

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

- 1 (a) The appropriate value of the 3 months futures contract is –

$$F_0 = ₹300 (1.008)^3 = ₹307.26$$

Since the futures price exceeds its appropriate value it pays to do the following:-

Action	Initial Cash flow	Cash flow at time T (3 months)
Borrow ₹300 now and repay with interest after 3 months	+ ₹300	- ₹ 300 (1.008) ³ = -₹307.26
Buy a share	- ₹300	ST
Sell a futures contract (F ₀ = 312/-)	0	₹312 – ST
Total	₹0	₹4.74

Such an action would produce a risk less profit of ₹4.74.

- (b) a. $\$100 \times £0.62 = 62 \text{ £}$
b. $50/1.90 = \$26.32$
c. $\$40 \times 6.40 = 256 \text{ krona}$
d. $200 / 1.50 = \$133.33$
e. $1,000 / 140 = \$7.14$

- (c)

	Company	
	X	Y
E.A.T. (₹)	4,00,000	1,20,000
No. of Equity Shares	80,000	20,000
Market Value (₹)	15	12
Firm Y will get $\frac{12}{15} \times 20,000 = 16,000$ shares		

i.e., 4 shares of X Ltd. for every 5 shares of Y Ltd.

Then, total number of shares of X Ltd., shall be

$$80,000 + 16,000 = 96,000$$

Total earnings after tax shall be = 4,00,000 + 1,20,000 = ₹ 5,20,000

Therefore, E.P.S. = $\frac{5,20,000}{96,000} = 5.42$ per share

(d) Using the CAPM the expected return will be:

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

$$= 5 + 1.15(12 - 5) = 5 + 8.05 = 13.05\%$$

Estimated Return

$$R_i = \frac{(P_1 - P_0) + D_1}{P_0}$$

$$= \frac{(90 - 83) + 3.85}{83} = \frac{7 + 3.85}{83} = 0.1307 = 13.07\%$$

Since the estimated return on the security is more than the expected return hence security is fairly priced.

2. (a)

I Year		II Year		J. Prob.
Prob.	Cash Inflow	Prob.	Cash Inflow	
0.3	30000	0.3	12,000	$0.3 \times 0.3 = 0.09$ (Path, 1)
		0.2	16,000	$0.3 \times 0.2 = 0.06$ (Path 2)
		0.5	22,000	$0.3 \times 0.5 = 0.15$ (Path 3)
0.7	35000	0.1	20,000	$0.7 \times 0.1 = 0.07$ (Path 4)
		0.5	25,000	$0.7 \times 0.5 = 0.35$ (Path 5)
		0.4	30,000	$0.7 \times 0.4 = 0.28$ (Path 6)

The table given above shows that there are six possible outcomes each represented by a path. The net present value of each path at 10% discount rate is given below:

Path	(Cash inflow year 1 X discount factor year 1)	(Cash inflow year 2 X discount factor year 2)	Total Cash inflow	Cash outflow	Net present value
	(a)	(b)	(c) = (a) + (b) ₹	(d) ₹	(e) = (c) - (d) ₹
1	(₹30,000 X 0.909) = ₹27,270	(₹12,000 X 0.826) = 9,912	37,182	50,000	- 12,818
2	(₹30,000 X 0.909) = ₹ 27,270	(₹16,000 X 0.826) = ₹13,216	40,486	50,000	-9,514

3	(₹30,000 X 0.909) = ₹27,270	(₹22,000 X 0.826) = ₹18,172	45,442	50,000	-4,558
4	(₹35,000 X 0.909) = ₹31,815	(₹20,000 x 0.826) = ₹ 16,520	48,335	50,000	-1,665
5	(₹35,000 x 0.909) = ₹31,815	(₹25,000 x 0.826) = ₹20,650	52,465	50,000	2,465
6	(₹35,000 x 0.909) = ₹31,815	(₹30,000 x 0.826) = ₹24,780	56,595	50,000	6,595

Statement showing the expected net present value

Path	Net present value @ 10% (Refer above)	Joint probability (Refer above)	Expected Net Present Value
	(a)	(b)	(a) X (b)
1	-12,818	0.09	-1,153.62
2	-9,514	0.06	-570.84
3	-4,558	0.15	-683.70
4	-1,665	0.07	-116.55
5	2,465	0.35	862.75
6	6,595	0.28	<u>1,846.60</u>
			<u>184.64</u>

- (a) If the worst outcome is realized the Net present value which the project will yield is ₹ 12,818 (negative). The probability of occurrence of this Net present value is 9%.
- (b) The best outcome will be path 6 when Net present value is higher i.e. ₹ 6,595 (positive). The probability of occurrence of this Net present value is 28%.
- (c) Yes, the project will be accepted since the Expected Net present value X probability sum total is positive.
- (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,

$$WB = 0.70 - 0.50 = 0.20$$

$$\text{Since } WA + WB + WC = 1$$

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

\ 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) Invoice amount in Indian Rupee = FFr 80,00,000 $\times ₹ 6.60 = ₹ 5,28,00,000$

(i) Interest Rate in India 9% p.a.

