

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

1. (a) (i) If company borrows in \$ then outflow would be as follows:

Let company borrows \$ 100	\$ 100.00
Add: Interest for 6 months @ 5.5%	<u>\$ 2.75</u>
Amount Repayable after 6 months	<u>\$ 102.75</u>
Applicable 6 month forward rate	36.40
Amount of Cash outflow in Indian Rupees	Rs. 3,740.10

If company borrows equivalent amount in Indian Rupee, then outflow would be as follows:

Equivalent Rs. amount Rs. 36.10 x 100	Rs. 3,610.00
Add: Interest @11.50%	<u>Rs. 207.58</u>
	<u>Rs. 3817.58</u>

Since cash outflow is more in Rs. borrowing then borrowing should be made in \$.

- (ii) (a) Let 'i<sub>r</sub>' be the interest rate of Rs. borrowing make indifferent between 3 months borrowings and 6 months borrowing then

$$(1 + 0.03) (1 + i_r) = (1 + 0.0575)$$

$$i_r = 2.67\% \text{ or } 10.68\% \text{ (on annualized basis)}$$

- (b) Let 'i<sub>d</sub>' be the interest rate of \$ borrowing after 3 months to make indifference between 3 months borrowings and 6 months borrowings. Then,

$$(1 + 0.015) (1 + i_d) = (1 + 0.0275)$$

$$i_d = 1.232\% \text{ or } 4.93\% \text{ (on annualized basis)}$$

(b)

	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%

- (c) The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

Sustainable growth models assume that the business wants to:

- (1) maintain a target capital structure without issuing new equity;
- (2) maintain a target dividend payment ratio; and
- (3) increase sales as rapidly as market conditions allow.

Since the asset to beginning of period equity ratio is constant and the firm's only source of new equity is retained earnings, sales and assets cannot grow any faster than the retained earnings plus the additional debt that the retained earnings can support. The sustainable growth rate is consistent with the observed evidence that most corporations are reluctant to issue new equity. If, however, the firm is willing to issue additional equity, there is in principle no financial constraint on its growth rate.

2. (a) (i) Maximum exchange ratio acceptable to the shareholders of C Ltd.

Market Price of share of C Ltd. (Rs. 4.8 x 8)	Rs. 38.40
No. of Equity Shares	20 Million
Market Capitalisation of C Ltd. (Rs. 38.40 x 20 Million)	Rs. 768 Million
Combined Earnings (Rs. 96 + Rs. 30) Million	Rs. 126 Million
Combined Market Capitalisation (Rs. 126 Million x 7)	Rs. 882 Million
Market Capitalisation of C Ltd. (Rs. 38.40 x 20 Million)	Rs. 768 Million
Balance for D Ltd.	Rs. 114 Million

Let D be the no. of equity shares to be issued to D Ltd. then,

$$\frac{\text{Rs. 114 Million}}{\left(\frac{126\text{ Million}}{D + 20}\right) \times 7} = D$$

D = 2.96875 Million Shares

Exchange Ratio = 2.96875 / 14 = 0.212:1

(ii) Minimum exchange ratio acceptable to the shareholders of D Ltd.

Market Price of share of D Ltd.	Rs. 15.00
No. of Equity Shares	14 Million
Market Capitalisation of D Ltd. (Rs. 15.00 x 14 Million)	Rs. 210 Million
Combined Earnings (Rs. 96 + Rs. 30) Million	Rs. 126 Million
Combined Market Capitalisation (Rs. 126 Million x 9)	Rs. 1134 Million
Balance for C Ltd.	Rs. 924 Million

Let D be the no. of equity shares to be issued to D Ltd. then,

$$\frac{\text{Rs. 210 Million}}{\left(\frac{126\text{ Million}}{D + 20}\right) \times 9} = D$$

