MOCK TEST PAPER 1

FINAL COURSE: GROUP – I

PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT

SUGGESTED ANSWERS/HINTS

1. **(a)** To recommend the method for hedging exchange risk, first we shall compute the expected Cash Outflows under each of method as follows:

Forward Market Cover

Hedge the risk by buying Can$ in 1 and 3 months time will be:

July	-	1010000 X 0.9301	= US $ 939401
Sept.	-	705000 X 0.9356	= US $ 659598

Option Contracts

July Payment	= 1010000/ 50,000 = 20.20
September Payment	= 705000/ 50,000 = 14.10

Company would like to take out 20 contracts for July and 14 contracts for September respectively. Therefore costs, if the options were exercised, will be:

	July		Sept.	
	Can $	US $	Can $	US $
Covered by Contracts	1000000	940000	700000	665000
Balance bought at spot rate	10000	9301	5000	4678
Option Costs:				
Can $ 50000 x 20 x 0.0102		10200	---	
Can $ 50000 x 14 x 0.0164	---			11480
Total cost in US $ of using Option Contract		959501		681158

Recommendation: The Forward Market cover is recommended because of following reasons:

(i)   Cash outflow is least under this method.

(ii) As the firm is stated as risk averse and the money due to be paid is certain to some extent.

Total Marks = 10

(b) **(i)** The analysis whether market value of share is affected by the decision of Board or not we shall compute the value of share at present as follows:

$$= \frac{D_1}{k_e - g}$$

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

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.

(ii) In order to maintain his receipt at ₹ 2,000 for first 3 year, he would sell shares at the end of each year. The expected price of the share at the end of each year shall be computed as follows:

Expected market price after 3 years	$= \dfrac{2.50}{0.08 - 0.07}$	= ₹ 250.00
Expected market price after 2 years	$= \dfrac{2.50}{0.08 - 0.07} \times \dfrac{1}{(1 + 0.08)}$	= ₹ 231.48
Expected market price after 1 years	$= \dfrac{2.50}{0.08 - 0.07} \times \dfrac{1}{(1 + 0.08)^2}$	= ₹ 214.33

Accordingly, the investor would sell shares as follows:

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.

Thus, 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.

Total Marks = 6

(c) The main features of VAR are explained as under:

(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.

Total Marks = 4

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

(i) High growth phase :

k_e = 0.10 + 1.15 x 0.06 = 0.169 or 16.9%.

k_d = 0.13 x (1-0.3) = 0.091 or 9.1%.

2

Cost of capital = 0.5 x 0.169 + 0.5 x 0.091 = 0.13 or 13%.

(ii) Stable growth phase :

k_e = 0.09 + 1.0 x 0.05 = 0.14 or 14%.

k_d = 0.1286 x (1 - 0.3) = 0.09 or 9%.

Cost of capital = 0.6 x 0.14 + 0.4 x 0.09 = 0.12 or 12%.

(iii) Forecasted Free Cash Flow of the Firm *(FCFF)*

(₹ in crores)

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Terminal Year
Revenue	2,400	2,880	3,456	4,147.20	4,561.92
EBIT	360	432	518.40	622.08	684.29
EAT	252	302.40	362.88	435.46	479.00
Capital Expenditure Less Depreciation	96	115.20	138.24	165.89	-
Δ Working Capital	100.00	120.00	144.00	172.80	103.68
Free Cash Flow (FCF)	56.00	67.20	80.64	96.77	375.32

Alternatively, it can also be computed as follows:

(₹ in crores)

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Terminal Year
Revenue	2,400	2,880	3,456	4,147.20	4,561.92
EBIT	360	432	518.40	622.08	684.29
EAT	252	302.40	362.88	435.46	479.00
Add: Depreciation	240	288	345.60	414.72	456.19
	492	590.40	708.48	850.18	935.19
Less: Capital Exp.	336	403.20	483.84	580.61	456.19
Δ WC	100.00	120.00	144.00	172.80	103.68
	56.00	67.20	80.64	96.77	375.32

