MODEL TEST PAPER 1

FINAL COURSE: GROUP – I

PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

ANSWER TO PART – I CASE SCENARIO BASED MCQS

1. Option (b)

2. Option (b)

3 Option (c)

4. Option (d)

5. Option (b)

6. Option (a)

7. Option (c)

8. Option (b)

9. Option (d)

10. Option (c)

11. Option (d)

12. Option (c)

13. Option (d)

14. Option (b)

15. Option (b)

ANSWERS OF PART – II DESCRIPTIVE QUESTIONS

1. (a) Here the given cash flows have to be adjusted for inflation. Alternatively, the discount rate can be converted into nominal rate, as follows: -

$$\text{Year 1} = \frac{0.909}{1.05} = 0.866;\ \text{Year 2} = \frac{0.826}{(1.05)^2} \text{ or } \frac{0.826}{1.1025} = 0.749$$

$$\text{Year 3} = \frac{0.751}{(1.05)^3} = \frac{0.751}{1.1576} = 0.649$$

Year	Nominal Cash Flows (₹ in lakhs)	Adjusted PVF as above	PV of Cash Flows (₹ in lakhs)
1	30	0.866	25.98
2	40	0.749	29.96
3	30	0.649	19.47
	Cash Inflow		75.41
	Less: Cash Outflow		72.00
	Net Present Value		3.41

With positive NPV, the project is financially viable.

Alternative Solution

Assumption: The cost of capital given in the question is "Real'.

Nominal cost of capital = (1.10) (1.05) -1 = 0.155 =15.50%

DCF Analysis of the project

(₹ Lakhs)

	Period	PVF @15.50%	CF	PV
Investment	0	1	-72	-72.00
Operation	1	0.866	30	+25.98
---do---	2	0.750	40	+30.00
---do---	3	0.649	30	+19.47
NPV				+3.45

The proposal may be accepted as the NPV is positive.

(b) The bank (Dealer) covers itself by buying from the market at market selling rate.

Rupee – Dollar selling rate = ₹ 42.85

Dollar – Hong Kong Dollar = HK $ 7.5880

Rupee – Hong Kong cross rate = ₹ 42.85 / 7.5880

= ₹ 5.6471

Profit / Loss to the Bank

Amount received from customer (1 crore × 5.70) ₹ 5,70,00,000

Amount paid on cover deal (1 crore × 5.6471)	₹ 5,64,71,000
Profit to Bank	₹ 5,29,000

(c) Financial projections include three basic documents that make up a business's financial statements.

- **Income statement:** This estimate how much money the business will generate by projecting income and expenses. It will show:
  - ❖ How much revenue did the business generate?
  - ❖ How much did it cost to generate and support that revenue?
  - ❖ How much did the business pay its employees?
  - ❖ How much did it pay towards rent?

  For your first year in business, you'll want to create a monthly income statement. For the second year, quarterly statements will suffice. For the following years, you'll just need an annual income statement.
- **Cash flow statement:** A projected cash flow statement will depict how much cash will be coming into the business and how much cash will be utilized. At the end of each period (e.g. monthly, quarterly, annually), one can tally it all up to show either the cash burn or the cash generated during the period and the cash balance remaining at the end of the period.
- **Balance sheet:** The balance sheet shows the business's overall finances including assets, liabilities and equity. Typically, one will create an annual balance sheet for one's financial projections. It shows:
  - ❖ How much cash is in the bank?
  - ❖ How much money does the company owe to suppliers?
  - ❖ How much money has been invested in the company?

2. (a) In the given case, the exchange rates are indirect. These can be converted into direct rates as follows:

Spot rate

GBP = $\frac{1}{\text{USD}1.5617}$ to $\frac{1}{\text{USD}1.5673}$

USD = GBP 0.64033 - GBP 0.63804

6 months' forward rate

GBP = $\frac{1}{\text{USD}1.5455}$ to $\frac{1}{\text{USD}1.5609}$

USD = GBP 0.64704 - GBP 0.64066

Payoff in 3 alternatives

i. Forward Cover

Amount payable	USD 3,64,897
Forward rate	GBP 0.64704
Payable in GBP	GBP 2,36,103

ii. Money market Cover

Amount payable	USD 3,64,897
PV @ 4.5% for 6 months i.e. $\frac{1}{1.0225} = 0.9779951$	USD 3,56,867
Spot rate purchase	GBP 0.64033
Borrow GBP 3,56,867 x 0.64033	GBP 2,28,512
Interest for 6 months @ 7 %	7,998
	-
Payable after 6 months	GBP 2,36,510

iii. Currency options

Amount payable	USD 3,64,897
Unit in Options contract	GBP 12,500
Value in USD at strike rate of 1.70 (GBP 12,500 x 1.70)	USD 21,250
Number of contracts USD 3,64,897/ USD 21,250	17.17