Interest Rate in France 12% p.a

The interest rate differential $12\% - 9\% = 3\%$ (Interest Differential)

$$\begin{aligned} \text{Forward Discount} &= \frac{\text{Forward Rate} - \text{Spot Rate}}{\text{Spot Rate}} \times \frac{12}{3} \times 100 \\ &= \frac{6.50 - 6.60}{6.60} \times \frac{12}{3} \times 100 = 6.061 \text{ (Forward Discount)} \end{aligned}$$

Since the forward discount is greater than interest rate differential there will be arbitrage inflow into the country (India).

Alternative Solution

In this case, FFr is at a discount against Rupee = $[(6.50 - 6.60) / 6.60] \times 12/3 \times 100 = 6.061\%$.

Whereas interest rate differential = $9\% - 12\% = -3\%$

Since the interest rate differential is smaller than the discount, it will be profitable to place money in Rupee, the currency whose 3 months interest is lower.

The following operations are carried out:-

(i) Borrow FFr 1000 at 12% for 3 months,

- (ii) Change this sum into ₹ at the Spot Rate to obtain ₹ = (FFr 1000X ₹ 6.60) = ₹ 6,600
- (iii) Place ₹ 6,600 in the money market for 3 months to obtain a sum of ₹ -
A sum of Rupees –
- | | |
|---------------------------------|-----------------|
| Principal | ₹ 6,600.00 |
| Add: interest @ 9% for 3 months | <u>₹ 148.50</u> |
| | ₹ 6,748.50 |
- (iv) Sell DM at 3 months forward to obtain ₹ 6,748.50 / 6.50 = FFr 1,038.23
- (v) Refund the debt taken in FFr with the interest due on it, i.e.
- | | |
|----------------------------------|------------------|
| Principal – | FFr 1,000.00 |
| Add: interest @ 12% for 3 months | <u>FFr 30.00</u> |
| Total | FFr 1,030.00 |
- Thus, Net arbitrage gain = FFr 1038.23 – FFr 1030.00 = FFr 8.23.

- (ii) The decision taken by Mr. E was not correct because as per Interest Rate Parity Theory, forward rate for sale should be 1 FFr = ₹ 6.65, calculated as follows:

Let F be the forward rate, then as per Interest Rate Parity theory, it should have been as follows:

$$\frac{F - 6.6}{6.6} \times \frac{12}{3} \times 100 = -3 \text{ (Interest Differential)}$$

$$\frac{F - 6.6}{6.6} = \frac{-3}{400}$$

$$400F - 2640 = -19.8$$

$$400F = 2659.80$$

$$F = 6.6495 \text{ say } 6.65.$$

- (b) Sharpe Ratio = (Expected Return – Risk Free Return)/ S.D.

Treynor Ratio = (Expected Return – Risk Free Return)/ Beta

Portfolio	Under Sharpe's Method	Ranking	Under Treynor Method	Ranking
Dhan Raksha	1.125	2	6	2
Dhan Varsha	0.833	4	5.55	3

Dhan Vredhi	1.4	1	5	4
Dhan Mitra	1.1	3	14.67	1

- 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) 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:-
- Aggressive stock - $0.5 \times 4\% + 0.5 \times 40\% = 22\%$
- Defensive stock - $0.5 \times 9\% + 0.5 \times 18\% = 13.5\%$
- (iii) Expected return of market portfolio = $0.5 \times 7\% + 0.5 \times 25\% = 16\%$
- Market risk prem. = $16\% - 7.5\% = 8.5\%$
- 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

$$13.5\% = \alpha D + 0.50(16\%)$$

$$\alpha D = 5.5\%$$

5 (a) (i)	Total earnings after merger (₹ 19 lac + ₹ 10 lac)	₹ 29 lac
	Add: Synergy effect	<u>₹ 4 lac</u>
	Post Merger earnings	<u>₹ 33 lac</u>
	Total number of shares in merged entity (3.5 Lac + 2.2 Lac)	5.7 lac

$$\text{EPS (after merger)} = \frac{\text{₹ 33 lac}}{5.7 \text{ lac}} = ₹ 5.79$$

Market Price of share of Sun Ltd before Merger

$$= \frac{\text{₹ 175 lac}}{3.5 \text{ lac}} = ₹ 50 \text{ per share}$$

$$\text{Minimum PE ratio to justify merger} = \frac{₹ 50}{₹ 5.79} = 8.64$$

(ii) Let x be the number of shares issued after merger

$$\text{The new EPS} = \frac{\text{₹ 33 lac}}{3.5 \text{ lac} + x}$$

$$\text{If PE ratio is 9 then market price of share after merger} = \frac{\text{₹ 33 lac}}{3.5 \text{ lac} + x} \times 9$$

$$= \frac{\text{₹ 297 lac}}{3.5 \text{ lac} + x}$$

Since, pre merger market price of share of Sun Ltd. = ₹ 50

Thus ,

$$50 = \frac{\text{₹ 297 lac}}{3.5 \text{ lac} + x}$$

$$x = 2.44 \text{ lac shares for } 2.2 \text{ lac shares}$$

(b) (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 18.647% instead of 18% as follows:-

NPV at 18% is ₹ 9750 and at 20% = -₹ 20375

Interpolating IRR = $18\% + \frac{9750}{9750 + 20375} \times 2 = 18.647\%$

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

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.

