

MOCK TEST PAPER – 1
FINAL COURSE: GROUP – I
PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT
SUGGESTED ANSWERS/HINTS

- 1 (a) Question No. 1 (a) Expected Value of Option

$(300 - 180) \times 0.1$	12
$(300 - 260) \times 0.2$	8
$(300 - 280) \times 0.5$	10
$(300 - 320) \times 0.1$	Not Exercised*
$(300 - 400) \times 0.1$	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.

- (b) This is a case of Real Option and with the available data and information Black Scholes Option Pricing Model can be applied to value the option embedded and about the acceptability of the project.

P (Present Value of future net cash inflows) = ₹ 190 crore – ₹ 15 crores = ₹ 175 crores

i (Initial Investment) = ₹ 190 crore

r (Risk Free Rate of Interest) = 5%

t (time) = 2 years

σ (Standard Deviation) = 20%

$$d_1 = \frac{\ln\left(\frac{P}{I}\right) + \left(r + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

$$d_1 = \frac{\ln\left(\frac{175}{190}\right) + \left(0.05 + \frac{0.2^2}{2}\right)2}{0.20\sqrt{2}}$$

$$d_1 = \frac{0.0823 + 0.14}{0.2828}$$

$$d_1 = \frac{0.0577}{0.2828} = 0.20$$

$$d_2 = 0.20 - 0.2828$$

$$d_2 = -0.08$$

$$\text{Value of Call Option} = PN(d_1) - IN(d_2)e^{-rt}$$

$$= ₹ 175 \text{ crore } (0.5793) - ₹ 190 \text{ crore } (0.4681)e^{-0.5 \times 2}$$

$$= ₹ 101.378 \text{ crore} - ₹ 80.475 \text{ crore}$$

$$= ₹ 20.903 \text{ crore}$$

The value of real option of delaying commencement of production of vaccine is approximately ₹ 20.903 crore.

- (ii) To determine whether the project should be accepted or not we shall determine the NPV of the project is as follows:

Traditional NPV	- ₹ 15.000 crore
Value of Real Option of delaying project	₹ 20.903 crore
	<u>₹ 5.903 crore</u>

The project should be accepted as it will contribute to the wealth of the company.

- (c) CAPM formula for calculation of Expected Rate of Return is :

$$ER = R_f + \beta (R_m - R_f)$$

$$= 8 + 1.5 (12 - 8)$$

$$= 8 + 1.5 (4)$$

$$= 8 + 6$$

$$= 14\% \text{ or } 0.14$$

Applying Dividend Growth Model for the calculation of per share equilibrium price:

$$ER = \frac{D_1}{P_0} + g$$

$$0.14 = \frac{3(1.10)}{P_0} + 0.10$$

$$0.14 - 0.10 = \frac{3.30}{P_0}$$

$$0.04 P_0 = 3.30$$

$$P_0 = \frac{3.30}{0.04} = ₹ 82.50$$

Per share equilibrium price will be ₹ 82.50.

- (d) 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)	<u>₹ 5,64,71,000</u>
Profit to Bank	<u>₹ 5,29,000</u>

2. (a) (i) Payback period = $\frac{5,00,000}{1,25,000} = 4.00$

PV factor closest to 4.00 in 8 years is 4.078 at 18%

Thus IRR = 18%

Note: Students may also arrive at the answer of 18.63% instead of 18% if exact calculation are made as follows:-

PV factor in 8 years at 19% is 3.9544

Interpolating for 4.00

$$IRR = 18\% + \frac{4.0776 - 4.000}{4.0776 - 3.9544} = 18.63\%$$

- (ii) Desired lease rent to earn 20% IRR before expenses and taxes:

$$\text{Lease Rent} = \frac{5,00,000}{\text{PVIFA } 8 \text{ yr, } 20\%} = \frac{5,00,000}{3.837} = ₹ 1,30,310.14 \text{ p.a.}$$

- (iii) Revised lease rental on school bus to earn 20% return based on the given conditions.