Exposure covered USD 21,250 x 17	USD 3,61,250
Exposure to be covered by Forward (USD 3,64,897 – USD 3,61,250)	USD 3,647
Options premium 17 x GBP 12,500 x 0.096	USD 20,400
Premium in GBP (USD 20,400 x 0.64033)	GBP 13,063
Total payment in currency option	
Payment under option (17 x 12,500)	GBP 2,12,500
Premium payable	GBP 13,063
Payment for forward cover (USD 3,647 x 0.64704)	GBP 2,360
	GBP 2,27,923

Thus, total payment in:

(i) Forward Cover 2,36,103 GBP

(ii) Money Market 2,36,510 GBP

(iii) Currency Option 2,27,923 GBP

The company should take currency option for hedging the risk.

Note: Even interest on Option Premium can also be considered in the above solution.

(b) Following are main features of VAR

i. **Components of Calculations:** VAR calculation is based on following three components :

(a) Time Period

(b) Confidence Level – Generally 95% and 99%

(c) Loss in percentage or in amount

ii. **Statistical Method:** It is a type of statistical tool based on Standard Deviation.

iii. **Time Horizon:** VAR can be applied for different time horizons say one day, one week, one month and so on.

iv. **Probability:** Assuming the values are normally attributed, probability of maximum loss can be predicted.

v. **Risk Control:** Risk can be controlled by setting limits for maximum loss.

vi. **Z Score:** Z Score indicates how many standard Deviations is away from Mean value of a population. When it is multiplied with Standard Deviation it provides VAR.

3. (a) (i) Computation of Expected Return from Portfolio

Security	Beta (β)	Expected Return (r) as per CAPM	Amount (₹ Lakhs)	Weights (w)	wr
Moderate	0.50	8%+0.50 (10% - 8%) = 9%	60	0.115	1.035
Better	1.00	8%+1.00 (10% - 8%) = 10%	80	0.154	1.540
Good	0.80	8%+0.80 (10% - 8%) = 9.60%	100	0.192	1.843
Very Good	1.20	8%+1.20 (10% - 8%) = 10.40%	120	0.231	2.402
Best	1.50	8%+1.50 (10% - 8%) = 11%	160	0.308	3.388
Total			**520**	**1**	**10.208**

Thus, Expected Return from Portfolio 10.208% say 10.21%.

Alternatively, it can be computed as follows:

$$\text{Average } \beta = 0.50 \times \frac{60}{520} + 1.00 \times \frac{80}{520} + 0.80 \times \frac{100}{520} + 1.20 \times \frac{120}{520} + 1.50 \times \frac{160}{520} = 1.104$$

As per CAPM

$$= 0.08 + 1.104(0.10 - 0.08) = 0.10208 \text{ i.e. } 10.208\%$$

(ii) As computed above the expected return from Better is 10% same as return from Nifty, hence there will be no difference even if the replacement of security is made. The main logic behind this neutrality is that the beta of security 'Better' is 1 which clearly indicates that this security shall yield same return as market return.

