MOCK TEST PAPER 1

FINAL COURSE: GROUP – I

PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT

SUGGESTED ANSWERS/HINTS

1. (a) (i) Pay the supplier in 60 days

If the payment is made to supplier in 60 days the applicable forward rate shall be ₹ 76.15 for 1 USD

Payment Due	USD 1 crore
Outflow in Rupees (USD 1 crore × ₹ 76.15)	₹ 76.1500 crore
Add: Interest on loan for 30 days @ 9.5% p.a.	₹ 0.6029 crore
Total Outflow in ₹	₹ 76.7529 crore

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

Amount Payable	USD 1.00000 crore
Add: Interest on credit period for 30 days@7.75% p.a.	USD 0.00646 crore
Total Outflow in USD	USD 1.00646 crore
Applicable forward rate for 1 USD	₹ 76.45
Total Outflow in ₹ (USD 1.00646 crore ×₹ 76.45)	₹ 76.9439 crore

Advice: Since cash outflow is least under Option 1 it is better to avail loan from bank.

Total Marks = 8

(b) First, we shall compute the Cost of Equity using CAPM as follows:

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

= 5% + 2(7.50% - 5.00%)

= 10%

P.V. of dividend stream and sales proceeds

Year	Divd. /Sale	PVF (10%)	PV (₹)
1	₹ 20/-	0.909	18.18
2	₹ 20/-	0.826	16.52
3	₹ 20/-	0.751	15.02
4	₹ 20/-	0.683	13.66
5	₹ 25/	0.621	15.53
6	₹ 25/	0.564	14.10
7	₹ 25/	0.513	12.83
7	₹ 1250/- (₹ 1000 x 1.25)	0.513	641.25
			747.09

	Less: Cost of Share (₹ 500 x 1.05)		₹ 525.00
	Net gain		₹ 222.09

Since Mr. X is gaining ₹ 222.09 per share, he should buy the share.

Maximum price Mr. A should be ready to pay is ₹ 747.09.

Total Marks = 8

(c) Evaluation of Financial Risk

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

(1) 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.

(2) 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.

(3) 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. **Total Marks = 4**

2. (a) (i) Computation of Business Value

			(₹ Lakhs)
Profit before tax $\frac{120}{(1 - 0.20)}$			150
Less: Extraordinary income			(5)
Add: Extraordinary losses			15
			160
Profit from new product		(₹ Lakhs)	
Sales		100	
Less: Material costs	10		
Labour costs	20		
Fixed costs	20	(50)	50
			210.00
Less: Taxes @20%			42.00
Future Maintainable Profit after taxes			168.00
Relevant Capitalisation Factor			0.10
Value of Business (₹168/0.10)			1680

(ii) Determination of Market Price of Equity Share

Future maintainable profits (After Tax)	168,00,000
Less: Preference share dividends 1,00,000 shares of ₹ 100 @ 13%	13,00,000
Earnings available for Equity Shareholders	155,00,000
No. of Equity Shares	50,00,000

Earning per share = $\frac{155,00,000}{50,00,000}$	₹ 3.10
PE ratio	10
Market price per share	₹ 31

Total Marks = 8

(b) (i) Let the probability of attaining the maximum price be p

(1000 - 950) x p+(900 - 950) x (1 - p) = 950 x $(e^{0.02}-1)$

or, 50p - 50(1 - p) = 950 x 0.0202

or, 50p – 50 + 50p = 19.19

or, 100p = 69.19

p = 0.6919

The value of Call Option in ₹ = $\frac{0.6919\ (1000-980)}{1.0202}$ = ₹ 13.56 **Total Marks = 4**

(ii) The appropriate value of the 3 months futures contract is –

Fo = ₹ 500 $(1.006)^3$ = ₹ 509.05

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 ₹ 500 now and repay with interest after 3 months	+ ₹ 500	- ₹ 500 $(1.006)^3$ = - ₹ 509.05
Buy a share	- ₹ 500	ST
Sell a futures contract (Fo = 511/-)	0	₹ 511 – ST
Total	₹ 0	₹ 1.95

Such an action would produce a risk less profit of ₹ 1.95. **Total Marks = 4**

(c) Boot Strapping : An individual is said to be boot strapping when he or she attempts to found and build a company from personal finances or from the operating revenues of the new company.