$$\text{PV factor } [(X - E - D) (1 - T) + D] + (\text{PV factor} \times \text{S.V.}) = C_0$$

$$3.837 [(x - 50,000 - 50,000) (1 - .4) + 50,000] + (.233 \times 1,00,000) = 5,00,000$$

$$3.837 [.6x - 60,000 + 50,000] + 23,300 = 5,00,000$$

$$2.3022x = 5,15,070$$

$$x = 2,23,729.47$$

This may be confirmed as lease rental	2,23,729.47
Less: Expenses + Depreciation	<u>1,00,000.00</u>
EBT	1,23,729.47
Less tax 40%	<u>49,491.79</u>
PAT	74,237.68
Add: Depreciation	<u>50,000.00</u>
CFAT	<u>1,24,237.68</u>

$$\frac{\text{Co - PV of SV}}{\text{CFAT}} = \frac{5,00,000 - 23,300}{1,24,237.68} = 3.837 \text{ or } 20\%$$

(b) Case (i) Required yield rate = 5%

Year	Cash Flow ₹	DF (5%)	Present Value ₹
1-5	10	4.3295	43.295
5	110	0.7835	86.185
Value of bond			129.48

Case (ii) Required yield rate = 5.1%

Year	Cash Flow ₹	DF (5.1%)	Present Value ₹
1-5	10	4.3175	43.175
5	110	0.7798	85.778
Value of bond			128.953

Case (iii) Required yield rate = 10%

Year	Cash Flow ₹	DF (10%)	Present Value ₹
1-5	10	3.7908	37.908
5	110	0.6209	68.299
Value of bond			106.207

Case (iv) Required yield rate = 10.1%

Year	Cash Flow ₹	DF (10.1%)	Present Value ₹
1-5	10	3.7811	37.811
5	110	0.6181	67.991
Value of bond			105.802

3. (a) Exchange Position/Currency 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)		
	<i>Credit</i>	<i>Debit</i>
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

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.

(b) (i) NAV of the Fund

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

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

(ii) The revised position of fund 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			<u>5,00,800</u>
			<u>5,03,02,000</u>

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

(iii) 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			<u>5,00,800</u>
			<u>5,24,86,800</u>

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

4 (a) (i) To cover payable and receivable in forward Market

Amount payable after 3 months	\$7,00,000
Forward Rate	₹ 48.45
Thus Payable Amount (₹) (A)	₹ 3,39,15,000
Amount receivable after 2 months	\$ 4,50,000
Forward Rate	₹ 48.90
Thus Receivable Amount (₹) (B)	₹ 2,20,05,000
Interest @ 12% p.a. for 1 month (C)	₹ 2,20,050
Net Amount Payable in (₹) (A) – (B) – (C)	₹ 1,16,89,950

(ii) Assuming that since the forward contract for receivable was already booked it shall be cancelled if we lag the receivables. Accordingly any profit/ loss on cancellation of contract shall also be calculated and shall be adjusted as follows:

Amount Payable (\$)	\$7,00,000
Amount receivable after 3 months	\$ 4,50,000
Net Amount payable	\$2,50,000
Applicable Rate	₹ 48.45
Amount payable in (₹) (A)	₹ 1,21,12,500
Profit on cancellation of Forward cost (48.90 – 48.30) × 4,50,000 (B)	₹ 2,70,000
Thus net amount payable in (₹) (A) + (B)	₹ 1,18,42,500

Since net payable amount is least in case of first option, hence the company should cover payable and receivables in forward market.

Note: In the question it has not been clearly mentioned that whether quotes given for 2 and 3 months (in points terms) are premium points or direct quotes. Although above solution is based on the assumption that these are direct quotes, but students can also consider them as premium points and solve the question accordingly.