D = 4.54545 Million Shares

Exchange Ratio = 4.54545 / 14 = 0.325:1

(b) (i) Future Price = Spot + Cost of Carry – Dividend

$$= \text{Rs. } 125 + (\text{Rs. } 125 \times 0.08) - 4 = \text{Rs. } 131$$

Price of one future contract = 1000 share x Rs. 131 = Rs. 1,31,000

(ii) Price decrease by 6 %

Market Price = 125 x 94% = 117.50

Then, price of one future contract

$$= \text{Rs. } 117.50 + (\text{Rs. } 117.50 \times 0.08) - 4 = \text{Rs. } 122.90$$

$$= \text{Rs. } 122.90 \times 1000 = \text{Rs. } 1,22,900$$

(iii) If the investor has taken a long position, decrease in price will result in **loss** for the investor.

Amount of loss will be:

$$\text{Rs. } 1,31,000 - \text{Rs. } 1,22,900 = \text{Rs. } 8,100$$

(c) Equity Curve out can be defined as partial spin off in which a company creates its own new subsidiary and subsequently bring out its IPO. It should be however noted that parent company retains its control and only a part of new shares are issued to public.

On the other hand in Spin off parent company does not receive any cash as shares of subsidiary company are issued to existing shareholder in the form of dividend. Thus, shareholders in new company remain the same but not in case of Equity curve out.

3. (a) (i) Calculation of Bond Duration

**Bond A**

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value x time (years)
1	10	0.917	9.17	0.086	0.086
2	10	0.842	8.42	0.079	0.158
3	10	0.772	7.72	0.073	0.219
4	10	0.708	7.08	0.067	0.268
5	10	0.650	6.50	0.061	0.305
6	10	0.596	5.96	0.056	0.336
7	10	0.547	5.47	0.051	0.357
8	10	0.502	5.02	0.047	0.376
9	10	0.460	4.60	0.043	0.387
10	110	0.4224	46.46	0.437	4.370
			106.40	1.000	6.862

Duration of the bond is 6.862 years or 6.86 year

**Bond B**

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value x time (years)
1	11	0.917	10.087	0.091	0.091
2	11	0.842	9.262	0.083	0.166
3	11	0.772	8.492	0.076	0.228
4	11	0.708	7.788	0.070	0.280
5	11	0.650	7.150	0.064	0.320
6	11	0.596	6.556	0.059	0.354
7	11	0.547	6.017	0.054	0.378
8	111	0.502	55.772	0.502	4.016
			111.224	1.000	5.833

Duration of the bond B is 5.833 years or 5.84 years

**Bond C**

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value x time (years)
1	9	0.917	8.253	0.082	0.082
2	9	0.842	7.578	0.076	0.152
3	9	0.772	6.948	0.069	0.207
4	9	0.708	6.372	0.064	0.256
5	109	0.650	70.850	0.709	3.545
			100.00	1.000	4.242

Duration of the bond C is 4.242 years or 4.24 years

**(ii) Amount of Investment required in Bond B and C**

Period required to be immunized	6.000 Year
Less: Period covered from Bond A	<u>3.087 Year</u>
To be immunized from B and C	<u>2.913 Year</u>

Let proportion of investment in Bond B and C is b and c respectively then

$$b + c = 0.55 \quad (1)$$

$$5.883b + 4.242c = 2.913 \quad (2)$$

On solving these equations, the value of b and c comes 0.3534 or 0.3621 and 0.1966 or 0.1879 respectively and accordingly, the % of investment of B and C is 35.34% or 36.21% and 19.66 % or 18.79% respectively.

**(iii) With revised yield the Revised Duration of Bond stands**

$$0.45 \times 7.15 + 0.36 \times 6.03 + 0.19 \times 4.27 = 6.20 \text{ year}$$

No portfolio is not immunized as the duration of the portfolio has been increased from 6 years to 6.20 years.