(iv) Present Value (PV) of FCFF during the explicit forecast period*:*

FCFF (₹ in crores)	PVF @ 13%	PV (₹ in crores)
56.00	0.885	49.56
67.20	0.783	52.62
80.64	0.693	55.88
96.77	0.613	59.32
		₹ 217.38

3

(v) PV of Terminal Value of Cash Flows

Terminal Value of Cash Flows

$$\frac{375.32}{0.12-0.10} = ₹\,18,766.00\,Crores$$

PV of the terminal, value is:

$$₹\,18,766.00\,Crores \times \frac{1}{(1.13)^4} = ₹\,18,766.00\,Crores \times 0.613 = ₹\,11,503.56\,Crores$$

Evaluation of the value of the Firm

The Value of the Firm = ₹ 217.38 Crores + ₹ 11,503.56 Crores = ₹ 11,720.94 Crores

Further we can see that the major part of value of the firm is from the Stable Growth Period and to maintain this value it needs to be ensured that:

❖ Growth Rate should not be gone below 10%.

❖ Capital expenditure should not exceed the depreciation

❖ Risk free rate of return should not exceed 9%

❖ The beta of the company should not exceed 1.

❖ Market Risk Premium should not exceed 5%.

❖ The Cost of Debt should not exceed 12.86%.

❖ The Debt Equity should not go below 2 : 3.

Total Marks = 10

(b) (i) To determine the number of Nifty Contract to be short first we shall determine the Beta of the portfolio as follows:

Shares	No. of shares (lakhs) (1)	Market Price of Per Share (2)	× (2) (₹ lakhs)	% to total (w)	ß (x)	wx
A Ltd.	3.00	500.00	1500.00	0.30	1.40	0.42
B Ltd.	4.00	750.00	3000.00	0.60	1.20	0.72
C Ltd.	2.00	250.00	500.00	0.10	1.60	0.16
			5000.00	1.00		1.30

Number of Nifty Contract to be sold

$$\frac{(1.30-0.91) \times 5000 \text{ lakh}}{8,125 \times 200} = 120 \text{ contracts}$$

(ii) To determine the portfolio beta we shall compute the value of Portfolio after Nifty rises as follows:

The 2% rises in Nifty is accompanied by 2% x 1.30 i.e. 2.6% rise for portfolio of shares

	₹ Lakh
Current Value of Portfolio of Shares	5000
Value of Portfolio after rise	5130
Mark-to-Market Margin paid (8125 × 0.020 × ₹ 200 × 120)	39
Value of the portfolio after rise of Nifty	5091

4

Beta of the Portfolio

% change in value of portfolio (5091 – 5000)/ 5000	1.82%
% rise in the value of Nifty	2%
Beta	0.91

Total Marks = 6

(c) As per GSR Notification 127 (E) dated 19th February 2019, an entity shall be considered as a Startup:

i. Upto a period of ten years from the date of incorporation/ registration, if it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India.

ii. Turnover of the entity for any of the financial years since incorporation/ registration has not exceeded one hundred crore rupees.

iii. Entity is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation.

Provided that an entity formed by splitting up or reconstruction of an existing business shall not be considered a 'Startup'.

Total Marks = 4

3. **Working Notes:**

To advise Mr. A for invest his money in which of the following bonds first we shall compute the Duration of each bond as follows:

Duration of Bond X

Year	Cash flow	P.V. @ 10%		Proportion of bond value	Proportion of bond value x time (years)
1	1070	.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	.909	72.72	0.077	0.077
2	80	.826	66.08	0.071	0.142
3	80	.751	60.08	0.064	0.192
4	1080	.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:

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

$x_1 = 0.61$

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

5

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

Further it is advised that since the investor has to keep the money invested for two years. Therefore, the investor can invest in both the bonds however Bond X will be reinvested for another one year on same returns.

