MOCK TEST PAPER 1

FINAL (OLD) COURSE: GROUP – I

PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT (NEW COURSE)

SUGGESTED ANSWERS/HINTS

1. (a) Working Notes:

1. Computation of Annual Depreciation-

Particulars	Rs.
Purchase Price	26,00,000
Add:1. Installation Charges	9,000
2. Fees Paid to Consultant for Advice	6,000
Total Cost of New Machine	26,15,000
Useful Life	8 Years
Annual Depreciation (Total Cost/ No. of Years)	3,26,875

2. Computation of Annual Cash Savings-

Particulars	Rs.
Annual Earnings	3,15,000
Less-Tax @35%	1,10,250
Earning after Tax	2,04,750
Add-Depreciation on New Machine	3,26,875
Annual Cash Savings	5,31,625

3. Tax effect on sale of Old Machine-

Particulars	Rs.
Proceeds of Sale	12,500
Less- Cost of Removal	4,500
Net Proceeds	8,000
Less: WDV	76,000
Net Loss due to Sale	68,000
Tax savings due to Loss on Sale @35%	23,800
Total Cash Inflow due to Sale (Rs. 8,000+Rs. 23,800)	31,800

4. Computation of Net Present Value

Particulars	Period	Cash Flow (Rs.)	PVF @13%	PV (Rs.)
(a) Annual Cash inflow after Tax	1-8	5,31,625	4.8	25,51,800

(b) Net Salvage Value of Existing Machine	0	31,800	1.0	31,800
(c) Working Capital Realized	8	17,000	0.376	6,392
Present Value of Cash Inflows				25,89,992
Less: 1. Initial Investment	0	26,15,000	1.0	26,15,000
2. Initial Working Capital	0	17,000	1.0	17,000
NPV of the Proposal				(42,008)

Decision: Since NPV of the project is negative it is not viable.

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

= Rs. 125 + (Rs. 125 x 0.08) – 4 = 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

= Rs. 117.50 + (Rs. 117.50 x 0.08) – 4 = Rs. 122.90

= Rs. 122.90 x 1000 = 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:

Rs. 1, 31,000 - Rs. 1,22,900 = Rs. 8,100

(c) (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

$P = D_0(1+g)/ (k_e – g)$

Rs. 17.50 = Rs. 1(1+g)/ (0.14 – g)

17.50 x 0.14 – 17.50g = 1 + g

g = 0.0784 i.e. 7.84%

(d) (i) Dirty Price

= Clean Price + Interest Accrued

$$= 99.42 + 100 \times \frac{10}{100} \times \frac{262}{360} = 106.70$$

(ii) First Leg (Start Proceed)

$$= \text{Nominal Value x } \frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100}$$

$$= \text{Rs.8,00,00,000 x } \frac{106.70}{100} \times \frac{100 - 2}{100} = \text{Rs.8,36,52,800}$$

$$\text{Second Leg (Repayment at Maturity)} = \text{Start Proceed x } \left(1 + \text{Repo rate} \times \frac{\text{No. of days}}{360}\right)$$

$$= \text{Rs. 8,36,52,800 x } \left(1 + 0.0565 \times \frac{14}{360}\right) = \text{Rs. 8,38,36,604}$$

2. (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%	$ 2.75
Amount Repayable after 6 months	$ 102.75
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%	Rs. 207.58
	Rs. 3817.58

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

(ii) (a) Let 'i_r' be the interest rate of Rs. borrowing make indifferent between 3 months borrowings and 6 months borrowing then

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

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

(b) Let 'i_d' be the interest rate of $ borrowing after 3 months to make indifference between 3 months borrowings and 6 months borrowings. Then,

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

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

(b)

CALCULATION OF COST OF THE MACHINE

Beginning of Year	Cl. Balance at the beginning	Installment	Interest	Principal component
4	0	1,68,589	23,254	1,45,335
3	1,45,335	1,68,589	43,300	1,25,289
2	2,70,624	1,68,589	60,581	1,08,008
1	3,78,632	1,68,589	0	1,68,589
		Total		5,47,221