(b) (i)

Period	R_X	R_M	$R_X - \bar{R}_X$	$R_M - \bar{R}_M$	$(R_X - \bar{R}_X)(R_M - \bar{R}_M)$	$(R_M - \bar{R}_M)^2$
1	20	22	5	10	50	100
2	22	20	7	8	56	64
3	25	18	10	6	60	36
4	21	16	6	4	24	16
5	18	20	3	8	24	64
6	-5	8	-20	-4	80	16
7	17	-6	2	-18	-36	324
8	19	5	4	-7	-28	49
9	-7	6	-22	-6	132	36
10	<u>20</u>	<u>11</u>	5	-1	<u>-5</u>	<u>1</u>
	150	120			357	706
	ΣR_X	ΣR_M			$\Sigma (R_X - \bar{R}_X)(R_M - \bar{R}_M)$	$\Sigma (R_M - \bar{R}_M)^2$

$$\bar{R}_X = 15 \quad \bar{R}_M = 12$$

$$\sigma^2_M = \frac{\sum (R_M - \bar{R}_M)^2}{n} = \frac{706}{10} = 70.60$$

$$\text{Cov}_{XM} = \frac{\sum (R_X - \bar{R}_X)(R_M - \bar{R}_M)}{n} = \frac{357}{10} = 35.70$$

$$\text{Beta}_X = \frac{\text{Cov}_{XM}}{\sigma^2_M} = \frac{35.70}{70.60} = 0.505$$

(ii) $\bar{R}_X = 15 \quad \bar{R}_M = 12$

$$y = \alpha + \beta x$$

$$15 = \alpha + 0.505 \times 12$$

$$\begin{aligned}\text{Alpha } (\alpha) &= 15 - (0.505 \times 12) \\ &= 8.94\%\end{aligned}$$

Characteristic line for security X = $\alpha + \beta \times R_M$

Where, R_M = Expected return on Market Index

$\therefore$ Characteristic line for security X = $8.94 + 0.505 R_M$

5. (a) MSN Ltd.

Particulars	₹
Average level of Receivables ₹ 4,50,00,000 × 120 / 360	1,50,00,000
Factoring commission ₹ 1,50,00,000 × 2%	3,00,000
Factoring Reserve ₹ 1,50,00,000 × 10%	15,00,000
Amount available for advance ₹ 1,50,00,000 – (3,00,000 + 15,00,000)	1,32,00,000
Factor will deduct interest @ 18%	
Interest (₹ 1,32,00,000 × 18 × 120) / 100 × 360	7,92,000
Advance to be paid = ₹ 1,32,00,000 – 7,92,000	1,24,08,000
Annual cost of factoring to the firm:	
Factoring commission (₹ 300000 × 360 / 120)	9,00,000
Interest Charges (₹ 792,000 × 360 / 120)	23,76,000
	32,76,000
Firms savings on taking factoring service:	
Cost of credit administration saved	6,00,000
Cost of bad debts (₹ 4,50,00,000 × 2%)	9,00,000
Total savings	15,00,000

Net cost to the firm = ₹ 32,76,000 – ₹ 15,00,000 = ₹ 17,76,000

Effective rate of interest to the firm = ₹ 17,76,000 × 100 / ₹ 1,24,08,000 = 14.31%

Note: The number of days in a year is assumed to be 360 days.

(b) (i) The Betas of two stocks:

Aggressive stock - 40% - 4%/25% - 7% = 2

Defensive stock - 18% - 9%/25% - 7% = 0.50

(ii) Expected returns of the two stocks:-

$$\text{Aggressive stock} \quad - \quad 0.5 \times 4\% + 0.5 \times 40\% = 22\%$$

$$\text{Defensive stock} \quad - \quad 0.5 \times 9\% + 0.5 \times 18\% = 13.5\%$$

(iii) Expected return of market portfolio = $0.5 \times 7\% + 0.5 \times 25\% = 16\%$

$$\therefore \text{Market risk prem.} = 16\% - 7.5\% = 8.5\%$$

$$\therefore \text{SML is, required return} = 7.5\% + \beta_i 8.5\%$$

(iv) $R_s = \alpha + \beta R_m$

Where

α = Alpha

β = Beta

R_m = Market Return

For Aggressive Stock

$$22\% = \alpha_A + 2(16\%)$$

$$\alpha_A = -10\%$$

For Defensive Stock

$$13.5\% = \alpha_D + 0.50(16\%)$$

$$\alpha_D = 5.5\%$$

6. (a) (i) Taxable income = Net Income / $(1 - 0.40)$

$$\text{or, Taxable income} = ₹ 15,00,000 / (1 - 0.40) = ₹ 25,00,000$$

Again, taxable income = EBIT – Interest

$$\text{or, EBIT} = \text{Taxable Income} + \text{Interest}$$

$$= ₹ 25,00,000 + ₹ 15,00,000 = ₹ 40,00,000$$

(ii) $\text{EVA} = \text{EBIT} (1 - T) - (\text{WACC} \times \text{Invested capital})$