It is also advised to Mr. A that he should also consider the Default and Call Risk associated with each bond also. **Total Marks = 8**

(b) (i) Calculation of NAV of the Fund on 1st February 2012

$$= \frac{₹\,4,00,000 + ₹\,93,72,000 + ₹\,72,24,000 + ₹\,3,03,06,000}{6,00,000}$$

$$= \frac{₹\,4,73,02,000}{6,00,000} = ₹\,78.8366 \text{ rounded to } ₹\,78.84$$

(ii) To calculate the NAV on 2nd February 2021, first we shall find the revised position of fund on 1st February 2021 and revised number of units shall be as follows:

Shares	No. of shares	Price	Amount (₹)
L Ltd.	20,000	20.00	4,00,000
M Ltd.	38,000	312.40	1,18,71,200
N Ltd.	20,000	361.20	72,24,000
P Ltd.	60,000	505.10	3,03,06,000
Cash			5,00,800
			5,03,02,000

No. of units of fund $= 6,00,000 + \dfrac{30,00,000}{78.8366} = 6,38,053$

Hence, on 2nd February 2012, the NAV of fund will be as follows:

Shares	No. of shares	Price	Amount (₹)
L Ltd.	20,000	20.50	4,10,000
M Ltd.	38,000	360.00	1,36,80,000
N Ltd.	20,000	383.10	76,62,000
P Ltd.	60,000	503.90	3,02,34,000
Cash			5,00,800
			5,24,86,800

Calculation of NAV as on 2nd February 2012 $= \dfrac{₹\,5,24,86,800}{6,38,053} = ₹\,82.26$ per unit

Total Marks = 8

6

(c) The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also. To take an illustration, let us refer to fuel industry where resources are limited in quantity and a judicial use of resources is needed to cater to the need of the future customers along with the need of the present customers. One may have noticed the save fuel campaign, a demarketing campaign that deviates from the usual approach of sales growth strategy and preaches for conservation of fuel for their use across generation. This is an example of stable growth strategy adopted by the oil industry as a whole under resource constraints and the long run objective of survival over years. Incremental growth strategy, profit strategy and pause strategy are other variants of stable growth strategy.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

Total Marks = 4

4. (a) Before we advise the steps to be taken it is necessary to find out the Exchange Position and Cash Position as follows:

Exchange Position:

Particulars	Purchase Sw. Fcs.	Sale Sw. Fcs.
Opening Balance Overbought	50,000	
Bill on Zurich	80,000	
Forward Sales – TT		60,000
Cancellation of Forward Contract		30,000
TT Sales		75,000
Draft on Zurich cancelled	30,000	—
	1,60,000	1,65,000
Closing Balance Oversold	5,000	—
	1,65,000	1,65,000

Cash Position (Nostro A/c)

	Credit	Debit
Opening balance credit	1,00,000	—
TT sales	—	75,000
	1,00,000	75,000
Closing balance (credit)	—	25,000
	1,00,000	1,00,000

Advise: The Bank has to buy spot TT Sw. Fcs. 5,000 to increase the balance in Nostro account to Sw. Fcs. 30,000. This would bring down the oversold position on Sw. Fcs. as Nil.

Since the bank requires an overbought position of Sw. Fcs. 10,000, it has to buy forward Sw. Fcs. 10,000. It is further advised to bank that since both positions are long position any

7

depreciation in Swiss Franc will lead to a loss for bank. Hence it is advised to bank to at least take short position in Forward Market to cover Overbought Position. **Total Marks = 8**

(b) To calculate the required parameters we shall use the following formulas:

$E_p = W_1E_1 + W_3E_3 + \ldots\ldots\ldots W_nE_n$

and for standard deviation $\sigma^2_p = \displaystyle\sum_{i=1}^{n}\sum_{j=1}^{n} w_iw_j\sigma_{ij}$

$$\sigma^2_p = \sum_{i=1}^{n}\sum_{j=1}^{n} w_iw_j\rho_{ij}\,\sigma_i\,\sigma_j$$

Two asset portfolio

$\sigma^2_p = w^2_1\sigma^2_1 + w^2_2\sigma^2_2 + 2\,w_1w_2\sigma_1\sigma_2\rho_{12}$