Here are some of the methods in which a startup firm can bootstrap:

(1) Trade Credit: When a person is starting his business, suppliers are reluctant to give trade credit. They will insist on payment of their goods supplied either by cash or by credit card. However, a way out in this situation is to prepare a well-crafted financial plan. The next step is to pay a visit to the supplier's office. If the business organization is small, the owner can be directly contacted. On the other hand, if it is a big firm, the Chief Financial Officer can be contacted and convinced about the financial plan.

(2) Factoring: This is a financing method where accounts receivable of a business organization is sold to a commercial finance company to raise capital. The factor then got hold of the accounts receivable of a business organization and assumes the task of collecting the receivables as well as doing what would've been the paperwork. Factoring can be performed on a non-notification basis. It means customers may not be told that their accounts have been sold.

(3) Leasing: Another popular method of bootstrapping is to take the equipment on lease rather than purchasing it. It will reduce the capital cost and also help lessee (person who take the

asset on lease) to claim tax exemption. So, it is better to a take a photocopy machine, an automobile or a van on lease to avoid paying out lump sum money which is not at all feasible for a startup organization.

Total Marks = 4

OR

There are four asset allocation strategies:

(1) Integrated Asset Allocation: Under this strategy, capital market conditions and investor objectives and constraints are examined and the allocation that best serves the investor's needs while incorporating the capital market forecast is determined.

(2) Strategic Asset Allocation: Under this strategy, optimal portfolio mixes based on returns, risk and co-variances is generated using historical information and adjusted periodically to restore target allocation within the context of the investor's objectives and constraints.

(3) Tactical Asset Allocation: Under this strategy, investor's risk tolerance is assumed constant and the asset allocation is changed based on expectations about capital market conditions.

(4) Insured Asset Allocation: Under this strategy, risk exposure for changing portfolio values (wealth) is adjusted; more value means more ability to take risk.

Total Marks = 4

3. (a) (i) Let P be the buyback price decided by Rohan Ltd.

Market Capitalisation after Buyback

1.15P (Original Shares – Shares Bought Back)

$= 1.15P \left[10 \text{ Lakhs} - \frac{(35\% \text{ of } 150 \text{ lakhs})}{P}\right]$

$= 1.15 \text{ lakhs} \times P - 52.5 \text{ lakhs} \times 1.15 = 11.50 \text{ lakhs } P - 60.375 \text{ lakhs}$

Again, 1.15 lakhs P – 60.375 lakhs

or 11.50 lakhs P = 320 lakhs + 60.375 lakhs

or $P = \frac{380.375}{11.50} = ₹ 33.08$ per share

(ii) Number of Shares to be Bought Back:

$\frac{52.50 \text{ Lakhs}}{33.08} = 1.59$ lakhs (Approx.) or 158706 share

(iii) New Equity Shares:

10 lakhs – 1.59 lakhs = 8.41 lakhs or 1000000 – 158706 = 841294 shares

$\therefore \text{EPS} = \frac{3 \times 10 \text{ lakhs})}{8.41} = ₹ 3.57$

Thus, EPS of Rohan Ltd., increases to ₹ 3.57 **Total Marks = 8**

(b) (i) Returns for the year

(All changes on a Per -Unit Basis)

Change in Price:	₹ 10.25 – ₹9.45 =	₹ 0.80
Dividends received:		₹ 0.85
Capital gains distribution		₹ 0.70
Total reward		₹ 2.35

Holding period reward: $\frac{2.35}{9.45} \times 100 = 24.87\%$

(ii) When all dividends and capital gains distributions are re-invested into additional units of the fund @ (₹9.55/unit)

Dividend + Capital Gains per unit = ₹ 0.85 + ₹ 0.70 = ₹ 1.55

Total received from 300 units = ₹ 1.55 x 500 = ₹ 775/-.