**(iv) New percentage of B and C bonds that are needed to immunize the portfolio.**

Period required to be immunized	6.0000 Year
Less: Period covered from Bond A	3.2175 Year
To be immunized from B and C	<u>2.7825 Year</u>

Let proportion of investment in Bond B and C is b and c respectively, then

$$b + c = 0.55$$

$$6.03b + 4.27c = 2.7825$$

$$b = 0.2466$$

On solving these equations, the value of b and c comes 0.2466 and 0.3034 respectively and accordingly, the % of investment of B and C is 24.66% or 25% and 30.34 % or 30.00% respectively.

**(b)** Existing No. of Equity Shares =  $\frac{\text{₹ } 1500 \text{ crore}}{\text{₹ } 1,500} = 1 \text{ Crore}$

No. of shares to be bought back = 1 Crore x 0.20 = 20 Lakh

Price at which share to be bought back = Rs. 1,500 + 10% of Rs. 1,500 = Rs. 1,650

Amount required for Buyback of Shares = Rs. 1,650 x 20 Lakh = Rs. 330 Crore

Amount of Loan @ 16% = Rs. 330 Crore

Statement showing Post Buyback EPS

Profit before tax (Rs. 200 crore/ 0.70)	Rs. 285.7143 crore
Less: Interest on Loan (Rs. 330 Crore x 16%)	Rs. 52.8000 crore
Profit before Tax	Rs. 232.9143 crore
Tax	Rs. 69.8743 crore
Profit after Tax (PAT)	Rs. 163.0400 crore
No. of Shares Post buyback	80 Lakh

EPS (Post Buyback) (Rs. 163.0400 Crore/ 80.00 Lakh)	Rs. 203.80
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(c) The financial risk can be viewed by different stakeholders as follows:

(i) **From shareholder's and lender'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 the event of winding up of a company they will be least be given priority.

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 (like Lehman Brothers) or 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.

4. (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 = GBP 201.3336 – GBP 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 = GBP 201.3335 – GBP 200	GBP 1.3335 Million

**Decision:**

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)

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

**Revised Portfolio will be**

Security	No. of shares (1)	Market Price of Per Share (2)	(1) × (2)	% to total (w)	β (x)	wx
ABC	1000	50	50000	0.3008	0.9	0.271
DEF	500	20	10000	0.0602	1	0.060
GHI	800	25	20000	0.1203	1.5	0.180
JKL	200	200	40000	0.2407	1.2	0.289
Risk free asset	--	--	46205	0.2780	0	0
			166205	1		0.800

- (c) Angel investors invest in small startups or entrepreneurs. Often, angel investors are entrepreneur's family and friends. The capital angel investors provide may be a one-time investment to help the business propel or an ongoing injection of money to support and carry the company through its difficult early stages.

Angel investors provide more favorable terms compared to other lenders, since they usually invest in the entrepreneur starting the business rather than the viability of the business. Angel investors are focused on helping startups take their first steps, rather than the possible profit they may get from the business. Essentially, angel investors are the opposite of venture capitalists.

Angel investors are also called informal investors, angel funders, private investors, seed investors or business angels. These are affluent individuals who inject capital for startups in exchange for ownership equity or convertible debt. Some angel investors invest through crowdfunding platforms online or build angel investor networks to pool in capital.

Angel investors typically use their own money, unlike venture capitalists who take care of pooled money from many other investors and place them in a strategically managed fund.

Though angel investors usually represent individuals, the entity that actually provides the fund may be a limited liability company, a business, a trust or an investment fund, among many other kinds of vehicles.

Angel investors who seed startups that fail during their early stages lose their investments completely. This is why professional angel investors look for opportunities for a defined exit strategy, acquisitions or initial public offerings (IPOs).