Calculation of Return and Standard Deviation under each scenario:

(i) All funds invested in B

$Ep = 12\%$

$\sigma_p = 10\%$

(ii) 50% of funds in each of B & D

$Ep = 0.50 \times 12\% + 0.50 \times 20\% = 16\%$

$\sigma^2_p = (0.50)^2(10\%)^2 + (0.50)^2(18\%)^2 + 2(0.50)(0.50)(0.15)(10\%)(18\%)$

$\sigma^2_p = 25 + 81 + 13.5 = 119.50$

$\sigma_p = 10.93\%$

(iii) 75% in B and 25% in D

$Ep = 0.75\% \times 12\% + 0.25\% \times 20 = 14\%$

$\sigma^2_p = (0.75)^2(10\%)^2 + (0.25)^2(18\%)^2 + 2(0.75)(0.25)(0.15)(10\%)(18\%)$

$\sigma^2_p = 56.25 + 20.25 + 10.125 = 86.625$

$\sigma_p = 9.31\%$

(iv) All funds in D

$Ep = 20\%$

$\sigma_p = 18.0\%$

Portfolio	(i)	(ii)	(iii)	(iv)
Return	12	16	14	20
σ	10	10.93	9.31	18

Advise: In the terms of return, we see that portfolio (iv) is the best portfolio. In terms of risk we see that portfolio (iii) is the best portfolio.

Total Marks = 8

(c) To some extent the given statement is correct because though being a country of many cultures and communities traditionally inclined to business and entrepreneurship, India still ranks low on comparative ratings across entrepreneurship, innovation and ease of doing business. The reasons are obvious. These include our old and outdated draconian rules and regulations which

8

provides a hindrance to our business environment for a long time. Other reasons are red tapism, our time consuming procedures, and lack of general support for entrepreneurship. Off course, things are changing in recent times.

Often, angel investors are among an entrepreneur's family and friends. The capital angel investors provide may be a one-time investment to help the business propel or an ongoing injection of money to support and carry the company through its difficult early stages.

Further since they usually invest in the entrepreneur starting the business rather than the viability of the business. Angel investors are focused on helping startups take their first steps, rather than the possible profit they may get from the business. Essentially, angel investors are the opposite of venture capitalists.

Angel investors are also called informal investors, angel funders, private investors, seed investors or business angels. These are affluent individuals who inject capital for startups in exchange for ownership equity or convertible debt. Some angel investors invest through crowdfunding platforms online or build angel investor networks to pool in capital.

Angel investors typically use their own money, unlike venture capitalists that take care of pooled money from many other investors and place them in a strategically managed fund.

Though angel investors usually represent individuals, the entity that actually provides the fund may be a limited liability company, a business, a trust or an investment fund, among many other kinds of vehicles. **Total Marks = 4**

5. **(a)** The risk of the Portfolio can be analyzed as follows:

$$\beta_p = \sum_{i=1}^{4} x_i \beta_i$$

= 1.60 x 0.25 + 1.15 x 0.30 + 1.40 x 0.25 + 1.00 x 0.20

= 0.4 + 0.345 + 0.35 + 0.20 = 1.295

The Standard Deviation (Risk) of the portfolio is

= $[(1.295)^2(18)^2+(0.25)^2(7)^2+(0.30)^2(11)^2+(0.25)^2(3)^2+(0.20)^2(9)^2)]$

= [543.36 + 3.0625 + 10.89 + 0.5625 + 3.24] = $[561.115]^{1/2}$ = 23.69%

Alternatively, it can be analyzed as follows:

The variance of Security's Return

$\sigma^2 = \beta_i^2 \sigma^2_m + \sigma^2_{\varepsilon i}$

Accordingly, variance of various securities

		σ^2	Weight(w)	$\sigma^2 Xw$
L	$(1.60)^2 (18)^2 + 7^2$ =	878.44	0.25	219.61
M	$(1.15)^2 (18)^2 + 11^2$ =	549.49	0.30	164.85
N	$(1.40)^2 (18)^2 + 3^2$ =	644.04	0.25	161.01
K	$(1.00)^2 (18)^2 + 9^2$ =	405.00	0.20	81
	Variance			626.47