(b) Initial Margin = $\mu + 3\sigma$

Where μ = Daily Absolute Change

σ = Standard Deviation

Accordingly

Initial Margin = ₹ 10,000 + ₹ 6,000 = ₹ 16,000

Maintenance margin = ₹ 16,000 x 0.75 = ₹ 12,000

Day	Changes in future Values (₹)	Margin A/c (₹)	Call Money (₹)
4/2/09	-	16000	-
5/2/09	50 x (3294.40 - 3296.50) = -105	15895	-
6/2/09	50 x (3230.40 - 3294.40) = -3200	12695	-
7/2/09	50 x (3212.30 - 3230.40) = -905	16000	4210
10/2/09	50 x (3267.50 - 3212.30) = 2760	18760	-
11/2/09	50 x (3263.80 - 3267.50) = -185	18575	-
12/2/09	50 x (3292 - 3263.80) =1410	19985	-
14/2/09	50 x (3309.30 - 3292) = 865	20850	-
17/2/09	50 x (3257.80 - 3309.30) = -2575	18275	-
18/2/09	50 x (3102.60 - 3257.80) = -7760	16000	5485

4. (a) Cost of capital by applying Free Cash Flow to Firm (FCFF) Model is as follows:-

$$\text{Value of Firm} = V_0 = \frac{FCFF_1}{K_c - g_n}$$

Where –

$FCFF_1$ = Expected FCFF in the year 1

K_c= Cost of capital

g_n = Growth rate forever

Thus, ₹ 1800 lakhs = ₹ 54 lakhs /(K_c-g)

Since g = 9%, then K_c = 12%

Now, let X be the weight of debt and given cost of equity = 20% and cost of debt = 10%, then 20% (1 – X) + 10% X = 12%

Hence, X = 0.80, so book value weight for debt was 80%

∴ Correct weight should be 60 of equity and 72 of debt.

∴ Cost of capital = K_c = 20% (60/132) + 10% (72/132) = 14.5455% and correct firm's value

= ₹ 54 lakhs/ (0.1454 – 0.09) = ₹ 974.73 lakhs.

(b) **(i)** Current future price of the index = $5000 + 5000 (0.09-0.06)\frac{4}{12}$

= 5000+ 50= 5,050

∴ Price of the future contract = ₹ 50 x 5,050 = ₹ 2,52,500

(ii) Hedge ratio = $\frac{1010000}{252500} \times 1.5$ = 6 contracts

Index after three months turns out to be 4500

Future price will be = $4500 + 4500 (0.09-0.06) \times \frac{1}{12}$ = 4,511.25

Therefore, Gain from the short futures position is = 6 x (5050 – 4511.25) x 50

= ₹ 1,61,625

Note: Alternatively, we can also use daily compounding (exponential) formula.

(c)

Corporate level strategy should be able to answer three basic questions:	
Suitability	Whether the strategy would work for the accomplishment of common objective of the company.

Feasibility	Determines the kind and number of resources required to formulate and implement the strategy.
Acceptability	It is concerned with the stakeholders' satisfaction and can be financial and non-financial.

OR

Trading in futures is for two purposes namely:

(a) Speculation and

(b) Hedging

(a) Speculation – For simplicity we will assume that one contract = 100 units and the margin requirement is 20% of the value of contract entered. Brokerage and transaction costs are not taken into account.

(b) Hedging – Hedging is the practice of taking a position in one market to offset and balance against the risk adopted by assuming a position in a contrary or opposing market or investment. In simple language, hedging is used to reduce any substantial losses/gains suffered by an individual or an organization. To hedge, the investor takes a stock future position exactly opposite to the stock position. That way, any losses on the stock position will be offset by gains on the future position.

5. (a) SWAP RATIO

	Abhiman Ltd. (₹)	**Swabhiman Ltd. (₹)**
Share capital	200 lacs	100 lacs
Free reserves & surplus	900 lacs	600 lacs
Total	1100 lacs	700 lacs
No. of shares	2 lacs	10 lacs
Book value for share	₹ 550	₹ 70
Promoters Holding	50%	60%
Non promoters holding	50%	40%

Free float market capitalization (Public)	500 lacs	₹ 156 lacs
Total Market Cap	1000 lacs	390 lacs
No. of shares	2 lacs	10 lacs
Market Price	₹ 500	₹ 39
P/E ratio	10	4
EPS	₹ 50.00	₹ 9.75

Calculation of SWAP Ratio

Book Value	1:0.1273	0.1273 × 25%	0.031825
EPS	1:0.195	0.195 × 50%	0.097500
Market Price	1:0.078	0.078 × 25%	0.019500
Total			**0.148825**

(i) SWAP Ratio is 0.148825 shares of Abhiman Ltd. for every share of Swabhiman Ltd.

Total No. of shares to be issued = 10 lakh × 0.148825 = 148825 shares

(ii) Book value, EPS & Market Price.

