

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

1. (a) First of all we shall calculate premium payable to bank as follows:

$$P = \frac{rp}{\left[(1+i) - \frac{1}{i \times (1+i)^t} \right]} \times A \text{ or } \frac{rp}{PVA(3.5\%,4)} \times A$$

Where

P = Premium

A = Principal Amount

rp = Rate of Premium

i = Fixed Rate of Interest

t = Time

$$= \frac{0.01}{\left[(1/0.035) - \frac{1}{0.035 \times 1.035^4} \right]} \times £15,000,000 \text{ or } \frac{0.01}{(0.966 + 0.933 + 0.901 + 0.871)} \times £15,000,000$$

$$= \frac{0.01}{\left[(28.5714) - \frac{1}{0.04016} \right]} \times £15,000,000 \text{ or } \frac{£150,000}{3.671} = £ 40,861$$

Please note above solution has been worked out on the basis of four decimal points at each stage.

Now we see the net payment received from bank

Reset Period	Additional interest due to rise in interest rate	Amount received from bank	Premium paid to bank	Net Amt. received from bank
1	£ 75,000	£ 75,000	£ 40,861	£34,139
2	£ 112,500	£ 112,500	£ 40,861	£71,639
3	£ 150,000	£ 150,000	£ 40,861	£109,139
TOTAL	£ 337,500	£ 337,500	£122,583	£ 214,917

Thus, from above it can be seen that interest rate risk amount of £ 337,500 reduced by £ 214,917 by using of Cap option.

Note: It may be possible that student may compute upto three decimal points or may use different basis. In such case their answer is likely to be different.

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

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

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

Alternatively, it can also be solved by using the Characteristic Line Relationship as follows:

$$R_s = \alpha + \beta R_m$$

Where

α = Alpha

β = Beta

R_m = Market Return

For Aggressive Stock

$$4\% = \alpha + \beta(7\%)$$

$$40\% = \alpha + \beta(25\%)$$

$$36\% = \beta(18\%)$$

$$\beta = 2$$

For Defensive Stock

$$9\% = \alpha + \beta(7\%)$$

$$18\% = \alpha + \beta(25\%)$$

$$9\% = \beta(18\%)$$

$$\beta = 0.50$$

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

For Aggressive Stock

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

$$\alpha_A = -10\%$$

For Defensive Stock

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

$$\alpha_D = 5.5\%$$

(c) Basic documents required to make Financial Projections during Pitch Presentation

- **Income statement:** This projects how much money the business will generate by projecting income and expenses, such as sales, cost of goods sold, expenses and capital. For your first year in business, you'll want to create a monthly income statement. For the second year, quarterly statements will suffice. For the following years, you'll just need an annual income statement.
- **Cash flow statement:** A projected cash flow statement will depict how much cash will be coming into the business and out of that cash how much cash will be utilized into the business. At the end of each period (e.g. monthly, quarterly, annually), one can tally it all up to show either a profit or loss.
- **Balance sheet:** The balance sheet shows the business's overall finances including assets, liabilities and equity. Typically one will create an annual balance sheet for one's financial projections.

2. (a) (1) Yield from Investment in Equity Trading Index in Japan

Conversion of GBP 200 million in JPY (148.0002)	JPY 29600.04 Million
Dividend Income	JPY 1182.00 Million
Stock Lending	JPY 10.00 Million
Investment Value at End	JPY 29008.0392 Million
Amount available at End	JPY 30200.0392 Million
Forward Rate of 30.06.2019	JPY 150/ GBP
Amount to be Remitted back to London	GBP 201.3336 Million
Gain = 201.3336 – 200	GBP 1.3336 Million

(2) Fixed Income Desk of US

Conversion of GBP 200 million in USD (1.28000)	USD 256.00 Million
Add: Interest @ 5% p.a. for 6 months	USD 6.40 Million
Amount available at End	USD 262.40 Million
Forward Rate of 30.06.2019	USD 1.30331/ GBP
Amount to be Remitted back to London	GBP 201.3335 Million
Gain = 201.3335 – 200	GBP 1.3335 Million

Decision: Investment in Japanese Yen is preferred over the investment in USD G- Sec as there is a marginal gain. From a risk perspective, the company should go for Option-2 Investment in G-Secs as they are risk free

or

The equivalent amount at the end of 6 months shall be almost same in both the options. The bank can go for any of the options.

