

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

ANSWERS

1. (a) Let the probability of attaining the maximum price be p . Then using risk Neutral Method.

$$(592 - 421) \times p + (411 - 421)(1 - p) = 421(e^{0.036} - 1)$$

$$171p - 10(1 - p) = 421 \times 0.037$$

$$171p - 10 + 10p = 15.577$$

$$181p = 25.577$$

$$p = 0.1413$$

Thus probability of attaining price 592 is 0.1413.

- (b) €/ \$ Three-month forward:

$$\text{Bid} : 0.7940 + 0.0025 = 0.7965$$

$$\text{Offer} : 0.8007 + 0.0035 = 0.8042$$

\$/ £ Three-month forward:

$$\text{Bid} : 1.8215 - 0.0035 = 1.8180$$

$$\text{Offer} : 1.8240 - 0.0025 = 1.8215$$

To calculate the € / £ forward bid and offer rates, we start with basic principle, that we have to sell low and buy high as the spread will always work against us.

In order to arrive at the three-month € / £ rate, we have to use the € / \$ and € / £ rates arrived at above.

$$(\text{€} / \text{£})_{\text{bid}} = (\text{€} / \$)_{\text{bid}} \times (\text{\$/£})_{\text{bid}} = 0.7965 \times 1.8180 = 1.4480$$

$$(\text{€} / \text{£})_{\text{ask}} = (\text{€} / \$)_{\text{ask}} \times (\text{\$/£})_{\text{ask}} = 0.8042 \times 1.8215 = 1.4649$$

Thus, the forward quote will be € / £ : 1.4480/1.4649

- (c) Cornett, GMBH. – Break-up valuation

Business Segment	Capital-to-Sales	Segment Sales	Theoretical Values
Consumer wholesale	0.75	€1,500,000	€1,125,000
Specialty services	1.10	€800,000	<u>€880,000</u>
Total value			<u>€2,005,000</u>

Business Segment	Capital-to-Assets	Segment Assets	Theoretical Values
Consumer wholesale	0.60	€750,000	€450,000
Specialty services	0.90	€700,000	<u>€630,000</u>
Total value			<u>€1,080,000</u>

Business Segment	Capital-to-Operating Income	Segment Income	Theoretical Values
Consumer wholesale	10.00	€100,000	€1,000,000
Specialty services	7.00	€150,000	<u>€1,050,000</u>
Total value			<u>€2,050,000</u>

Average theoretical value = $\frac{2,005,000 + 1,080,000 + 2,050,000}{3} = 1,711,666.66$ say 1,711,500

Average theoretical value of Cornett GMBH. = €1,711,500

(d) Security F

Prob(P)	R _f	Deviations of F (R _f – ER _f)	(Deviation) ² of F	(Deviations) ² P _x
0.30	30	13	169	50.70
0.40	20	3	9	3.60
0.30	0	-17	289	<u>86.70</u>
				<u>Var_f = 141</u>

STDEV $\sigma_f = \sqrt{141} = 11.87$

Market Portfolio, P

R _M %	P _M	Dev. of P (R _M – ER _M)	(Dev. of P) ²	(Dev.) ² P _M	(Deviation of F) x (Deviation of P)	Dev. of F x Dev. of P x P
-10	0.30	-24	576	172.80	-312	-93.6
20	0.40	6	36	14.40	18	7.2
30	0.30	16	256	76.80	-272	-81.6
				Var _M = 264 $\sigma_M = 16.25$		= Co Var P _M = -168

$$\text{Beta} = \frac{\text{Co Var } P_M}{\sigma_M^2} = \frac{-168}{264} = -0.636$$

2. (a) $(1 + 0.12)(1 + \text{Risk Premium}) = (1 + 0.14)$

Or, $1 + \text{Risk Premium} = 1.14/1.12 = 1.0179$

Therefore, Risk adjusted dollar rate is $= 1.0179 \times 1.08 = 1.099 - 1 = 0.099$ say 9.9%

Calculation of NPV

Year	Cash flow (Million) US\$	PV Factor at 9.9%	P.V.
1	2.00	0.910	1.820
2	2.50	0.828	2.070
3	3.00	0.753	2.259
4	4.00	0.686	2.744
5	5.00	0.624	<u>3.120</u>
			12.013
		Less: Investment	<u>11.000</u>
		NPV	<u>1.013</u>

