

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

1. (a) (i) Calculation of theoretical minimum price of a 6 months forward contract-
Theoretical minimum price = ₹ 1,800 + (₹ 1,800 x 12/100 x 6/12) ₹ 1,908
- (ii) Arbitrage Opportunity-
The arbitrageur can borrow money @ 12 % for 6 months and buy the shares at ₹ 1,800. At the same time he can sell the shares in the futures market at ₹ 1,950. On the expiry date 6 months later, he could deliver the share and collect ₹ 1,950 pay off ₹ 1,908 and record a profit of ₹ 42 (₹ 1,950 – ₹ 1,908)
- (b) Here Canara Bank shall buy US\$ and credit ₹ to Vostro account of ABN-Amro Bank. Canara Bank's buying rate will be based on the Inter-Bank Buying Rate (as this is the rate at which Canara Bank can sell US\$ in the Interbank market)
- Accordingly, the Interbank Buying Rate of US\$ will be ₹ 51.3625 (lower of two)
- Equivalent of US\$ for ₹15 million at this rate will be
- $$= \frac{15,000,000}{51.3625} = \text{US\$ } 2,92,041.86$$
- (c)

	₹
Debt capacity of merged company (2,00,00,000 × 0.30)	60,00,000
Less: Debt of A Ltd and T Ltd.	<u>30,00,000</u>
	30,00,000
Add: Marketable securities of both companies	<u>40,00,000</u>
	<u>70,00,000</u>

Since the combined liquidity of merged company shall remain comfortable, it shall be feasible to pay cash for acquiring the T Ltd. against tentative price of ₹ 65,00,000.

- (d)
$$Y_{TM} = \frac{C + \frac{(F - P)}{n}}{\frac{F + P}{2}}$$
 C= Coupon Rate; F= Face Value (Issue Price) ; P= Market Price of Bond

$$YTM = \frac{13 + \frac{(100-95)}{6}}{\frac{100+95}{2}} = 0.1418 \text{ or } 14.18\%$$

2. (a) In this question the effect of increasing running cost and decreasing resale value have to be weighted upto against the purchase cost of bike. For this purpose we shall compute Equivalent Annual Cost of replacement in different years shall be computed and compared.

Year	Road Taxes (₹)	Petrol etc. (₹)	Total (₹)	PVF @10 %	PV (₹)	Cumulative PV (₹)	PV of Resale Price (₹)	Net Outflow (₹)
1	3,000	30,000	33,000	0.909	29,997	29,997	31,815	(1,818)
2	3,000	35,000	38,000	0.826	31,388	61,385	17,346	44,039
3	3,000	43,000	46,000	0.751	34,546	95,931	6,759	89,172

Computation of EACs

Year	Purchase Price of Bike (₹)	Net Outflow (₹)	Total Outflow (₹)	PVAF @ 10%	EAC (₹)
1	55,000	(1,818)	53,182	0.909	58,506
2	55,000	44,039	99,039	1.735	57,083
3	55,000	89,172	1,44,172	2.486	57,993

Thus, from above table it is clear that EAC is least in case of 2 years, hence bike should be replaced every two years.

- (b) (i) **NAV of the Fund**

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

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

- (ii) **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>

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

3 (a) (i) Forward contract: Dollar needed in 180 days = £3,00,000 x \$ 1.96 = \$5,88,000/-

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

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

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

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

(iii) Call option:

Expected Spot rate in 180 days	Prem./ unit	Exercise Option	Total price per unit	Total price for £3,00,000xi	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
						<u>5,94,900</u>

$$* (\$1.97 + \$0.04)$$

(iv) No hedge option:

<i>Expected Future spot rate</i>	<i>Dollar needed X_i</i>	<i>Prob. P_i</i>	<i>$P_i x_i$</i>
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 least number of \$ are needed under this option to arrange £3,00,000.

(b) (i) Returns for the year

(All changes on a Per -Unit Basis)

Change in Price: ₹48 – ₹45 = ₹ 3.00

Dividends received: ₹ 1.00

Capital gains distribution ₹ 2.00

Total reward ₹ 6.00

Holding period reward: $\frac{₹ 6.00}{₹ 45} \times 100 = 13.33\%$

(ii) When all dividends and capital gains distributions are re-invested into additional units of the fund @ (₹ 46/unit)

Dividend + Capital Gains per unit = ₹ 1.00 + ₹ 2.00 = ₹ 3.00

Total received from 200 units = ₹ 3.00 x 200 = ₹ 600/-.

Additional Units Acquired = ₹ 600/₹ 46 = 13.04 Units.

Total No. of Units = 200 units + 13.04 units = 213.04 units.