5. (a) (i) Mr. Kapoor's position in the two securities is +1.50 in security X and -0.5 in security Y. Hence the portfolio sensitivities to the two factors:-

$$b \text{ prop. 1} = 1.50 \times 0.75 + (-0.50 \times 1.50) = 0.375$$

$$b \text{ prop. 2} = 1.50 \times 0.60 + (-0.50 \times 1.10) = 0.35$$

- (ii) Mr. Kapoor's current position:

$$\text{Security XRs. } 3,00,000 / \text{Rs. } 1,00,000 = 3$$

$$\text{Security Y-Rs. } 1,00,000 / \text{Rs. } 1,00,000 = -1$$

$$\text{Risk free asset } -\text{Rs. } 100000 / \text{Rs. } 100000 = -1$$

$$b \text{ prop. 1} = 3.0 \times 0.75 + (-1 \times 1.50) + (-1 \times 0) = 0.75$$

$$b \text{ prop. 2} = 3.0 \times 0.60 + (-1 \times 1.10) + (-1 \times 0) = 0.70$$

- (iii) Expected Return = Risk Free Rate of Return + Risk Premium

Let  $\lambda_1$  and  $\lambda_2$  are the Value Factor 1 and Factor 2 respectively.

Accordingly

$$15 = 10 + 0.75 \lambda_1 + 0.60 \lambda_2$$

$$20 = 10 + 1.50 \lambda_1 + 1.10 \lambda_2$$

On solving equation, the value of  $\lambda_1$  and  $\lambda_2$  comes 6.67 and 0 respectively.

Accordingly, the expected risk premium for the factor 2 shall be Zero and whatever be the risk the same shall be on account of factor 1.

Alternatively, the risk premium of Securities X & Y can be calculated as follows:

Security X

$$\text{Total Return} = 15\%$$

$$\text{Risk Free Return} = 10\%$$

$$\text{Risk Premium} = 5\%$$

Security Y

$$\text{Total Return} = 20\%$$

$$\text{Risk Free Return} = 10\%$$

$$\text{Risk Premium} = 10\%$$

- (b) (i) Semi-annual fixed payment

$$= (N) (AIC) (\text{Period})$$

Where N = Notional Principal amount = Rs. 8,00,000

$$\text{AIC} = \text{All-in-cost} = 6\% = 0.06$$

$$= 8,00,000 \times 0.06 \left( \frac{180}{360} \right)$$

$$= 8,00,000 \times 0.06 (0.5)$$

$$= \text{Rs. } 24,000$$

(ii) Floating Rate Payment

$$= N (\text{LIBOR}) \left( \frac{dt}{360} \right)$$
$$= 8,00,000 \times 0.05 \times \frac{181}{360}$$
$$= \text{Rs. } 20,111 \text{ or Rs. } 20,120$$

(iii) Net Amount

$$= (i) - (ii)$$
$$= \text{Rs. } 24,000 - \text{Rs. } 20,111 = \text{Rs. } 3,889$$

**Or** = Rs. 24,000 – Rs. 20,120 = Rs. 3,880

(c) Primary Participants are main parties to the process of securitization. The primary participants in the process of securitization are as follows:

(i) **Originator:** It is the initiator of deal or can be termed as securitizer. It is an entity which sells the assets lying in its books and receives the funds generated through the sale of such assets. The originator transfers both legal as well as beneficial interest to the Special Purpose Vehicle.

(ii) **Special Purpose Vehicle:** Also, called SPV, it is created for the purpose of executing the deal. Since issuer originator transfers all rights in assets to SPV, it holds the legal title of these assets. It is created especially for the purpose of securitization only and normally could be in form of a company, a firm, a society or a trust.

The main objective of creating SPV is to remove the asset from the Balance Sheet of Originator. Since, SPV makes an upfront payment to the originator, it holds the key position in the overall process of securitization. Further, it also issues the securities (called Asset Based Securities or Mortgage Based Securities) to the investors.

(iii) **The Investors:** Investors are the buyers of securitized papers which may be an individual, an institutional investor such as mutual funds, provident funds, insurance companies, Financial Institutions etc.

Since, they acquire a participating share in the total pool of assets/receivable, they receive their money back in the form of interest and principal as per the agreed terms.