Therefore, Rupee NPV of the project is $= ₹ 48 \times \$1.013 \text{ Million}$

$= ₹48.624 \text{ Million}$

(b) (i) Investment committed to each security would be:-

	A (₹)	B (₹)	C (₹)	Total (₹)
Portfolio X	1,500	2,000	1,500	5,000
Portfolio Y	<u>600</u>	<u>1,500</u>	<u>900</u>	<u>3,000</u>
Combined Portfolio	<u>2,100</u>	<u>3,500</u>	<u>2,400</u>	<u>8,000</u>
∴ Stock weights	0.26	0.44	0.30	

(ii) The equation of critical line takes the following form:-

$$WB = a + bWA$$

Substituting the values of WA & WB from portfolio X and Y in above equation, we get

$$0.40 = a + 0.30b, \text{ and}$$

$$0.50 = a + 0.20b$$

Solving above equation we obtain the slope and intercept, $a = 0.70$ and $b = -1$

and thus, the critical line is

$$WB = 0.70 - WA$$

If half of the funds is invested in security A then,

$$WB = 0.70 - 0.50 = 0.20$$

Since $WA + WB + WC = 1$

$$WC = 1 - 0.50 - 0.20 = 0.30$$

∴ Allocation of funds to Security B = $0.20 \times 8,000 = ₹ 1,600$, and

Security C = $0.30 \times ₹ 8,000 = ₹ 2,400$

3. (a) (i) **Forward contract:** Dollar needed in 180 days = $£3,00,000 \times \$ 1.96 = \$5,88,000$

(ii) **Money market hedge:** Borrow \$, convert to £, invest £, repay \$ loan in 180 days

Amount in £ to be invested = $3,00,000/1.045 = £ 2,87,081$

Amount of \$ needed to convert into £ = $2,87,081 \times 2 = \$ 5,74,162$

Interest and principal on \$ loan after 180 days = $\$5,74,162 \times 1.055 = \$ 6,05,741$

(iii) **Call option:**

Expected Spot rate in 180 days	Prem. /unit	Exercise Option	Total price per unit	Total price for £3,00,000 xi	Prob. Pi	pixi
1.91	0.04	No	1.95	5,85,000	0.25	1,46,250
1.95	0.04	No	1.99	5,97,000	0.60	3,58,200
2.05	0.04	Yes	2.01	6,03,000	0.15	90,450
						5,94,900

(iv) **No hedge option:**

Expected Future spot rate	Dollar needed Xi	Prob. Pi	Pi xi
1.91	5,73,000	0.25	1,43,250
1.95	5,85,000	0.60	3,51,000
2.05	6,15,000	0.15	92,250
			5,86,500

The probability distribution of outcomes for no hedge strategy appears to be most preferable because less number of \$ are needed under this option to arrange £3,00,000.

- (b) Yield for 9 months = $(153.33 \times 9/12)$ = 115%
 Amount receivable as on 31.03.2008 = 1,00,000/- + $(1,00,000 \times 115\%)$
 = ₹ 2,15,000/-

Therefore, NAV as on 31.03.2008 = $(2,15,000 - 10,000)/10,000$ = ₹ 20.50

Therefore, units as on 31.03.2008 = 10487.80 i.e., $(2,15,000/20.50)$

Dividend as on 31.03.2009 = $10,487.80 \times 10 \times 0.2$ = ₹ 20,975.60

Let X be the NAV on 31.03.2009, then number of new units reinvested will be ₹ 20,975.60/X. Accordingly 11296.11 units shall consist of reinvested units and 10487.80 (as on 31.03.2008). Thus, by way of equation it can be shown as follows:

$$11296.11 = \frac{20975.60}{X} + 10487.80$$

Therefore, NAV as on 31.03.2009 = $20,975.60/(11,296.11 - 10,487.80)$
 = ₹ 25.95

NAV as on 31.03.2010 = ₹ 1,00,000 $(1 + 0.7352 \times 33/12)/11296.11$
 = ₹ 26.75

4. (a) The annual change in cash flows through entering into a factoring agreement is:

Savings		(Amount in ₹)
Administration cost saved		1,00,000
Existing average debtors [₹ 1,00,00,000/365) x 80 days]	21,91,781	
Average New Debtors [(₹ 1,00,00,000/365) x 60 days]	16,43,836	
Reduction in debtors	5,47,945	
Cost there of @80%	4,38,356	
Add: Interest saving @15% p.a. on. ₹ 4,38,356		65,753
Add: Bad Debts saved @.005 of ₹ 1,00,00,000		<u>50,000</u>
	Total	2,15,753
Less: Annual charges @2% of ₹ 1,00,00,000		<u>2,00,000</u>
Net annual benefits of factoring		<u>15,753</u>

Therefore, the factoring agreement is worthwhile and should be undertaken.