Additional Units Acquired = ₹ 775/₹ 9.55

= 81.15 Units.

Total No. of Units = 500 units + 81.15 units = 581.15 units.

Value of 581.15 units held at the end of the year = 581.15 units x ₹10.25 = ₹ 5956.79

Price Paid for 500 Units at the beginning of the year

= 500 units x ₹9.45 = ₹ 4725.00

Holding Period Reward

₹ (5956.79 – 4725.00) = ₹ 1231.79

Holding Period Reward = $\frac{1231.79}{4725} \times 100 = 26.07\%$

Conclusion: Since the holding period reward is more in terms of percentage in option-two i.e., reinvestment of distributions at an average NAV of ₹9.55 per unit, this option is preferable. **Total Marks = 8**

(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. To take an illustration, let us refer to fuel industry where resources are limited in quantity and a judicial use of resources is needed to cater to the need of the future customers along with the need of the present customers. One may have noticed the save fuel campaign, a demarketing campaign that deviates from the usual approach of sales growth strategy and preaches for conservation of fuel for their use across generation. This is an example of stable growth strategy adopted by the oil industry as a whole under resource constraints and the long run objective of survival over years. Incremental growth strategy, profit strategy and pause strategy are other variants of stable growth strategy. **Total Marks = 4**

4. (a) Forward Market Cover

Hedge the risk by buying Can$ in 1 and 3 months time will be:

July - 1010000 X 0.9301 = US $ 939401

Sept. - 705000 X 0.9356 = US $ 659598

Option Contracts

July Payment = 1010000/ 50,000 = 20.20

September Payment = 705000/ 50,000 = 14.10

Company would like to take out 20 contracts for July and 14 contracts for September respectively. Therefore costs, if the options were exercised, will be:

	July		Sept.	
	Can $	US $	Can $	US $
Covered by Contracts	1000000	940000	700000	665000
Balance bought at spot rate	10000	9301	5000	4678
Option Costs:				
Can $ 50000 x 20 x 0.0102		10200	---	
Can $ 50000 x 14 x 0.0164	---			11480
Total cost in US $ of using Option Contract		959501		681158

Decision: As the firm is stated as risk averse and the money due to be paid is certain, a fixed forward contract, being the cheapest alternative in the both the cases, would be recommended.

Total Marks = 8

(b) (i) Sharpe Ratio $S = (R_p - R_f)/\sigma_p$

Treynor Ratio $T = (R_p - R_f)/\beta_p$

Where,

R_p = Return on Fund

R_f = Risk-free rate

σ_p = Standard deviation of Fund

β_p = Beta of Fund

Reward to Variability (Sharpe Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	σ_p	Reward to Variability	Ranking
A	18	9	9	5	1.80	1
B	12	9	3	7	0.43	5
C	15	9	6	10	0.60	3
D	14	9	5	9	0.55	4
E	19	9	10	6	1.67	2

Reward to Volatility (Treynor Ratio)

Mutual Fund	R_p	R_f	$R_p - R_f$	β_p	Reward to Volatility	Ranking
A	18	9	9	1.25	7.20	1
B	12	9	3	0.75	4.00	5
C	15	9	6	1.40	4.28	4
D	14	9	5	0.98	5.10	3
E	19	9	10	1.50	6.67	2

Total Marks = 8

(c) Securitization Instruments

On the basis of different maturity characteristics, the securitized instruments can be divided into following three categories:

Pass Through Certificates (PTCs)

As the title suggests originator (seller of the assets) transfers the entire receipt of cash in the form of interest or principal repayment from the assets sold. Thus, these securities represent direct claim of the investors on all the assets that has been securitized through SPV.

Since all cash flows are transferred the investors carry proportional beneficial interest in the asset held in the trust by SPV.

It should be noted that since it is a direct route any prepayment of principal is also proportionately distributed among the securities holders. Further, due to these characteristics on completion of securitization by the final payment of assets, all the securities are terminated simultaneously.

