

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

1. (a) (1) Expected Share Price
 $= ₹120 \times 0.05 + ₹140 \times 0.20 + ₹160 \times 0.50 + ₹180 \times 0.10 + ₹190 \times 0.15$
 $= ₹6 + ₹28 + ₹80 + ₹18 + ₹28.50 = ₹160.50$
- (2) Value of Call Option
 $= ₹150 - ₹150 = \text{Nil}$
- (3) If the option is held till maturity the expected Value of Call Option

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	<u>₹6</u>
Total			<u>₹14</u>

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

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

- (c) Let the issue price be X
 By the terms of the issue of the T-bills:

$$6\% = \frac{100 - x}{x} \times \frac{365}{91} \times 100$$

$$\frac{6 \times 91 \times x}{36,500} = (100 - x)$$

$$0.01496 x = 100 - x$$

$$x = \frac{100}{1.01496} = ₹ 98.53$$

- (d) (i) The contract is to be cancelled on 31-10-2013 at the spot buying rate of US\$ 1
= ₹ 61.5200
Add: Margin Money 0.20% = ₹ 0.1230
= ₹ 61.6430 or ₹ 61.64
US\$ 20,000 @ ₹ 61.64 = ₹ 12,32,800
US\$ 20,000 @ ₹ 62.32 = ₹ 12,46,400
The difference in favour of the Customer ₹ 13,600
- (ii) The Rate of New Forward Contract
Spot Selling Rate US\$ 1 = ₹ 61.5000
Less: Discount @ 0.93% = ₹ 0.5720
= ₹ 60.9280
Less: Margin Money 0.45% = ₹ 0.2742
= ₹ 60.6538 or ₹ 60.65

2. (a) (1) **Workings-**

Tax benefits on Depreciation

Year	Opening Value	Depreciation/ STCL	Closing Value	Tax Benefit	Taken in year
1	32,00,000	8,00,000	24,00,000	2,40,000	2
2	24,00,000	6,00,000	18,00,000	1,80,000	3
3	18,00,000	13,00,000		3,90,000	4

Borrowing to buy evaluation

	Year 0	Year 1	Year 2	Year 3	Year 4
Acquisition/ Disposal	(32,00,000)			5,00,000	
Tax Benefit on Depreciation			2,40,000	1,80,000	3,90,000
Maintenance Cost		(2,50,000)	(2,50,000)	(2,50,000)	

Tax benefit of Maintenance Cost			75,000	75,000	75,000
Cash Flow	(32,00,000)	(2,50,000)	65,000	5,05,000	4,65,000
PVF@7%	1.00	0.935	0.873	0.816	0.763
PV	(32,00,000)	(2,33,750)	56,745	4,12,080	3,54,795

PV of Borrowing to Buy = Rs. 26,10,130

Lease evaluation

	Year 0	Year 1	Year 2	Year 3	Year 4
Lease Rental	(12,00,000)	(12,00,000)	(12,00,000)		
Tax Benefit on Lease Rental			3,60,000	3,60,000	3,60,000
Cash Flow	(12,00,000)	(12,00,000)	(8,40,000)	3,60,000	3,60,000
PVF@7%	1.00	0.935	0.873	0.816	0.763
PV	(12,00,000)	(11,22,000)	(7,33,320)	2,93,750	2,74,680

PV of leasing Option = Rs. 24,86,890

Since outflow is less in case of leasing option the company should opt for the same.