However, from risk perspective, the investment in fixed income desk of US is more beneficial as the chance of variation in fixed income securities is less as compared to Equity Desk.

(b) (i) **Intrinsic value of Bond**

PV of Interest + PV of Maturity Value of Bond

Forward rate of interests

1st Year	12%
2nd Year	11.25%
3rd Year	10.75%

$$\text{PV of interest} = \frac{₹ 90}{(1 + 0.12)} + \frac{₹ 90}{(1 + 0.12)(1 + 0.1125)} + \frac{₹ 90}{(1 + 0.12)(1 + 0.1125)(1 + 0.1075)} = \text{Rs. 217.81}$$

$$\text{PV of Maturity Value of Bond} = \frac{₹ 1000}{(1 + 0.12)(1 + 0.1125)(1 + 0.1075)} = \text{Rs. 724.67}$$

$$\text{Intrinsic value of Bond} = \text{Rs. 217.81} + \text{Rs. 724.67} = \text{Rs. 942.48}$$

(ii) Expected Price = Intrinsic Value x Beta Value
= Rs. 942.48 x 1.02 = Rs. 961.33

(c) Following are main problems faced in growth of Securitization of instruments especially in Indian context:

- (1) **Stamp Duty:** Stamp Duty is one of the obstacles in India. Under Transfer of Property Act, 1882, a mortgage debt stamp duty which even goes upto 12% in some states of India and this impeded the growth of securitization in India. It should be noted that since pass through certificate does not evidence any debt only able to receivable, they are exempted from stamp duty.
Moreover, in India, recognizing the special nature of securitized instruments in some states has reduced the stamp duty on them.
- (2) **Taxation:** Taxation is another area of concern in India. In the absence of any specific provision relating to securitized instruments in Income Tax Act experts' opinion differ a lot. Some are of opinion that in SPV as a trustee is liable to be taxed in a representative capacity then other are of view that instead of SPV, investors will be taxed on their share of income. Clarity is also required on the issues of capital gain implications on passing payments to the investors.
- (3) **Accounting:** Accounting and reporting of securitized assets in the books of originator is another area of concern. Although securitization is slated to an off-balance sheet instrument but in true sense receivables are removed from originator's balance sheet. Problem arises especially when assets are transferred without recourse.
- (4) **Lack of standardization:** Every originator follows own format for documentation and administration have lack of standardization is another obstacle in growth of securitization.
- (5) **Inadequate Debt Market:** Lack of existence of a well-developed debt market in India is another obstacle that hinders the growth of secondary market of securitized or asset backed securities.
- (6) **Ineffective Foreclosure laws:** For last many years there are efforts are going on for effective foreclosure but still foreclosure laws are not supportive to lending institutions and this makes securitized instruments especially mortgaged backed securities less attractive as lenders face difficulty in transfer of property in event of default by the borrower.

3. (a) Working Notes:

$$(1) \text{ Inventory Turnover Ratio} = \frac{\text{COGS}}{\text{Closing Stock}}$$

$$\text{X Ltd.} \\ 5 = \frac{\text{COGS}}{15,00,000}$$

$$\text{COGS} = \text{Rs. } 75,00,000$$

$$\text{Y Ltd.} \\ 4 = \frac{\text{COGS}}{5,00,000}$$

$$\text{COGS} = \text{Rs. } 20,00,000$$

Gross Profit Ratio = 20% means COGS is 80% of Sales, then

$$\text{Sales} = \frac{75,00,000 \times 100}{80} = \text{Rs. } 93,75,000$$

$$\text{Sales} = \frac{20,00,000 \times 100}{80} = \text{Rs. } 25,00,000$$

Statement of Profit

	X Ltd.	Y Ltd.
Sales	93,75,000	25,00,000
Less: Operating Exp.	80,62,500	19,50,000

EBIT	13,12,500	5,50,000
Less: Interest	1,20,000	1,44,000
EBT	11,92,500	4,06,000
Less: Tax@30%	3,57,750	1,21,800
EAT	8,34,750	2,84,200