Value of 213.04 units held at the end of the year

= 213.04 units x ₹48 = ₹ 10225.92

Price Paid for 200 Units at the beginning of the year = 200 units x ₹ 45 = ₹ 9000.00

Holding Period Reward ₹ (10225.92 – 9000.00) = ₹1225.92

Holding Period Reward = $\frac{₹1225.92}{₹ 9000} \times 100 = 13.62\%$

4 (a) 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

(b) Market Risk Premium (A) = 14% – 7% = 7%

Share	Beta	Risk Premium (Beta x A) %	Risk Free Return %	Return %	Return ₹
Oxy Rin Ltd.	0.45	3.15	7	10.15	8,120
Boxed Ltd.	0.35	2.45	7	9.45	14,175
Square Ltd.	1.15	8.05	7	15.05	33,863
Ellipse Ltd.	1.85	12.95	7	19.95	89,775
Total Return					<u>1,45,933</u>

Total Investment ₹ 9,05,000

(i) Portfolio Return = $\frac{\text{₹ } 1,45,933}{\text{₹ } 9,05,000} \times 100 = 16.13\%$

(ii) Portfolio Beta

$$\text{Portfolio Beta} = \text{Risk Free Rate} + \text{Risk Premium} \times \beta = 16.13\%$$

$$7\% + 7\beta = 16.13\%$$

$$\beta = 1.30$$

Alternative Approach

First we shall compute Portfolio Beta using the weighted average method as follows:

$$\begin{aligned}\text{Beta}_P &= 0.45 \times \frac{0.80}{9.05} + 0.35 \times \frac{1.50}{9.05} + 1.15 \times \frac{2.25}{9.05} + 1.85 \times \frac{4.50}{9.05} \\ &= 0.45 \times 0.0884 + 0.35 \times 0.1657 + 1.15 \times 0.2486 + 1.85 \times 0.4972 = 0.0398 + 0.058 + 0.2859 + 0.9198 = 1.3035\end{aligned}$$

Accordingly,

(i) Portfolio Return using CAPM formula will be as follows:

$$R_P = R_F + \text{Beta}_P(R_M - R_F)$$

$$= 7\% + 1.3035(14\% - 7\%) = 7\% + 1.3035(7\%)$$

$$= 7\% + 9.1245\% = 16.1245\%$$

(ii) Portfolio Beta

As calculated above 1.3035

5. (a) The fair price of the index future contract can be calculated as follows:

$$FC = 13,800 + [(13,800 \times 0.12 \times \frac{6}{12} - 13,800 \times 4.8\% \times 0.50)]$$

$$= 13,800 + [828 - 331.20] = ₹ 14,296.80$$

Since presently index is trading at ₹ 14,340, hence it is overpriced.

To earn an abnormal rate of return, Mr. X shall take following steps:

1. Mr. X shall buy a portfolio which comprising of shares of which index consisted of.
2. Mr. X shall go for short position on index future contract.

Now we shall calculate return to Mr. X under two given situations:

(i) Return of Mr. X, if index closes at ₹ 10,200

	₹
Profit from short position of futures (₹14,340 – ₹10,200)	4,140.00

Cash Dividend on Portfolio ($\text{₹}13,800 \times 4.8\% \times 0.5$)	331.20
Loss on sale of portfolio ($\text{₹}10,200 - \text{₹}13,800$)	<u>(3,600.00)</u>
	<u>871.20</u>

(ii) Return of Mr. X if index closes at ₹ 15,600

	₹
Loss from short position in futures. ($\text{₹}14,340 - \text{₹}15,600$)	(1,260.00)
Cash dividend on Portfolio	331.20
Profit on sale of underlying portfolio ($\text{₹}15,600 - \text{₹}13,800$)	<u>1,800.00</u>
	<u>871.20</u>

$$\text{6 months Return} = \frac{871.20}{13,800} \times 100 = 6.31\%$$

$$\text{Annualised Return} = 6.31\% \times 2 = 12.63\%$$

(b) Borrowing option:

$$\text{Annual Instalment} = \text{₹}50,00,000/- / 5 = \text{₹}1,00,000/-$$

$$\text{Annual depreciation} = \text{₹}50,00,000/- / 5 = \text{₹}1,00,000/-$$

Computation of net cash outflow:

Year	Principal (₹)	Interest (₹)	Total (₹)	Tax Saving Depn. & Interest (₹)	Net cash Outflow (₹)	PV @ 8%	Total PV (₹)
1	1,00,000	50,000	1,50,000	45,000	1,05,000	0.926	97,230
2	1,00,000	40,000	1,40,000	42,000	98,000	0.857	83,986
3	1,00,000	30,000	1,30,000	39,000	91,000	0.794	72,254
4	1,00,000	20,000	1,20,000	36,000	84,000	0.735	61,740
5	1,00,000	10,000	1,10,000	33,000	77,000	0.681	52,437
							3,67,647
Less: Present value of Inflows at the end of 5 th year ($\text{₹}50,000/- \times 0.7$) or $\text{₹}35,000 \times 0.681 =$							23,835
PV of Net Cash outflows							3,43,812

Calculation of lease rentals:

$$\text{Therefore, Required Annual after tax outflow} = 3,43,812 / 3.993 = \text{₹}86,104/-$$

$$\text{Therefore, Annual lease rental} = 86,104 / 0.70 = \text{₹}1,23,006/-$$

6. (a)