- (2) (i) Interest payable every six months means that the bank will require 5% every six months accordingly equivalent annual percentage rate shall be calculated as follows:

$$[(1.05^2 - 1) \times 100] = 10.25\%$$

- (ii) Amount of installment shall be calculated by using annuity tables as follows:

$$A = \text{Rs. } 32,00,000 / 7.722 = \text{Rs. } 4,14,400$$

- (b) In order to find out the NAV, the cash balance at the end of the year is calculated as follows-

Particulars	₹
Cash balance in the beginning (₹ 100 lakhs – ₹ 98 lakhs)	2,00,000
Dividend Received	12,00,000
Interest on 7% Govt. Securities	56,000

Interest on 9% Debentures	45,000
Interest on 10% Debentures	<u>50,000</u>
	15,51,000
(-) Operating expenses	<u>5,00,000</u>
Net cash balance at the end	<u>10,51,000</u>
Calculation of NAV	₹
Cash Balance	10,51,000
7% Govt. Securities (at par)	8,00,000
50,000 equity shares @ ₹ 175 each	87,50,000
9% Debentures (Unlisted) at cost	5,00,000
10% Debentures @90%	<u>4,50,000</u>
Total Assets	<u>1,15,51,000</u>
No. of Units	10,00,000
NAV per Unit	₹ 11.55

Calculation of NAV, if dividend of ₹ 0.80 is paid –

Net Assets (₹ 1,15,51,000 – ₹ 8,00,000)	₹ 1,07,51,000
No. of Units	10,00,000
NAV per unit	₹ 10.75

3. (a) (I) Pay the supplier in 60 days

If the payment is made to supplier in 60 days the applicable forward rate for 1 USD	₹ 57.10
Payment Due	USD 2,000,000
Outflow in Rupees (USD 2000000 × ₹57.10)	₹114,200,000
Add: Interest on loan for 30 days@10% p.a.	₹ 9,51,667
Total Outflow in ₹	₹11,51,51,667

(II) Availing supplier's offer of 90 days credit

Amount Payable	USD 2,000,000
Add: Interest on credit period for 30 days@8% p.a.	USD 13,333
Total Outflow in USD	USD 2,013,333
Applicable forward rate for 1 USD	₹57.50
Total Outflow in ₹ (USD 2,013,333 × ₹57.50)	₹115,766,648

(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

4. (a) (i) Pre-merger EPS and P/E ratios of XYZ Ltd. and ABC Ltd.

Particulars	XYZ Ltd.	ABC Ltd.
Earnings after taxes	5,00,000	1,25,000
Number of shares outstanding	2,50,000	1,25,000
EPS	2	1
Market Price per share	20	10
P/E Ratio (times)	10	10

(ii) Current Market Price of ABC Ltd. if P/E ratio is 6.4 = ₹ 1 × 6.4 = ₹ 6.40

$$\text{Exchange ratio} = \frac{\text{₹ } 20}{\text{₹ } 6.40} = 3.125$$

Post merger EPS of XYZ Ltd.

$$= \frac{\text{₹ } 5,00,000 + \text{₹ } 1,25,000}{2,50,000 + (1,25,000/3.125)}$$

$$= \frac{\text{₹ } 6,25,000}{2,90,000} = 2.16$$

(iii) Desired Exchange Ratio

Total number of shares in post-merged company

$$= \frac{\text{Post - merger earnings}}{\text{Pre - merger EPS of XYZ Ltd}} = \frac{\text{₹ } 6,25,000}{2} = 3,12,500$$

Number of shares required to be issued

$$= 3,12,500 - 2,50,000 = 62,500$$

Therefore, the exchange ratio is

$$62,500 : 1,25,000$$

$$= \frac{62,500}{1,25,000} = 0.50$$

- (b) There is no payoff to the cap if the cap rate exceeds 3-month MIBOR. For Periods 2 and 3, there is no payoff because 3-month MIBOR is below the cap rate. For Periods 1 and 4, there is a payoff and the payoff is determined by: ₹ 100 crore × (3-month MIBOR – Cap Rate)/4

The payoffs are summarized below:

Quarters	3-months MIBOR (%)	Pay-off (₹)
1	8.70	17,50,000
2	8.00	Nil
3	7.80	Nil
4	8.20	5,00,000

5. (a)