(2)

	X Ltd.	Y Ltd.
No. of Shares	1,00,000	60,000
EPS (EAT/ No. of Shares)	$8,34,750/1,00,000$ = Rs. 8.34	$2,84,200/60,000$ = Rs. 4.74
Market Price Share (Market Capitalisation/ No. Shares)	$75,00,000/ 1,00,000$ = Rs. 75	$90,00,000/ 60,000$ = Rs. 150
PE Ratio (MPS/ EPS)	$75/ 8.34$ = 8.99	$150/ 4.74$ = 31.65

(i) $\text{Swap Ratio} = \frac{\text{Target Co.}}{\text{Acquirer Co.}}$

	Acquirer Co. X Ltd.	Target Co. Y Ltd.	Weight
EPS	0.34	4.74	0.40
MPS	75	150	0.60

EPS	$\frac{4.74}{8.34} \times 0.40 =$	0.227
MPS	$\frac{150}{75} \times 0.60$	1.200
		1.427

(ii) Post Merger EPS

$$= \frac{\text{EAT}_x + \text{EAT}_y}{\text{No. of Shares of Both Cos.}}$$

$$= \frac{834750 + 284200}{1,00,000 + (60,000 \times 1.227)}$$

$$= \frac{1118950}{1,85,620}$$

$$= 6.03$$

(iii) Post Merger market price assuming same PE of X Ltd.

$$\text{MPS} = \text{PE} \times \text{EPS}$$

$$= 8.99 \times 6.03$$

$$= \text{Rs. } 54.21$$

(iv) Gain or Loss to the share holders

	Pre-Merger EPS	Post Merger EPS
X Ltd.	Rs. 8.34	Rs. 6.99
Y Ltd.	Rs. 4.74	Rs. 6.99 x 1.427 = Rs. 9.97

While Shareholders of X Ltd. will lose EPS of Rs. 1.35 (Rs. 8.34 - Rs. 6.99) per share the shareholders of Y Ltd. stands to gain EPS of Rs. 5.23 (Rs. 9.97 - Rs. 4.74) per share.

(b) **Option - I**

$\$20 \times 5000 = \$1,00,000$

Repayment in 3 months time = $\$1,00,000 \times (1 + 0.10/4) = \$1,02,500$

3-months outright forward rate = Rs.59.90/ Rs.60.30

Repayment obligation in Rs. ($\$1,02,500 \times \text{Rs.}60.30$) = Rs.61,80,750

Option -II

Overdraft ($\$1,00,000 \times \text{Rs.}60.55$) Rs.60,55,000

Interest on Overdraft ($\text{Rs.}60,55,000 \times 0.14/4$) Rs.2,11,925

Rs.62,66,925

Option I should be preferred as it has lower outflow.

(c) Following are main challenges of Efficient Market Theory:

(i) **Information inadequacy** – Information is neither freely available nor rapidly transmitted to all participants in the stock market. There is a calculated attempt by many companies to circulate misinformation.

(ii) **Limited information processing capabilities** – Human information processing capabilities are sharply limited. According to Herbert Simon every human organism lives in an environment which generates millions of new bits of information every second but the bottle necks of the perceptual apparatus does not admit more than thousand bits per seconds and possibly much less.

David Dreman maintained that under conditions of anxiety and uncertainty, with a vast interacting information grid, the market can become a giant.

(iii) **Irrational Behaviour** – It is generally believed that investors' rationality will ensure a close correspondence between market prices and intrinsic values. But in practice this is not true. J. M. Keynes argued that all sorts of consideration enter into the market valuation which is in no way relevant to the prospective yield. This was confirmed by L. C. Gupta who found that the market evaluation processes work haphazardly almost like a blind man firing a gun. The market seems to function largely on hit or miss tactics rather than on the basis of informed beliefs about the long term prospects of individual enterprises.