Total No. shares = 200000 +148825=348825

Total capital = ₹200 lakh + ₹148.825 lac = ₹ 348.825 lac

Reserves = ₹ 900 lac + ₹ 551.175 lac = ₹ 1451.175 lac

$$\text{Book value Per Share} = \frac{₹\,348.825\,\text{lac} + ₹\,1451.175\,\text{lac}}{3.48825\,\text{lac}} = ₹\,516.02$$

or ₹ 516.02 x 0.148825 = ₹ 76.80

$$\text{or} = \frac{\text{Total Capital}}{\text{No. of Shares}} = \frac{1100\text{lac} + 700\text{ lac}}{348825} = ₹\,516.02$$

$$\text{EPS} = \frac{\text{Total Profit}}{\text{No. of shares}} = \frac{₹100\text{ lac} + ₹\ 97.50\text{ lac}}{3.48825\text{lac}} = ₹\,56.62$$

or ₹ 56.62 x 0.148825 = ₹ 8.43

Expected market price = ₹ 56.62 × PE Ratio= ₹ 56.62 × 10 = ₹ 566.20

or ₹ 566.20 x 0.148825 = ₹ 84.26

(b) Expected Value of Option

(300 – 180) X 0.1	12
(300 – 260) X 0.2	8
(300 – 280) X 0.5	10
(300 – 320) X 0.1	Not Exercised*
(300 – 400) X 0.1	Not Exercised*
	30

* If the strike price goes beyond ₹ 300, option is not exercised at all.

In case of Put option, since Share price is greater than strike price Option Value would be zero.

6. (a) (i) Calculation of initial outlay:

		₹ (million)
a.	Face value	300
	Add: Call premium	12
	Cost of calling old bonds	312
b.	Gross proceed of new issue	300
	Less: Issue costs	6
	Net proceeds of new issue	294
c.	Tax savings on call premium and unamortized cost 0.30 (12 + 9)	6.3

∴ Initial outlay = ₹ 312 million – ₹ 294 million – ₹ 6.3 million = ₹ 11.7 million

(ii) Calculation of net present value of refunding the bond:

	₹ (million)
Saving in annual interest expenses	
[300 x (0.12 – 0.10)]	6.00
Less: Tax saving on interest and amortization	
0.30 x [6 + (9-6)/6]	1.95

Annual net cash saving	4.05
PVIFA (7%, 6 years)	4.766
∴ Present value of net annual cash saving	₹ 19.30 million
Less: Initial outlay	₹ 11.70 million
Net present value of refunding the bond	₹ 7.60 million

Decision: The bonds should be refunded

(b) Final settlement amount shall be computed by using formula:

$$= \frac{(N)(RR - FR)(dtm/DY)}{[1 + RR(dtm/DY)]}$$

Where,

N = the notional principal amount of the agreement;

RR = Reference Rate for the maturity specified by the contract prevailing on the contract settlement date;

FR = Agreed-upon Forward Rate; and

dtm = maturity of the forward rate, specified in days (FRA Days)

DY = Day count basis applicable to money market transactions which could be 360 or 365 days.

Accordingly,

If actual rate of interest after 6 months happens to be 9.60%

$$= \frac{(₹\,60\,crore)(0.096 - 0.093)(3/12)}{[1 + 0.096(3/12)]}$$

$$= \frac{(₹\,60\,crore)(0.00075)}{1.024} = ₹\ 4,39,453.13$$

Thus, banker will pay Parker & Co. a sum of ₹ 4,39,453.13 or ₹ 4,39,453.

If actual rate of interest after 6 months happens to be 8.80%

$$= \frac{(₹\,60\,crore)(0.088 - 0.093)(3/12)}{[1 + 0.088(3/12)]}$$

$$= \frac{(₹\,60\,\text{crore})(-0.00125)}{1.022} = -\ ₹\ 7,33,855.19$$

Thus Parker & Co. will pay banker a sum of ₹ 7,33,855.19 or ₹ 7,33,855.

Note: Alternatively, students may solve the question on basis of different days count conventions instead of months (as considered in above calculations) i.e. 90 days/360 days, 90 days/ 365 days, 91 days/360 days or 91 days/365 days.