SD = $\sqrt{626.47}$ = 25.03

Total Marks = 8

9

(b) (i) As borrower does not want to pay more than 8.5% p.a., on this loan where the rate of interest is likely to rise beyond this, hence, he is *advised* to hedge the risk by entering into an agreement to buy interest rate caps with the following parameters:

- National Principal: ₹ 40,00,000/-
- Strike rate: 8.5% p.a.
- Reference rate: the rate of interest applicable to this loan
- Calculation and settlement date: 31st March every year
- Duration of the caps: till 31st March 2016
- Premium for caps: negotiable between both the parties

To purchase the caps this borrower is required to pay the premium upfront at the time of buying caps. The payment of such premium will entitle him with right to receive the compensation from the seller of the caps as soon as the rate of interest on this loan rises above 8.5%. The compensation will be at the rate of the difference between the rate of none of the cases the cost of this loan will rise above 8.5% calculated on ₹ 40,00,000/-. This implies that in none of the cases the cost of this loan will rise above 8.5%. This hedging benefit is received at the respective interest due dates at the cost of premium.

(ii) To evaluate the position of the borrower on respective dates we shall compute the interest cost as follows:

Dates	Interest Rate (a)	Exercise of Option	Compensation (b)	Net Cost (a) – (b)
31st March, 2013	10.20%	Yes	10.20% - 8.50% = 1.70%	8.50%
31st March, 2014	11.50%	Yes	11.50% - 8.50% = 3.00%	8.50%
31st March, 2015	9.25%	Yes	9.25% - 8.50% = 0.75%	8.50%
31st March, 2016	8.25%.	No	Nil	8.25%

Thus, form above it can be evaluated that the by paying an upfront premium of ₹ 40,000 each year the borrower can ensure that its interest rate cost does not exceed 8.50% p.a.

Total Marks = 8

(c) Besides the primary participants other parties involved into the securitization process can be explained as follows:

(i) Obligors: Actually they are the main source of the whole securitization process. They are the parties who owe money to the firm and are assets in the Balance Sheet of Originator. The amount due from the obligor is transferred to SPV and hence they form the basis of securitization process and their credit standing is of paramount importance in the whole process.

(ii) Rating Agency: Since the securitization is based on the pools of assets rather than the originators, the assets have to 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 securities.
- ❖ Liquidity support.
- ❖ Strength of legal framework.

Although rating agency is secondary to the process of securitization but it plays a vital role.

(iii) Receiving and Paying agent (RPA): Also, called Servicer or Administrator, it collects the payment due from obligor(s) and passes it to SPV. It also follow up with defaulting borrower and if required initiate appropriate legal action against them. Generally, an originator or its affiliates acts as servicer.

(iv) Agent or Trustee: Trustees are appointed to oversee that all parties to the deal perform in the true spirit of terms of agreement. Normally, it takes care of interest of investors who acquires the securities.

(v) Credit Enhancer: Since investors in securitized instruments are directly exposed to performance of the underlying and sometime may have limited or no recourse to the originator, they seek additional comfort in the form of credit enhancement. In other words, they require credit rating of issued securities which also empowers marketability of the securities.

Originator itself or a third party say a bank may provide this additional context called Credit Enhancer. While originator provides his comfort in the form of over collateralization or cash collateral, the third party provides it in form of letter of credit or surety bonds.

(vi) Structurer: It brings together the originator, investors, credit enhancers and other parties to the deal of securitization. Normally, these are investment bankers also called arranger of the deal. It ensures that deal meets all legal, regulatory, accounting and tax laws requirements.