(iv) **Monopolistic Influence** – A market is regarded as highly competitive. No single buyer or seller is supposed to have undue influence over prices. In practice, powerful institutions and big operators wield great influence over the market. The monopolistic power enjoyed by them diminishes the competitiveness of the market.

4. (a)

	Amount in Rs. lakhs	Amount in Rs. lakhs	Amount in Rs. lakhs
Opening Bank (150 - 140 - 8)	2.00		
Add: Proceeds from sale of securities	47.00		
Add: Dividend received	<u>1.50</u>	50.50	
Deduct:			
Cost of securities purchased	41.60		
Fund management expenses paid	5.50		
Capital gains distributed = 80% of (47 – 44.75)	1.80		
Dividend distributed = 80% of 1.50	<u>1.20</u>	<u>50.10</u>	
Closing Bank			0.40
Closing market value of portfolio			<u>147.85</u>
			148.25
Less: Arrears of expenses			<u>0.50</u>
Closing Net Assets			<u>147.75</u>
Number of units (Lakhs)			15
Closing NAV per unit (147.75/15)			9.85

Rate of Earning (Per Unit)

	Amount
Income received (Rs.1.20 + Rs. 1.80)/15	Rs. 0.20
Loss: Loss on disposal (Rs.150 - Rs.147.75)/15	<u>Rs. 0.15</u>
Net earning	<u>Rs. 0.05</u>
Initial investment	Rs. 10.00
Rate of earning (monthly)	0.5%
Rate of earning (Annual)	6.00%

(b) Applying the Black Scholes Formula,

Value of the Call option now:

The Formula $C = SN(d_1) - Ke^{(-rt)} N(d_2)$

$$d_1 = \frac{\ln(S/K) + (r + \sigma^2/2)t}{\sigma\sqrt{t}}$$

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

Where,

C = Theoretical call premium

S = Current stock price

t = time until option expiration

K = option striking price

r = risk-free interest rate

N = Cumulative standard normal distribution

e = exponential term

σ = Standard deviation of continuously compounded annual return.

\ln = natural logarithm

$$d_1 = \frac{\ln(1.0667) + (12\% + 0.08)0.5}{0.40\sqrt{0.5}}$$

$$= \frac{0.0646 + (0.2)0.5}{0.40 \times 0.7071}$$

$$= \frac{0.1646}{0.2828}$$

$$= 0.5820$$

$$d_2 = 0.5820 - 0.2828 = 0.2992$$

$$N(d_1) = N(0.5820)$$

$$N(d_2) = N(0.2992)$$

$$\text{Price} = SN(d_1) - Ke^{(-rt)} N(d_2)$$

$$= 80 \times N(d_1) - (75/1.062) \times N(d_2)$$

Value of option

$$= 80 N(d_1) - \frac{75}{1.062} \times N(d_2)$$

$$N(d_1) = N(0.5820) = 0.7197$$

$$N(d_2) = N(0.2992) = 0.6176$$

$$\text{Price} = 80 \times 0.7197 - \frac{75}{1.062} \times 0.6176$$

$$= 57.57 - 70.62 \times 0.6176$$

$$= 57.57 - 43.61$$

$$= \text{Rs.}13.96$$

(c) The financial risk can be evaluated from different point of views as follows:

- (I) From stakeholder's point of view: Major stakeholders of a business are equity shareholders and they view financial gearing i.e. ratio of debt in capital structure of company as risk since in event of winding up of a company they will be least prioritized.

Even for a lender, existing gearing is also a risk since company having high gearing faces more risk in default of payment of interest and principal repayment.

- (II) From Company's point of view: From company's point of view if a company borrows excessively or lend to someone who defaults, then it can be forced to go into liquidation.
- (III) From Government's point of view: From Government's point of view, the financial risk can be viewed as failure of any bank or (like Lehman Brothers) down grading of any financial institution leading to spread of distrust among society at large. Even this risk also includes willful defaulters. This can also be extended to sovereign debt crisis.