$$= ₹ 40,00,000 (1 - 0.40) - (0.126 \times ₹ 1,00,00,000)$$

$$= ₹ 24,00,000 - ₹ 12,60,000 = ₹ 11,40,000$$

(iii) $\text{EVA Dividend} = ₹ 11,40,000 / 2,50,000 = ₹ 4.56$

(b) Working Notes

Calculation of Interest Payment on 9% Debentures

$$\text{PVAF } (9\%, 5) = 4.486$$

$$\text{Annual Installment} = \frac{₹ 22.50 \text{ crore}}{4.486} = ₹ 5.0156 \text{ crore}$$

Year	Balance Outstanding (₹ Crore)	Interest (₹ Crore)	Installment (₹ Crore)	Principal Repayment (₹ Crore)	Balance (₹ Crore)
1	22.5000	2.025	5.0156	2.9906	19.5094
2	19.5094	1.756	5.0156	3.260	16.2494
3	16.2494	1.462	5.0156	3.554	12.6954
4	12.6954	1.143	5.0156	3.8726	8.8228

Statement showing Value of Equity

Particulars	2013-14 (₹ Crore)	2014-15 (₹ Crore)	2015-16 (₹ Crore)	2016-17 (₹ Crore)
EBIT	48.0000	57.0000	68.0000	82.0000
Less:				
Interest on 9% Debentures	2.0250	1.7560	1.4620	1.1430
Interest on 8% Loan	12.8000	12.8000	12.8000	12.8000
EBT	33.1750	42.4440	53.7380	68.0570
Tax @35%	11.6113	14.8554	18.8083	23.8200
EAT	21.5637	27.5886	34.9297	44.2370
Dividend @12.5% of EAT	2.6955	3.4490	4.3660	5.5300
	18.8682	24.1396	30.5637	38.7070
Balance b/f	Nil	18.8682	43.0078	73.5715
Balance c/f	18.8682	43.0078	73.5715	112.2785
No. of Shares (Crore)	82.5000	82.5000	82.5000	82.5000
Value of Equity	101.3682	125.5078	156.0715	194.7785

In the beginning of 2013-14 equity was ₹ 82.5000 crore which has been grown to ₹ 194.7785 over a period of 4 years. In such case the compounded growth rate shall be as follows:

$$(194.7785/82.5000)^{1/4} - 1 = 23.96\%$$

This growth rate is slightly higher than 20% as projected by Mr. Smith.

If the condition of VenCap for 18 shares is accepted the expected share holding after 4 years shall be as follows:

No. of shares held by Management	6.00 crore
No. of shares held by VenCap at the starting stage	2.25 crore
No. of shares held by VenCap after 4 years	4.05 crore
Total holding	6.30 crore

Thus, it is likely that Mr. Smith may not accept this condition of VenCap as this may result in losing their majority ownership and control to VenCap. Mr. Smith may accept their condition if management has further opportunity to increase share ownership through other forms.

7. (a) The success of any business is measured in financial terms. Maximising value to the shareholders is the ultimate objective. For this to happen, at every stage of its operations including policy-making, the firm should be taking strategic steps with value-maximization objective. This is the basis of financial policy being linked to strategic management.

The linkage can be clearly seen in respect of many business decisions. For example:

- (i) Manner of raising capital as source of finance and capital structure are the most important dimensions of strategic plan.
- (ii) Cut-off rate (opportunity cost of capital) for acceptance of investment decisions.
- (iii) Investment and fund allocation is another important dimension of interface of strategic management and financial policy.
- (iv) Foreign Exchange exposure and risk management.
- (v) Liquidity management
- (vi) A dividend policy decision deals with the extent of earnings to be distributed and a close interface is needed to frame the policy so that the policy should be beneficial for all.
- (vii) Issue of bonus share is another dimension involving the strategic decision.