	12 Months	24 Months
1. Total Annual Charges for Loan	₹3,800 X 12 – ₹40,000 = ₹5,600	(₹2,140X24 – ₹40,000)/2 = ₹5,680

2. Flat Rate of Interest (F)	$\frac{₹5,600}{₹40,000} \times 100 = 14\%$	$\frac{₹5,680}{₹40,000} \times 100 = 14.20\%$
3. Effective Interest Rate	$\frac{n}{n+1} \times 2F = \frac{12}{13} \times 28 = 25.85\%$	$\frac{n}{n+1} \times 2F = \frac{24}{25} \times 28.40 = 27.26\%$

(b)

Calculation of return on portfolio for 2009-10	(Calculation in ₹ / share)		
	M	N	
Dividend received during the year	10	3	
Capital gain/loss by 31.03.10			
Market value by 31.03.10	220	290	
Cost of investment	200	300	
Gain/loss	20	(-)10	
Yield	30	(-)7	
Cost	200	300	
% return	15%	(-)2.33%	
Weight in the portfolio	57	43	
Weighted average return			7.55%
Calculation of estimated return for 2010-11			
Expected dividend	20	3.5	
Capital gain by 31.03.11			
(220x0.2)+ (250x0.5)+(280x0.3) – 220=(253-220)	33	-	
(290x0.2)+(310x0.5)+(330x0.3) – 290= (312 – 290)	-	22	
Yield	53	25.5	
*Market Value 01.04.10	220	290	
% return	24.09%	8.79%	
*Weight in portfolio (1,000x220): (500x290)	60.3	39.7	
Weighted average (Expected) return			18.02%
(*The market value on 31.03.10 is used as the base for calculating yield for 10-11)			

Calculation of Standard Deviation

M Ltd.

Exp. market value	Exp. gain	Exp. div.	Exp Yield (1)	Prob. Factor (2)	(1) X(2)	Dev. $(P_M - \overline{P_M})$	Square of dev. (3)	(2) X (3)
220	0	20	20	0.2	4	-33	1089	217.80
250	30	20	50	0.5	25	-3	9	4.50
280	60	20	80	0.3	24	27	729	218.70
					53			$\sigma^2_M = 441.00$

Standard Deviation (σ_M)

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N Ltd.

Exp. market value	Exp. gain	Exp. div.	Exp Yield (1)	Prob. Factor (2)	(1) X(2)	Dev. $(P_N - \overline{P_N})$	Square of dev. (3)	(2) X (3)
290	0	3.5	3.5	0.2	0.7	-22	484	96.80
310	20	3.5	23.5	0.5	11.75	-2	4	2.00
330	40	3.5	43.5	0.3	13.05	18	324	97.20
					25.5			$\sigma^2_N = 196.00$

Standard Deviation (σ_N)

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Share of company M Ltd. is more risky as the S.D. is more than company N Ltd.

6. (a) (i) Expected dividend for next 3 years.

Year 1 (D_1) ₹ 14.00 (1.09) = ₹ 15.26

Year 2 (D_2) ₹ 14.00 (1.09)² = ₹ 16.63

Year 3 (D_3) ₹ 14.00 (1.09)³ = ₹ 18.13

Required rate of return = 13% (K_e)

Market price of share after 3 years = (P_3) = ₹ 360

The present value of share

$$P_0 = \frac{D_1}{(1 + k_e)} + \frac{D_2}{(1 + k_e)^2} + \frac{D_3}{(1 + k_e)^3} + \frac{P_3}{(1 + k_e)^3}$$

$$P_0 = \frac{15.26}{(1 + 0.13)} + \frac{16.63}{(1 + 0.13)^2} + \frac{18.13}{(1 + 0.13)^3} + \frac{360}{(1 + 0.13)^3}$$

$$P_0 = 15.26(0.885) + 16.63(0.783) + 18.13(0.693) + 360(0.693)$$

$$P_0 = 13.50 + 13.02 + 12.56 + 249.48$$

$$P_0 = ₹ 288.56$$

- (ii) If growth rate 9% is achieved for indefinite period, then maximum price of share should Mr. A willing be to pay is

$$P_0 = \frac{D_1}{(k_e - g)} = \frac{₹ 15.26}{0.13 - 0.09} = \frac{₹ 15.26}{0.04} = ₹ 381.50$$