Skewness of cash flows occurs in early stage if principals are repaid before the scheduled time.

Pay Through Security (PTS)

As mentioned earlier, since, in PTCs all cash flows are passed to the performance of the securitized assets. To overcome this limitation and limitation to single mature there is another structure i.e. PTS.

In contrast to PTC in PTS, SPV debt securities are backed by the assets and hence it can restructure different tranches from varying maturities of receivables.

In other words, this structure permits desynchronization of servicing of securities issued from cash flow generating from the asset. Further, this structure also permits the SPV to reinvest surplus funds for short term as per their requirement.

Since, in Pass Through, all cash flow immediately in PTS in case of early retirement of receivables plus cash can be used for short term yield. This structure also provides the freedom to issue several debt tranches with varying maturities.

Stripped Securities

Stripped Securities are created by dividing the cash flows associated with underlying securities into two or more new securities. Those two securities are as follows:

(i) Interest Only (IO) Securities

(ii) Principle Only (PO) Securities

As each investor receives a combination of principal and interest, it can be stripped into two portion of Interest and Principle.

Accordingly, the holder of IO securities receives only interest while PO security holder receives only principal. Being highly volatile in nature these securities are less preferred by investors.

In case yield to maturity in market rises, PO price tends to fall as borrower prefers to postpone the payment on cheaper loans. Whereas if interest rate in market falls, the borrower tends to repay the loans as they prefer to borrow fresh at lower rate of interest.

In contrast, value of IO's securities increases when interest rate goes up in the market as more interest is calculated on borrowings.

However, when interest rate due to prepayments of principals, IO's tends to fall.

Thus, from the above, it is clear that it is mainly perception of investors that determines the prices of IOs and Pos. **Total Marks = 4**

5. (a) (i) $\beta_{asset} = \beta_{equity} \times \frac{V_E}{V_0} + B_{debt} \times \frac{V_D}{V_0}$

Note: Since β_{debt} is not given it is assumed that company debt capital is virtually riskless.

If company's debt capital is riskless than above relationship become:

Here $\beta_{equity} = 1.5$; $\beta_{asset} = \beta_{equity} \frac{V_E}{V_O}$

As $\beta_{debt} = 0$

V_E = ₹ 80 lakhs.

V_D = ₹ 20 lakhs.

V_0 = ₹ 100 lakhs.

$\beta_{asset} = 1.5 \times \frac{80 \text{ lakhs}}{100 \text{ lakhs}} = 1.2$

(ii) (a) If only equity is used to finance the expansion, the Cost of Capital for discounting company's expansion of existing business shall be computed as follows:

Company's cost of equity = $R_f + \beta_A \times$ Market Risk premium

Where R_f = Risk free rate of return

β_A = Beta of company assets

Therefore, company's cost of equity = 6% + 1.2 × 8 = 15.60% and overall cost of capital shall be 15.60%.

Alternatively, if funds expansion are raised for in same proportion as exiting capital structure, then cost of capital shall be computed as follows:

Cost of Equity = 6% + 1.5 x 8 = 18%

Cost of Debt = 8%

WACC (Cost of Capital) = $18\% \times \frac{4}{5} + 8\% \times \frac{1}{5} = 16\%$ **Total Marks = 8**

(b)

Day	Principal (₹)	MIBOR (%)	Interest (₹)
Tuesday	10,00,00,000	8.15	22,329
Wednesday	10,00,22,329	8.12	22,252
Thursday	10,00,44,581	7.95	21,791
Friday	10,00,66,372	7.75	21,247
Saturday & Sunday (*)	10,00,87,619	8.15	44,697
Monday	10,01,32,316	7.98	21,892
Total Interest @ Floating			1,54,208
Less: Net Received			423
Expected Interest @ fixed			1,53,785
Thus Fixed Rate of Interest			0.080
Approx.			8%

* i.e. interest for two days.