(b) (i) Expected return of the portfolio X and Y

$$E(X) = (12 + 18)/2 = 15\%$$

$$E(Y) = (10 + 16)/2 = 13\%$$

$$R_P = 0.6(15) + 0.4(13) = 14.2\%$$

(ii) Covariance of Stocks X and Y

$$\text{Covariance} = \frac{\sum_{t=1}^n (X_t - \bar{X})(Y_t - \bar{Y})}{N}$$

$$\text{Cov}_{XY} = 0.5(12 - 15)(10 - 13) + 0.5(18 - 15)(16 - 13) = 9$$

(iii) Correlation of Coefficient

$$\gamma_{XY} = \frac{\text{COV}_{XY}}{\sigma_X \sigma_Y} = \frac{9}{3 \times 3} = 1$$

(iv) Portfolio Risk

$$\begin{aligned}\sigma_P &= \sqrt{(0.6)^2(3)^2 + (0.4)^2(3)^2 + 2(0.6)(0.4)(3)(3)(1)} \\ &= \sqrt{3.24 + 1.44 + 4.32} = \sqrt{9} = 3\%\end{aligned}$$

5 (a) (i) Earning per share for company K. Ltd. after Merger :

Exchange Ratio 160 : 200 = 4 : 5

That is 4 shares of K. Ltd. for every 5 shares of N. Ltd.

$$\therefore \text{Total number of shares to be issued} = \frac{4}{5} \times 2,50,000 = 2,00,000 \text{ shares}$$

$$\begin{aligned}\therefore \text{Total number of shares of K. Ltd. and N. Ltd.} &= 10,00,000 \text{ K. Ltd.} \\ &+ \underline{2,00,000} \text{ N. Ltd.} \\ &12,00,000\end{aligned}$$

$$\begin{aligned}\text{Total profit after Tax} &= \text{₹ } 50,00,000 \text{ K. Ltd.} \\ &\text{₹ } \underline{15,00,000} \text{ N Ltd.} \\ &\text{₹ } 65,00,000\end{aligned}$$

$\therefore$ E.P.S. (Earning per share) of K. Ltd. after Merger

$$= \frac{\text{₹ } 65,00,000}{12,00,000} = \text{₹ } 5.42 \text{ Per Share}$$

- (ii) To find the Exchange Ratio so that shareholders of N. Ltd. would not be at a Loss:

Present Earnings per share for company K. Ltd.

$$= \frac{\text{₹ } 50,00,000}{10,00,000} = \text{₹ } 5.00$$

Present Earnings Per share for company N. Ltd.

$$= \frac{\text{₹ } 15,00,000}{2,50,000} = \text{₹ } 6.00$$

∴ Exchange Ratio should be 6 shares of K. Ltd. for every 5 shares of N Ltd.

∴ Shares to be issued to N. Ltd.

$$= \frac{2,50,000 \times 6}{5} = 3,00,000 \text{ Shares}$$

∴ Total No. of Shares of K.Ltd. and N. Ltd.

$$\begin{array}{rcl} & = & 10,00,000 \quad \text{K. Ltd.} \\ & + & \underline{3,00,000} \quad \text{N. Ltd} \\ & & \underline{13,00,000} \end{array}$$

$$\therefore \text{E.P.S. After Merger} = \frac{65,00,000}{13,00,000} = \text{₹ } 5.00 \text{ Per Share}$$

Total Earnings Available to Shareholders of N. Ltd. after Merger

$$= \text{₹ } 3,00,000 \times \text{₹ } 5.00 = \text{₹ } 15,00,000$$

This is equal to Earnings prior Merger for N. Ltd.

∴ Exchange Ratio on the Basis of Earnings per Share is recommended.