Thus from above discussions it can be said that financial policy of a company cannot be worked out in isolation to other functional policies. It has a wider appeal and closer link with the overall organizational performance and direction of growth.

- (b) The following are some of the instruments used for borrowing of funds from the international market:
- (i) Syndicated bank loans: The borrower should obtain a good credit rating from the rating agencies. Large loans can be obtained in a reasonably short period with few formalities. Duration of the loan is generally 5 to 10 years. Interest rate is based on LIBOR plus spread depending upon the rating. Some covenants are laid down by the lending institutions like maintenance of key financial ratios.
 - (ii) Euro bonds: These are basically debt instruments denominated in a currency issued outside the country of the currency. For example, Yen bond floated in

France. Primary attraction of these bonds is the shelter from tax and regulations which provide Scope for arbitraging yields. These are usually bearer bonds and can take the form of (i) traditional fixed rate bonds (ii) floating rate notes (FRN's) (iii) Convertible bonds.

- (iii) Foreign bonds: Foreign bonds are foreign currency bonds and sold at the country of that currency and are subject to the restrictions as placed by that country on the foreigners' funds.
 - (iv) Euro Commercial Papers: These are short term money market securities usually issued at a discount, for maturity in less than one year.
 - (v) External Commercial Borrowings (ECB's): These include commercial bank loans, buyer's credit and supplier's credit, securitised instruments such as floating rate notes and fixed rate bonds, credit from official export credit agencies and commercial borrowings from multi-lateral financial institutions like IFCI, ADB etc. External Commercial borrowings have been a popular source of financing for most of capital goods imports. They are gaining importance due to liberalization of restrictions. ECB's are subject to overall ceilings with sub-ceilings fixed by the government from time to time.
 - (vi) All other loans are approved by the government.
- (c) The word 'demerger' is defined under the Income-tax Act, 1961. It refers to a situation where pursuant to a scheme for reconstruction/restructuring, an 'undertaking' is transferred or sold to another purchasing company or entity. The important point is that even after demerger; the transferring company would continue to exist and may do business.

Demerger is used as a suitable scheme in the following cases:

- Restructuring of an existing business
- Division of family-managed business
- Management 'buy-out'.

While under the Income tax Act there is recognition of demerger only for restructuring as provided for under sections 391 – 394 of the Companies Act, in a larger context, demerger can happen in other situations also.

- (d)
1. A base year is set alongwith a basket of base shares.
 2. The changes in the market price of these shares is calculated on a daily basis.
 3. The shares included in the index are those shares which are traded regularly in high volume.
 4. In case the trading in any share stops or comes down then it gets excluded and another company's shares replace it.
 5. Following steps are involved in calculation of index on a particular date:

- Calculate market capitalization of each individual company comprising the index.
 - Calculate the total market capitalization by adding the individual market capitalization of all companies in the index.
 - Computing index of next day requires the index value and the total market capitalization of the previous day and is computed as follows:
 - $$\text{Index Value} = \text{Index on Previous Day} \times \frac{\text{Total market capitalisation for current day}}{\text{Total capitalisation of the previous day}}$$
 - It should also be noted that Indices may also be calculated using the price weighted method. Here the share price of the constituent companies form the weights. However, almost all equity indices world-wide are calculated using the market capitalization weighted method.
- (e) Cross-border leasing is a leasing agreement where lessor and lessee are situated in different countries. This raises significant additional issues relating to tax avoidance and tax shelters. It has been widely used in some European countries, to arbitrage the difference in the tax laws of different countries.

Cross-border leasing have been in practice as a means of financing infrastructure development in emerging nations. Cross-border leasing may have significant applications in financing infrastructure development in emerging nations - such as rail and air transport equipment, telephone and telecommunications, equipment, and assets incorporated into power generation and distribution systems and other projects that have predictable revenue streams.

A major objective of cross-border leases is to reduce the overall cost of financing through utilization by the lessor of tax depreciation allowances to reduce its taxable income. The tax savings are passed through to the lessee as a lower cost of finance. The basic prerequisites are relatively high tax rates in the lessor's country, liberal depreciation rules and either very flexible or very formalistic rules governing tax ownership.