5. (a) (i) **Equity Beta**

To calculate Equity Beta first we shall calculate Weighted Average of Asset Beta as follows:

$$= 1.45 \times 0.74 + 1.20 \times 0.26$$

$$= 1.073 + 0.312 = 1.385$$

Now we shall compute Equity Beta using the following formula:

$$\beta_{\text{Asset}} = \beta_{\text{Equity}} \left[\frac{E}{E + D(1 - t)} \right] + \beta_{\text{Debt}} \left[\frac{D(1 - t)}{E + D(1 - t)} \right]$$

Accordingly,

$$1.385 = \beta_{\text{Equity}} \left[\frac{410}{410 + 170} \right] + \beta_{\text{Debt}} \left[\frac{170}{410 + 170} \right]$$

$$1.385 = \beta_{\text{Equity}} \left[\frac{410}{580} \right] + 0.24 \left[\frac{170}{580} \right]$$

$$\beta_{\text{Equity}} = 1.86$$

(ii) **Equity Beta on change in Capital Structure**

Amount of Debt to be raised:

Particulars	Value
Total Value of Firm (Equity Rs. 410 cr + Debt Rs. 170 cr)	Rs.580 Cr
Desired Debt Equity Ratio	1.90 : 1.00
Desired Debt Level = $\frac{\text{Total Value} \times \text{Debt Ratio}}{\text{Debt Ratio} + \text{Equity Ratio}}$	Rs. 380 Cr
Less : Value of Existing Debt	(Rs. 170 Cr)
Value of Debt to be Raised	Rs. 210 Cr

$$\text{Equity after Repurchase} = \text{Total value of Firm} - \text{Desired Debt Value}$$

$$= \text{Rs. 580 Cr} - \text{Rs. 380 Cr}$$

$$= \text{Rs. 200 Cr}$$

Weighted Average Beta of KGFL:

Source of Finance	Investment (Rs. Cr)	Weight	Beta of the Division	Weighted Beta
Equity	200	0.345	$\beta_{(E = X)}$	0.345x
Debt – 1	170	0.293	0.35	0.103
Debt – 2	210	0.362	0.40	0.145
	580	Weighted Average Beta		0.248 + (0.345x)

$$\beta_{\text{KGFL}} = 0.248 + 0.345x$$

$$1.385 = 0.248 + 0.345x$$

$$0.345x = 1.385 - 0.248$$

$$X = 1.137/0.345 = 3.296$$

$$\beta_{\text{KGFL}} = 3.296$$

(b)

Security	No. of shares (1)	Market Price of Per Share (2)	(1) × (2)	% to total (w)	β (x)	wx
ABC	1000	50	50000	0.4167	0.9	0.375
DEF	500	20	10000	0.0833	1	0.083
GHI	800	25	20000	0.1667	1.5	0.250
JKL	200	200	<u>40000</u>	0.3333	1.2	<u>0.400</u>
			<u>120000</u>	1		<u>1.108</u>

- (i) Portfolio beta 1.108
- (ii) Required Beta 0.8
- It should become (0.8 / 1.108) 72.2 % of present portfolio
- If Rs. 1,20,000 is 72.20%, the total portfolio should be
- Rs. 1,20,000 × 100/72.20 or Rs. 1,66,205
- Additional investment in zero risk should be (Rs. 1,66,205 – Rs. 1,20,000) = Rs.46,205

(c) Advantages of bringing VC in the company:

- ❖ It injects long- term equity finance which provides a solid capital base for future growth.
- ❖ The venture capitalist is a business partner, sharing both the risks and rewards. Venture capitalists are rewarded with business success and capital gain.
- ❖ The venture capitalist is able to provide practical advice and assistance to the company based on past experience with other companies which were in similar situations.
- ❖ The venture capitalist also has a network of contacts in many areas that can add value to the company.
- ❖ The venture capitalist may be capable of providing additional rounds of funding should it be required to finance growth.
- ❖ Venture capitalists are experienced in the process of preparing a company for an initial public offering (IPO) of its shares onto the stock exchanges or overseas stock exchange such as NASDAQ.
- ❖ They can also facilitate a trade sale.