- (b) Capital sum to be placed under Lease

		₹ in lakhs
Cash Down price of machine		300.00
Less: Present value of depreciation Tax Shield		
$100 \times .35 \times \frac{1}{(1.10)}$	31.82	
$100 \times .35 \times \frac{1}{(1.10)^2}$	28.93	
$100 \times .35 \times \frac{1}{(1.10)^3}$	<u>26.30</u>	<u>87.05</u>
		<u>212.95</u>

If the normal annual lease rent per annum is x , then cash flow will be:

Year	Post-tax cash flow	P.V. of post-tax cash flow
1	$3x \times (1 - .35) = 1.95x$	$1.95 \times (1/1.10) = 1.7727x$
2	$2x \times (1 - .35) = 1.30x$	$1.30 \times [(1/(1.10)^2)] = 1.0744x$
3	$x \times (1 - .35) = 0.65x$	$0.65 \times [1/(1.10)^3] = 0.4884x$
		<u>$= 3.3355x$</u>

Therefore $3.3355x = 212.95$ OR $x = ₹ 63.8450$ lakhs

Year-wise lease rentals:

₹ in lakhs

Year 1	3×63.8450 lakhs = 191.535
2	2×63.8450 lakhs = 127.690
3	1×63.8450 lakhs = 63.845

6. (a) Modigliani and Miller (M-M) – Dividend Irrelevancy Model:

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

Where,

P_0 = Existing market price per share i.e. ₹ 120

P_1 = Market price of share at the year-end (to be determined)

D_1 = Contemplated dividend per share i.e. ₹ 6.4

K_e = Capitalisation rate i.e. 9.6%.

(i) (a) Calculation of share price when dividend is declared:

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$120 = \frac{P_1 + 6.4}{1 + 0.096}$$

$$120 \times 1.096 = P_1 + 6.4$$

$$P_1 = 120 \times 1.096 - 6.4$$

$$= 125.12$$

(b) Calculation of share price when dividend is not declared:

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$120 = \frac{P_1 + 0}{1 + 0.096}$$

$$120 \times 1.096 = P_1 + 0$$

$$P_1 = 131.52$$

(ii) Calculation of No. of shares to be issued:

(₹ in lakhs)

Particulars	If dividend declared	If dividend not declared
Net Income	160	160
Less: Dividend paid	51.20	-----
Retained earnings	108.80	160
Investment budget	320	320
Amount to be raised by issue of new shares (i)	211.20	160
Market price per share (ii)	125.12	131.52
No. of new shares to be issued (ii)	1,68,797.95	1,21,654.50
Or say	1,68,798	1,21,655

(b) Expiration date cash flows

Stock Prices	₹ 50	₹ 55	₹ 60	₹ 70
Buy 1.0 call	0	0	0	-60
Write 1.0 call	0	0	0	60
Buy 1.0 put	60	60	0	0
Write 1.0 put	-60	-60	0	0

Expiration date investment value

Stock Prices	₹ 50	₹ 55	₹ 60	₹ 70
Buy 1.0 call	0	0	0	10
Write 1.0 call	0	0	0	-10
Buy 1.0 put	10	5	0	0
Write 1.0 put	-10	-5	0	0

Expiration date net profits

Stock Prices	₹ 50	₹ 55	₹ 60	₹ 70
Buy 1.0 call	-9	-9	-9	1
Write 1.0 call	9	9	9	-1
Buy 1.0 put	9	4	-1	-1
Write 1.0 put	-9	-4	1	1