A When dividend is paid

(a) Price per share at the end of year 1

$$100 = \frac{1}{1.10}(\text{₹ } 5 + P_1)$$

$$110 = \text{₹ } 5 + P_1$$

$$P_1 = 105$$

(b) Amount required to be raised from issue of new shares

$$\text{₹ } 5,00,000 - (2,50,000 - 1,25,000)$$

$$\text{₹ } 5,00,000 - 1,25,000 = \text{₹ } 3,75,000$$

(c) Number of additional shares to be issued

$$\frac{3,75,000}{105} = \frac{75,000}{21} \text{ shares or say 3572 shares}$$

(d) Value of M Ltd.

$$(\text{Number of shares} \times \text{Expected Price per share})$$

$$\text{i.e., } (25,000 + 3,572) \times \text{₹ } 105 = \text{₹ } 30,00,060$$

B When dividend is not paid

(a) Price per share at the end of year 1

$$100 = \frac{P_1}{1.10}$$

$$P_1 = 110$$

(b) Amount required to be raised from issue of new shares

$$\text{₹ } 5,00,000 - 2,50,000 = 2,50,000$$

(c) Number of additional shares to be issued

$$\frac{2,50,000}{110} = \frac{25,000}{11} \text{ shares or say 2273 shares.}$$

(d) Value of M Ltd.,

$$(25,000 + 2273) \times \text{₹ } 110$$

$$= \text{₹ } 30,00,030$$

Whether dividend is paid or not, the value remains the same.

(b)

Business Segment	Capital-to-Sales	Segment Sales	Theoretical Values
Wholesale	0.85	€225000	€191250
Retail	1.2	€720000	€864000

General	0.8	€2500000	<u>€2000000</u>
Total value			<u>€3055250</u>

Business Segment	Capital-to-Assets	Segment Assets	Theoretical Values
Wholesale	0.7	€600000	€420000
Retail	0.7	€500000	€350000
General	0.7	€4000000	<u>€2800000</u>
Total value			<u>€3570000</u>

Business Segment	Capital-to-Operating Income	Operating Income	Theoretical Values
Wholesale	9	€75000	€675000
Retail	8	€150000	€1200000
General	4	€700000	<u>€2800000</u>
Total value			<u>€4675000</u>

$$\text{Average theoretical value} = \frac{3055250 + 3570000 + 4675000}{3} = 3766750$$

Average theoretical value of Cranberry Ltd. = €3766750

7. (a) Treasury bills are short-term debt instruments of the Central Government, maturing in a period of less than one year. Treasury bills are issued by RBI on behalf of the Government of India for periods ranging from 14 days to 364 days through regular auctions. They are highly liquid instruments and issued to tide over short-term liquidity shortfalls.

Treasury bills are sold through an auction process according to a fixed auction calendar announced by the RBI. Banks and primary dealers are the major bidders in the competitive auction process. Provident Funds and other investors can make non-competitive bids. RBI makes allocation to non-competitive bidders at a weighted average yield arrived at on the basis of the yields quoted by accepted competitive bids. These days the treasury bills are becoming very popular on account of falling interest rates. Treasury bills are issued at a discount and redeemed at par. Hence, the implicit yield on a treasury bill is a function of the size of the discount and the period of maturity. Now, these bills are becoming part of debt market. In India, the largest holders of the treasury bills are commercial banks, trust, mutual funds and provident funds. Although the degree of liquidity of treasury bills are greater than trade bills, they are not self liquidating as the genuine trade bills are. T-bills are claim against the government and do not require any grading or further endorsement or acceptance.

- (b) 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.

- (c) 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.
- (d) 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 or housing company. On the basis of credit worthiness repayment schedule is structured over the life of the loan.
 2. *The pooling function:* 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 based 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.

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.

- (e) It is increasingly realised that commercial evaluation of projects is not enough to justify commitment of funds to a project especially when the project belongs to public utility and irrespective of its financial viability it needs to be implemented in the interest of the society as a whole. Huge amount of funds are committed every year to various public projects of all types—industrial, commercial and those providing basic infrastructure facilities. Analysis of such projects has to be done with reference to the social costs and benefits since they cannot be expected to yield an adequate commercial rate of return on the funds employed at least during the short period. A social rate of return is more important. The actual costs or revenues do not necessarily reflect the monetary measurement of costs or benefits to the society. This is because the market price of goods and services are often grossly distorted due to various artificial restrictions and controls from authorities, hence a different yardstick has to be adopted for evaluating a particular project of social importance and its costs and benefits are valued at 'opportunity cost' or shadow prices to judge the real impact of their burden as costs to the society. Thus, social cost benefit analysis conducts a monetary assessment of the total cost and revenues or benefits of a project, paying particular attention to the social costs and benefits which do not normally feature in conventional costing.

United Nations Industrial Development Organisation (UNIDO) and Organisation of Economic Cooperation and Development (OECD) have done much work on Social Cost Benefit analysis. A great deal of importance is attached to the social desirability of projects like employment generation potential, value addition, foreign exchange benefit, living standard improvement etc. UNIDO and OECD approaches need a serious consideration in the calculation of benefits and costs to the society. This technique has got more relevance in the developing countries where public capital needs precedence over private capital.