- (iii) Assuming that conditions mentioned above remain same, the price expected after 3 years will be:

$$P_3 = \frac{D_4}{k_e - g} = \frac{D_3(1.09)}{0.13 - 0.09} = \frac{18.13 \times 1.09}{0.04} = \frac{19.76}{0.04} = ₹ 494$$

- (b) (i) Working Notes:

Present Value of Cash Flows (CF) upto 5 years

Year End	CF of Yes Ltd. (₹ lakhs)	PVF @15%	PV of CF (₹ lakhs)	CF of Merged Entity (₹ lakhs)	PV of CF of Merged Entity (₹ lakhs)
1	175	0.870	152.25	400	348.00
2	200	0.756	151.20	450	340.20
3	320	0.658	210.56	525	345.45
4	340	0.572	194.48	590	337.48
5	350	0.497	<u>173.95</u>	620	<u>308.14</u>
			<u>882.44</u>		<u>1679.27</u>

PV of Cash Flows of Yes Ltd. after the forecast period

$$TV_5 = \frac{CF_5(1+g)}{K_e - g} = \frac{350(1+0.05)}{0.15 - 0.05} = \frac{367.50}{0.10} = ₹ 3675 \text{ lakhs}$$

$$PV \text{ of } TV_5 = ₹ 3675 \text{ lakhs} \times 0.497 = ₹ 1826.475 \text{ lakhs}$$

PV of Cash Flows of Merged Entity after the forecast period

$$TV_5 = \frac{CF_5(1+g)}{K_e - g} = \frac{620(1+0.06)}{0.15 - 0.06} = \frac{657.20}{0.09} = ₹ 7302.22 \text{ lakhs}$$

$$PV \text{ of } TV_5 = ₹ 7302.22 \text{ lakhs} \times 0.497 = ₹ 3629.20 \text{ lakhs}$$

Value of Yes Ltd.

	Before merger (₹lakhs)	After merger (₹lakhs)
PV of CF (1-5 years)	882.440	1679.27
Add: PV of TV ₅	<u>1826.475</u>	<u>3629.20</u>
	<u>2708.915</u>	<u>5308.47</u>

(ii) Value of Acquisition

= Value of Merged Entity – Value of Yes Ltd.

= ₹5308.47 lakhs – ₹2708.915 lakhs = ₹2599.555 lakhs

(iii) Gain to Shareholders of Yes Ltd.

Share of Yes Ltd. in merged entity = ₹5308.47 lakhs $\times \frac{1}{1.5}$ = ₹3538.98 lakhs

Gain to shareholder = Share of Yes Ltd. in merged entity – Value of Yes Ltd. before merger = ₹3538.98 lakhs – ₹2708.915 = ₹830.065 lakhs

7. (a) Steps for simulation analysis.

1. Modelling the project- The model shows the relationship of NPV with parameters and exogenous variables. (Parameters are input variables specified by decision maker and held constant over all simulation runs. Exogenous variables are input variables, which are stochastic in nature and outside the control of the decision maker).
2. Specify values of parameters and probability distributions of exogenous variables.
3. Select a value at random from probability distribution of each of the exogenous variables.
4. Determine NPV corresponding to the randomly generated value of exogenous variables and pre-specified parameter variables.
5. Repeat steps (3) & (4) a large number of times to get a large number of simulated N.P.V.s.
6. Plot frequency distribution of NPV.