- 7 (a) Credit rating is a very important indicator for prudence but it suffers from certain limitations. Some of the limitations are:
- (i) **Conflict of Interest** – The rating agency collects fees from the entity it rates leading to a conflict of interest. Since the rating market is very competitive, there is a distant possibility of such conflict entering into the rating system.
 - (ii) **Industry Specific rather than Company Specific** – Downgrades are linked to industry rather than company performance. Agencies give importance to macro aspects and not to micro ones; overreact to existing conditions which come from optimistic / pessimistic views arising out of up / down turns. At times, value judgments are not ruled out.
 - (iii) **Rating Changes** – Ratings given to instruments can change over a period of time. They have to be kept under constant watch. Downgrading of an instrument may not be timely enough to keep investors educated over such matters.
 - (iv) **Corporate Governance Issues** – Special attention is paid to:
 - (a) Rating agencies getting more of their revenues from a single service or group.
 - (b) Rating agencies enjoying a dominant market position. They may engage in aggressive competitive practices by refusing to rate a collateralized / securitized instrument or compel an issuer to pay for services rendered.
 - (c) Greater transparency in the rating process viz. in the disclosure of assumptions leading to a specific public rating.
 - (v) **Basis of Rating** – Ratings are based on 'point of time' concept rather than on 'period of time' concept and thus do not provide a dynamic assessment.
 - (vi) **Cost Benefit Analysis** – Since rating is mandatory, it becomes essential for entities to get themselves rated without carrying out cost benefit analysis.
- (b) G. Secs are usually referred to as risk free securities. However, these securities are subject to only one type of risk i.e. interest rate risk. Subject to changes in the overall interest rate scenario, the price of these securities may appreciate or depreciate.

Interest Rate Risk, market risk or price risk are essentially one and the same. These are typical of any fixed coupon security with a fixed period to maturity. This is on account of inverse relation of price and interest. As the interest rate rises the price of a security will fall. However, this risk can be completely eliminated in case an investor's investment horizon identically matches the term of security.

- (c) **American Depositary Receipts (ADRs):** A depository receipt is basically a negotiable certificate denominated in US dollars that represent a non- US Company's publicly traded local currency (INR) equity shares/securities. While the term refer to them is global depository receipts however, when such receipts are issued outside the US, but issued for trading in the US they are called ADRs.

An ADR is generally created by depositing the securities of an Indian company with a custodian bank. In arrangement with the custodian bank, a depository in the US issues the ADRs. The ADR subscriber/holder in the US is entitled to trade the ADR and generally enjoy rights as owner of the underlying Indian security. ADRs with special/unique features have been developed over a period of time and the practice of issuing ADRs by Indian Companies is catching up.

Only such Indian companies that can stake a claim for international recognition can avail the opportunity to issue ADRs. The listing requirements in US and the US GAAP requirements are fairly severe and will have to be adhered. However if such conditions are met ADR becomes an excellent sources of capital bringing in foreign exchange.

These are depository receipts issued by a company in USA and are governed by the provisions of Securities and Exchange Commission of USA. As the regulations are severe, Indian companies tap the American market through private debt placement of GDRS listed in London and Luxemburg stock exchanges.

Apart from legal impediments, ADRS are costlier than Global Depositary Receipts (GDRS). Legal fees are considerably high for US listing. Registration fee in USA is also substantial. Hence, ADRS are less popular than GDRS.

- (d) A very important phenomenon witnessed in the Mergers and Acquisitions scene, in recent times is one of buy - outs. A buy-out happens when a person or group of persons gain control of a company by buying all or a majority of its shares. A buyout involves two entities, the acquirer and the target company. The acquirer seeks to gain controlling interest in the company being acquired normally through purchase of shares. There are two common types of buy-outs: Leveraged Buyouts (LBO) and Management Buy-outs (MBO). LBO is the purchase of assets or the equity of a company where the buyer uses a significant amount of debt and very little equity capital of his own for payment of the consideration for acquisition. MBO is the purchase of a business by its management, who when threatened with the sale of its business to third parties or frustrated by the slow growth of the company, step-in and acquire the business from the owners, and run the business for themselves.

The majority of buy-outs is management buy-outs and involves the acquisition by incumbent management of the business where they are employed. Typically, the purchase price is met by a small amount of their own funds and the rest from a mix of venture capital and bank debt.

Internationally, the two most common sources of buy-out operations are divestment of parts of larger groups and family companies facing succession problems. Corporate groups may seek to sell subsidiaries as part of a planned strategic disposal programme or more forced reorganisation in the face of parental financing problems. Public companies have, however, increasingly sought to dispose of subsidiaries through an auction process partly to satisfy shareholder pressure for value maximisation.

In recessionary periods, buy-outs play a big part in the restructuring of a failed or failing businesses and in an environment of generally weakened corporate performance often represent the only viable purchasers when parents wish to dispose of subsidiaries.

Buy-outs are one of the most common forms of privatisation, offering opportunities for enhancing the performances of parts of the public sector, widening employee ownership and giving managers and employees incentives to make best use of their expertise in particular sectors.

- (e) 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.