6. (a) (i) Estimation of P/E Ratio using Gordon Growth Model

$$k_e = \frac{D_1}{P} + g$$

$$0.14 = \frac{1(1.02)}{P} + 0.02$$

$$P = \text{Rs. } 8.50$$

$$\text{PE Ratio} = \frac{\text{Rs. } 8.50}{\text{Rs. } 2.50} = 3.40$$

(ii) Long Term Growth Rate implied

Based on Current PE Ratio, the price per share = Rs. 2.50 x 7 Times = Rs. 17.50

We know that

$$P = D_0(1+g) / (k_e - g)$$

$$\text{Rs. } 17.50 = \text{Rs. } 1(1+g) / (0.14 - g)$$

$$17.50 \times 0.14 - 17.50g = 1 + g$$

$$g = 0.0784 \text{ i.e. } 7.84\%$$

- (b) Financial Analysis whether to set up the manufacturing units in India or not may be carried using NPV technique as follows:

I. Incremental Cash Outflows

	\$ Million
Cost of Plant and Machinery	500.00
Working Capital	50.00
Release of existing Working Capital	(15.00)
	535.00

II. Incremental Cash Inflow after Tax (CFAT)

- (a) Generated by investment in India for 5 years

	\$ Million
Sales Revenue (5 Million x \$80)	400.00
Less: Costs	
Variable Cost (5 Million x \$20)	100.00
Fixed Cost	30.00
Depreciation (\$500Million/5)	100.00
EBIT	170.00
Taxes@35%	59.50
EAT	110.50
Add: Depreciation	100.00
CFAT (1-5 years)	210.50
Cash flow at the end of the 5 years (Release of Working Capital)	35.00

- (b) Cash generation by exports (Opportunity Cost)

	\$ Million
Sales Revenue (1.5 Million x \$80)	120.00
Less: Variable Cost (1.5 Million x \$40)	60.00
Contribution before tax	60.00
Tax@35%	21.00
CFAT (1-5 years)	39.00

- (c) Additional CFAT attributable to Foreign Investment

	\$ Million
Through setting up subsidiary in India	210.50
Through Exports in India	39.00
CFAT (1-5 years)	171.50

III. Determination of NPV

Year	CFAT (\$ Million)	PVF@12%	PV(\$ Million)
1-5	171.50	3.6048	618.2232
5	35	0.5674	19.8590
			638.0822
Less: Initial Outflow			535.0000
			103.0822

Since NPV is positive the proposal should be accepted.

- (c) The CTD is the bond that minimizes difference between the quoted Spot Price of bond and the Futures Settlement Price (adjusted by the conversion factor). It is called CTD bond because it is the least expensive bond in the basket of deliverable bonds.

CTD bond is determined by the difference between cost of acquiring the bonds for delivery and the price received by delivering the acquired bond. This difference gives the profit / loss of the seller of the futures.

Profit of seller of futures = (Futures Settlement Price x Conversion factor) – Quoted Spot Price of Deliverable Bond

Loss of Seller of futures = Quoted Spot Price of deliverable bond – (Futures Settlement Price x Conversion factor)

That bond is chosen as CTD bond which either maximizes the profit or minimizes the loss.

OR

Multinational Capital Budgeting has to take into consideration the different factors and variables which affect a foreign project and are complex in nature than domestic projects. The factors crucial in such a situation are:

- Cash flows from foreign projects have to be converted into the currency of the parent organization.
- Parent cash flows are quite different from project cash flows
- Profits remitted to the parent firm are subject to tax in the home country as well as the host country
- Effect of foreign exchange risk on the parent firm's cash flow
- Changes in rates of inflation causing a shift in the competitive environment and thereby affecting cash flows over a specific time period
- Restrictions imposed on cash flow distribution generated from foreign projects by the host country
- Initial investment in the host country to benefit from the release of blocked funds
- Political risk in the form of changed political events reduce the possibility of expected cash flows
- Concessions/benefits provided by the host country ensures the upsurge in the profitability position of the foreign project
- Estimation of the terminal value in multinational capital budgeting is difficult since the buyers in the parent company have divergent views on acquisition of the project.