OR

Yes to some extent the given statement is correct as it is a technique of optimising cash flow movements with the combined efforts of the subsidiaries thereby reducing administrative and transaction costs resulting from currency conversion. There is a co-ordinated international interchange of materials, finished products and parts among the different units of MNC with many subsidiaries buying /selling from/to each other.

Advantages derived from netting system includes:

1) Reduces the number of cross-border transactions between subsidiaries thereby decreasing the overall administrative costs of such cash transfers

2) Reduces the need for foreign exchange conversion and hence decreases transaction costs associated with foreign exchange conversion.

3) Improves cash flow forecasting since net cash transfers are made at the end of each period

4) Gives an accurate report and settles accounts through co-ordinated efforts among all subsidiaries.

Total Marks = 4

6. (a) (i) To advise the maximum exchange ratio which CEO of the Acquirer Company should offer to shareholders of Target Company we shall compute the EPS of each company as follows:

	Acquirer Company	Target Company
Net Profit	₹ 80 lakhs	₹ 15.75 lakhs
PE Multiple	10.50	10.00
Market Capitalization	₹ 840 lakhs	₹ 157.50 lakhs
Market Price	₹ 42	₹ 105
No. of Shares	20 lakhs	1.50 lakhs
EPS	₹ 4	₹ 10.50

11

Maximum Exchange Ratio   4 : 10.50 or 1 : 2.625

Advise: Thus, at the most CEO can offer 2.625 shares of Acquirer Company for every one share of Target Company so that he could keep EPS at the current level.

(ii) Let x lakhs be the amount paid by Acquirer company to Target Company. Then to maintain same EPS i.e. ₹ 4 the number of shares to be issued will be:

$$\frac{(80 \text{ lakhs} + 15.75 \text{ lakhs}) - 0.70 \times 15\% \times x}{20 \text{ lakhs}} = 4$$

$$\frac{95.75 - 0.105\, x}{20} = 4$$

x = ₹ 150 lakhs

Advise: Thus, maximum ₹ 150 lakhs can be offered in cash to Target Company to maintain same EPS. Moreover it needs to be ensured that borrowing rate should not exceed 15%.

Total Marks = 8

(b) **(i)** Computation of Expected Share Price

= ₹120 X 0.05 + ₹140 X 0.20 + ₹160 X 0.50 + ₹180 X 0.10 + ₹ 190 X 0.15

= ₹6 + ₹28 + ₹80 + ₹18 + ₹28.50 = ₹160.50

(ii) Computation of Value of Call Option

= ₹150 - ₹150 = Nil

(iii) Computation of expected Value of Call Option if the option is held till maturity:

Expected price (X)	Value of call (C)	Probability (P)	CP
₹ 120	0	0.05	0
₹ 140	0	0.20	0
₹ 160	₹ 10	0.50	₹ 5
₹ 180	₹ 30	0.10	₹ 3
₹ 190	₹ 40	0.15	₹ 6
Total			₹ 14

Alternatively, it can also be computed as follows:

Expected Value of Option

(120 – 150) X 0.1	Not Exercised*
(140 – 150) X 0.2	Not Exercised*
(160 – 150) X 0.5	5
(180 – 150) X 0.1	3
(190 – 150) X 0.15	6
	14

* If the strike price goes below ₹ 150, option is not exercised at all.

Total Marks = 8

(c) Yes, commodity swaps are characterized by some peculiarities as following are some factors that we must account for:

(i) The cost of hedging;

12

(ii)   The institutional structure of the particular commodity market in question;

(iii) The liquidity of the underlying commodity market;

(iv)   Seasonality and its effects on the underlying commodity market;

(v)   The variability of the futures bid/offer spread;

(vi)   Brokerage fees; and

(vii) Credit risk, capital costs and administrative costs.

Some of these factors must be extended to the pricing and hedging of interest rate swaps, currency swaps and equity swaps as well. The idiosyncratic nature of the commodity markets refers more to the often limited number of participants in these markets (naturally begging questions of liquidity and market information), the unique factors driving these markets, the inter-relations with cognate markets and the individual participants in these markets.

Total Marks = 4