OR

- i. Upto a period of ten years from the date of incorporation/ registration, if it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India.
- ii. Turnover of the entity for any of the financial years since incorporation/ registration has not exceeded one hundred crore rupees.
- iii. Entity is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation.

6. (a) (i) IM has overall strong position and hence is in a comparative advantageous position in both rates. However, it has a comparative advantage in floating-rate market.

The differential between the U.S. dollar floating rates is 2.00% per annum, and the differential between the JPY fixed rates is 0.25% per annum. The difference between the differentials is 1.75% per annum. The total potential gain to all parties from the swap is therefore 1.75% per

annum, or 175 basis points. If the financial intermediary requires 75 basis points, each of IM and JI can be made 50 basis points better off.

- (ii) Since the Net Benefit of 100 Basis Points to be shared equally among IM and JI interest rate for them shall be as follows:

**IM**

Borrowing from Market	LIBOR + 0.5%
Less: Benefit from Swap	0.5%
Net Interest	LIBOR

**JI**

Borrowing from Market	4.25%
Less: Benefit from Swap	0.5%
Net Interest	3.75%

- (b) Working Notes:

Computation of Earning Per Share (EPS)

Particulars		Amount (Rs.)
Margin of Division A	(Rs. 50 crore x 10% x 5%)	25,00,000
Margin of Division B	(Rs. 20 crore x 30% x 8%)	48,00,000
Margin of Division C	(Rs. 8.5 crore x 2% x 10%)	1,70,000
		74,70,000
No. of Equity Shares		3,00,000
EPS		Rs. 24.90

- (i) Market Price based on One Year Forecast

Expected Market Price at the end of the year = Rs. 24.90 x 10 = Rs. 249

PV of the Expected Price = Rs. 249 x 0.847 = Rs. 210.90

I would **NOT** like to purchase the share as the expected market price of shares is less than its current price of Rs. 250.

- (ii) If Earning is expected to grow @ 15%

Year	EPS (Rs.)	Dividend (Rs.)	PVF@18%	PV (Rs.)
1	28.64	---	0.847	---
2	32.93	---	0.718	---
3	37.87	11.36	0.609	6.92
4	43.55	13.07	0.516	6.74
5	50.08	15.02	0.437	6.56
				20.22

Share Price after 5 years =  $\frac{15.02(1.15)}{0.18 - 0.15} = \text{Rs. } 575.77$

PV of the Market Price after 5 years = Rs. 575.77 X 0.437 = Rs. 251.61

Total PV of Inflows = Rs. 20.22 + Rs. 251.61 = Rs. 271.83

Thus, the maximum price I would be willing to pay for the share shall be Rs. 271.83.

**(c) Methods for Evaluating the Performance**

**1. Sharpe Ratio**

The excess return earned over the risk free return on portfolio to the portfolio's total risk measured by the standard deviation. This formula uses the volatility of portfolio return. The Sharpe ratio is often used to rank the risk-adjusted performance of various portfolios over the same time. The higher a Sharpe ratio, the better a portfolio's returns have been relative to the amount of investment risk the investor has taken.

$$S = \frac{\text{Return of portfolio} - \text{Return of risk free investment}}{\text{Standard Deviation of Portfolio}}$$

**2. Treynor Ratio**

This ratio is similar to the Sharpe Ratio except it uses Beta of portfolio instead of standard deviation. Treynor ratio evaluates the performance of a portfolio based on the systematic risk of a fund. Treynor ratio is based on the premise that unsystematic or specific risk can be diversified and hence, only incorporates the systematic risk (beta) to gauge the portfolio's performance.

$$T = \frac{\text{Return of portfolio} - \text{Return of risk free investment}}{\text{Beta of Portfolio}}$$

**3. Jensen's Alpha**

The comparison of actual return of the fund with the benchmark portfolio of the same risk. Normally, for the comparison of portfolios of mutual funds this ratio is applied and compared with market return. It shows the comparative risk and reward from the said portfolio. Alpha is the excess of actual return compared with expected return.