ₹ 15,083 = ₹ 4,917 **(6 Marks)**