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

$3.837 [(X - 50,000 - 50,000)(1 - 0.4) + 50,000] + (0.233 \times 1,00,000) = 5,00,000$

$3.837 [0.6x - 60,000 + 50,000] + 23,300 = 5,00,000$

$2.3022x = 5,15,070$

$x = 2,23,729.47$

This may be confirmed as follows:

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

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	<u>51.20</u>	<u>-----</u>
Retained earnings	108.80	160
Investment budget	<u>320</u>	<u>320</u>
Amount to be raised by issue of new shares (i)	<u>211.20</u>	<u>160</u>

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) Initial Margin = $\mu + 3S$

Where μ = Daily Absolute Change

S = 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	50x(3267.50 - 3212.30) = 2760	18760	-
11/2/09	50x(3263.80 - 3267.50) = -185	18575	-
12/2/09	50x(3292 - 3263.80) = 1410	19985	-
14/2/09	50x(3309.30 - 3292) = 865	20850	-
17/2/09	50x(3257.80 - 3309.30) = -2575	18275	-
18/2/09	50x(3102.60 - 3257.80) = -7760	16000	5485

7 (a) The following are, briefly, a summary of investment banking functions:

- **Managing an IPO (Initial Public Offering):** This includes hiring managers to the issue, due diligence and marketing the issue.
- **Issue of debt:** When a company requires capital, it sometimes chooses to issue public debt instead of equity.
- **Mergers and Acquisitions:** Acting as intermediary between Acquirer and target company
- **Private Placement:** A private placement differs little from a public offering aside from the fact that a private placement involves a firm selling stock or equity to private investors rather than to public investors.
- **Financial Restructuring:** When a company cannot pay its cash obligations - it goes bankrupt. In this situation, a company can, of course, choose to simply shut down operations and walk away or, it can also restructure and remain in business.

- (b) Debt Securitisation is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this assets pool market securities can be issued.

The process can be classified in the following three functions:

1. **The origination function** – A borrower seeks a loan from finance company, bank, housing company or a financial institution. On the basis of credit worthiness repayment schedule is structured over the life of the loan.
2. **The pooling function** – Many similar loans or receivables are clubbed together to create an underlying pool of assets. This pool is transferred in favour of a SPV (Special Purpose Vehicle), which acts as a trustee for the investor. Once the assets are transferred they are held in the organizers portfolios.
3. **The securitisation function** – It is the SPV's job to structure and issue the securities on the basis of asset pool. The securities carry coupon and an expected maturity, which can be asset base or mortgage based. These are generally sold to investors through merchant bankers. The investors interested in this type of securities are generally institutional investors like mutual fund, insurance companies etc. The originator usually keeps the spread available (i.e. difference) between yield from secured asset and interest paid to investors.

Generally the process of securitisation is without recourse i.e. the investor bears the credit risk of default and the issuer is under an obligation to pay to investors only if the cash flows are received by issuer from the collateral.

- (c) ECB include bank loans, supplier credit, securitised instruments, credit from export credit agencies and borrowings from multilateral financial institutions. These securitised instruments may be FRNs, FRBs etc. Indian corporate sector is permitted to raise finance through ECBs within the framework of the policies and procedures prescribed by the Central Government. Multilateral financial institutions like IFC, ADB, AFIC, CDC are providing such facilities while the ECB policy provides flexibility in borrowing consistent with maintenance of prudential limits for total external borrowings, its guiding principles are to keep borrowing maturities long, costs low and encourage infrastructure/core and export sector financing which are crucial for overall growth of the economy. The government of India, from time to time changes the guidelines and limits for which the ECB alternative as a source of finance is pursued by the corporate sector. During past decade the government has streamlined the ECB policy and procedure to enable the Indian companies to have their better access to the international financial markets.

The government permits the ECB route for variety of purposes namely expansion of existing capacity as well as for fresh investment. But ECB can be raised through internationally recognized sources. There are caps and ceilings on ECBs so that

macro economy goals are better achieved. Units in SEZ are permitted to use ECBs under a special window.

- (d) Financial restructuring, is carried out internally in the firm with the consent of its various stakeholders. Financial restructuring is a suitable mode of restructuring of corporate firms that have incurred accumulated sizable losses for / over a number of years. As a sequel, the share capital of such firms, in many cases, gets substantially eroded / lost; in fact, in some cases, accumulated losses over the years may be more than share capital, causing negative net worth. Given such a dismal state of financial affairs, a vast majority of such firms are likely to have a dubious potential for liquidation. Can some of these Firms be revived ? Financial restructuring is one such a measure for the revival of only those firms that hold promise/prospects for better financial performance in the years to come. To achieve the desired objective, 'such firms warrant / merit a restart with a fresh balance sheet, which does not contain past accumulated losses and fictitious assets and shows share capital at its real/true worth.
- (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.