(b) FCCBs are important source of raising funds from abroad. Their salient features are –

1. FCCB is a bond denominated in a foreign currency issued by an Indian company which can be converted into shares of the Indian Company denominated in Indian Rupees.
2. Prior permission of the Department of Economic Affairs, Government of India,

Ministry of Finance is required for their issue

3. There will be a domestic and a foreign custodian bank involved in the issue
 4. FCCB shall be issued subject to all applicable Laws relating to issue of capital by a company.
 5. Tax on FCCB shall be as per provisions of Indian Taxation Laws and Tax will be deducted at source.
 6. Conversion of bond to FCCB will not give rise to any capital gains tax in India.
- (c) Exchange Traded Funds (ETFs) were introduced in US in 1993 and came to India around 2002. ETF is a hybrid product that combines the features of an index mutual fund and stock and hence, is also called index shares. These funds are listed on the stock exchanges and their prices are linked to the underlying index. The authorized participants act as market makers for ETFs.

ETF can be bought and sold like any other stock on stock exchange. In other words, they can be bought or sold any time during the market hours at prices that are expected to be closer to the NAV at the end of the day. NAV of an ETF is the value of the underlying component of the benchmark index held by the ETF plus all accrued dividends less accrued management fees.

There is no paper work involved for investing in an ETF. These can be bought like any other stock by just placing an order with a broker.

Some other important features of ETF are as follows:

1. It gives an investor the benefit of investing in a commodity without physically purchasing the commodity like gold, silver, sugar etc.
2. It is launched by an asset management company or other entity.
3. The investor does not need to physically store the commodity or bear the costs of upkeep which is part of the administrative costs of the fund.
4. An ETF combines the valuation feature of a mutual fund or unit investment trust, which can be bought or sold at the end of each trading day for its net asset value, with the tradability feature of a closed-end fund, which trades throughout the trading day at prices that may be more or less than its net asset value.

(d) Kinds of Systematic Risk

- (i) *Market risk*: Even if the earning power of the corporate sector and the interest rate structure remain more or less unchanged prices of securities, equity shares in particular, tend to fluctuate. Major cause appears to be the changing psychology of the investors. The irrationality in the security markets may cause losses unrelated to the basic risks. These losses are the result of changes in the general tenor of the market and are called market risks.

- (ii) *Interest Rate Risk*: The change in the interest rate has a bearing on the welfare of the investors. As the interest rate goes up, the market price of existing fixed income securities falls and vice versa. This happens because the buyer of a fixed income security would not buy it at its par value or face value if its fixed interest rate is lower than the prevailing interest rate on a similar security.
- (iii) *Social or Regulatory Risk*: The social or regulatory risk arises, where an otherwise profitable investment is impaired as a result of adverse legislation, harsh regulatory climate, or in extreme instance nationalization by a socialistic government.
- (iv) *Purchasing Power Risk*: Inflation or rise in prices lead to rise in costs of production, lower margins, wage rises and profit squeezing etc. The return expected by investors will change due to change in real value of returns.
- (e) **CAMEL Model in Credit Rating**: Camel stands for Capital, Assets, Management, Earnings and Liquidity. The CAMEL model adopted by the rating agencies deserves special attention; it focuses on the following aspects-
 - (i) *Capital*- Composition of external funds raised and retained earnings, fixed dividends component for preference shares and fluctuating dividends component for equity shares and adequacy of long term funds adjusted to gearing levels, ability of issuer to raise further borrowings.
 - (ii) *Assets*- Revenue generating capacity of existing/proposed assets, fair values, technological/physical obsolescence, linkage of asset values to turnover, consistency, appropriation of methods of depreciation and adequacy of charge to revenues, size, ageing and recoverability of monetary assets like receivables and its linkage with turnover.
 - (iii) *Management*- Extent of involvement of management personnel, team-work, authority, timeliness, effectiveness and appropriateness of decision making along with directing management to achieve corporate goals.
 - (iv) *Earnings*- Absolute levels, trends, stability, adaptability to cyclical fluctuations, ability of the entity to service existing and additional debts proposed.
 - (v) *Liquidity*- Effectiveness of working capital management, corporate policies for stock and creditors, management and the ability of the corporate to meet their commitment in the short run.

These five aspects form the five core bases for estimating credit worthiness of an issuer which leads to the rating of an instrument. Rating agencies determine the pre-dominance of positive/negative aspects under each of these five categories and these are factored in for making the overall rating decision.