Total Marks = 8

(c) Yes, the statement under consideration is true to some extent because of following features of Securitization:

(i) Creation of Financial Instruments – The process of securities can be viewed as process of creation of additional financial product of securities in market backed by collaterals.

(ii) Bundling and Unbundling – When all the assets are combined in one pool it is bundling and when these are broken into instruments of fixed denomination it is unbundling.

(iii) Structured Finance – In the process of securitization, financial instruments are tailor structured to meet the risk return trade of profile of investor, and hence, these securitized instruments are considered as best examples of structured finance.

(iv) Trenching – Portfolio of different receivable or loan or asset are split into several parts based on risk and return they carry called 'Tranche'. Each Trench carries a different level of risk and return.

(v) Homogeneity – Under each tranche the securities issued are of homogenous nature and even meant for small investors who can afford to invest in small amounts.

Total Marks = 4

6. (a) (i) Calculation of maximum price per share at which PQR Ltd. can offer to pay for XYZ Ltd.'s share

Market Value (10,00,000 x ₹30)	₹ 300,00,000
Synergy Gain	₹ 100,00,000
Saving of Overpayment	₹ 32,00,000
	₹ 432,00,000
Maximum Price (₹ 3,50,00,000/10,00,000)	₹ 43.20

Alternatively, it can also be computed as follows:

Let ER be the swap ratio then,

$$50 = \frac{30 \text{ x } 10,00,000 + 50 \text{ x } 20,00,000 + 100,00,000 + 32,00,000}{20,00,000 + 10,00,000 \text{ x ER}}$$

ER = 0.864

$$MP = PE \text{ x } EPS \text{ x } ER = \frac{50}{5} \text{ x ₹ 5 x } 0.864 = ₹ 43.20$$

(ii) Calculation of minimum price per share at which the management of XYZ Ltd.'s will be willing to offer their controlling interest

Value of XYZ Ltd.'s Management Holding (50% of 10,00,000 x ₹ 30)	₹ 150,00,000
Add: PV of loss of remuneration to top management	₹ 32,00,000
	₹ 1,82,00,000
No. of Shares	5,00,000
Minimum Price (₹ 1,82,00,000/5,00,000)	₹ 36.40

Total Marks = 8

(b) (i) X Ltd

(1) Calculation of theoretical minimum price of a 3 months forward contract-

Theoretical minimum price = ₹ 2000 + (₹ 2000 x 6/100 x 3/12) = ₹ 2030

(2) Arbitrage Opportunity-

The arbitrageur can borrow money @ 6 % for 3 months and buy the shares at ₹ 2000. At the same time he can sell the shares in the futures market at ₹ 2250. On the expiry date 3 months later, he could deliver the share and collect ₹ 2250 pay off ₹ 2030 and record a gross profit of ₹ 220 (₹ 2250 – ₹ 2030) and a net profit after charging interest of ₹ 190 (₹ 220 – ₹ 30).

Total Marks = 4

(ii) BSE Index

(1) Current future price of the index = 10000 + 10000 (0.10-0.05)6/12 = 10000 + 250 = 10,250

$\therefore$ Price of the future contract = ₹ 50 x 10250 = ₹ 5,12,500

(2) Hedge ratio = $\frac{12,00,000}{5,12,500}$ x 1.70 = 3.98 or 4 contracts

Index after three months turns out to be 8500

Future price will be = 8500 + 8500 (0.10-0.05) $\times \frac{1}{12}$ = 8535.42

Therefore, Gain from the short futures position is = 4 x (10250 – 8535.42) x 50

= ₹ 3,42,916

Total Marks = 4

(c) The commodity characteristic approach defines feasible commodities for derivatives trading based on an extensive list of required commodity attributes. It focuses on the technical aspects of the underlying commodity. The following attributes are considered crucial for qualifying for the derivatives trade:

1) a commodity should be durable and it should be possible to store it;
2) units must be homogeneous;
3) the commodity must be subject to frequent price fluctuations with wide amplitude; supply and demand must be large;
4) supply must flow naturally to market and there must be breakdowns in an existing pattern of forward contracting.

Total Marks = 4