Cost of the machine is Rs. 5,47,221

Alternatively, it can be computed as follows:

$$\text{Annual Payment} = \frac{\text{Cost of Machine}}{\text{PVAF}(16\%,0-3)}$$

$$1,68,589 = \frac{\text{Cost of Machine}}{3.245}$$

Cost of Machine = Rs. 5,47,071

Computation of Interest

Year	Total Payment	Interest	Principal component	Principal Outstanding
0	1,68,589	0	1,68,589	3,78,482
1	1,68,589	60,557	1,08,032	2,70,450
2	1,68,589	43,272	1,25,317	1,45,133
3	1,68,589	23,456*	1,45,133	--
Total			5,47,071	

***** Balancing Figure

Buying Option

$$\text{Depreciation p.a.} = \frac{\text{Rs. } 5,47,071 - \text{Rs. } 12,412}{4} = \frac{\text{Rs. } 5,34,659}{4}$$

Depreciation p.a. = Rs. 1,33,665

Tax Saving on interest & Depreciation

Year	Interest (Rs.)	Dep. (Rs.)	Total (Rs.)	Tax Saving (Rs.)
1	60,557	1,33,665	1,94,222	87,400
2	43,272	1,33,665	1,76,937	79,622
3	23,456	1,33,665	1,57,121	70,704
4	0	1,33,665	1,33,665	60,149

P.V. of Outflow

Year	Installment (Rs.)	Tax Saving (Rs.)	Net outflow (Rs.)	PV @ 8.4%	P.V. (Rs.)
0	1,68,589	0	1,68,589	1.000	1,68,589
1	1,68,589	87,400	81,189	0.919	74,613
2	1,68,589	79,622	88,967	0.845	75,177
3	1,68,589	70,704	97,885	0.776	75,959
4	--	60,149	(60,149)	0.714	(42,946)
	Salvage Value		(12,412)	0.714	(8,862)
	P.V. of Outflow				3,42,530

Leasing Option

Lease Rent 30% of Rs. 5,47,071 i.e. Rs. 1,64,121

Lease Rent payable at the end of the year

Year	Lease Rental (Rs.)	Tax Saving (Rs.)	Net outflow (Rs.)	PV @ 8.4%	PV (Rs.)
1-4	1,64,121	73,855	90,266	3.254	2,93,726

Decision – The company is advised to opt for leasing as the total PV of cash outflow is lower in this option.

3. (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,

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

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,

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

D = 4.54545 Million Shares

Exchange Ratio = 4.54545 / 14 = 0.325:1

(b) (i) Semi-annual fixed payment

= (N) (AIC) (Period)

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

AIC = All-in-cost = 6% = 0.06

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

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

= Rs.24,000

(ii) Floating Rate Payment

$$= N (LIBOR) \left(\frac{dt}{360}\right)$$

$$= 8,00,000 \times 0.05 \times \frac{181}{360}$$

= Rs.20,111 or Rs. 20,120

(iii) Net Amount

= (i) – (ii)

= Rs.24,000 – Rs.20,111 = Rs.3889

Or = Rs.24,000 – Rs.20,120 = Rs.3880

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	1.50	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	1.20	50.10	
Closing Bank			0.40
Closing market value of portfolio			147.85
			148.25
Less: Arrears of expenses			0.50
Closing Net Assets			147.75
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	Rs. 0.15
Net earning	Rs. 0.05

Initial investment	Rs. 10.00
Rate of earning (monthly)	0.5%
Rate of earning (Annual)	6.00%

(b) (a) Working Notes- (Rs. in Lakhs)

Reduction in Trade Receivable under Factoring Agreement

Current Trade Receivable	35.00
Revised Receivable (210 x 30/360)	17.50
	17.50

(i) Calculation of Benefit with Recourse Factoring

Finance cost saving = 17.50 x 0.07	1.2250
Bad Debt Saving	0.6300
Administration Cost Saving	0.4000
Total Saving	2.2550
Less: Factoring Fee	1.2600
Additional Interest in Advance (17.50 x 0.80 x 2%)	0.2800
	0.7150

(ii) Calculation of Benefit with Non-Recourse Factoring

Finance cost saving = 17.50 x 0.07	1.2250
Bad Debt Saving	1.8900
Administration Cost Saving	0.4000
Total Saving	3.5150
Less: Factoring Fee	2.6250
Additional Interest in Advance (17.50 x 0.80 x 2%)	0.2800
	0.6100

Decision: It is viable to accept the Recourse Factoring proposal.

5. (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	3.087 Year
To be immunized from B and C	2.913 Year

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

$b + c = 0.55$ (1)

$5.883b + 4.242c = 2.913$ (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 x 7.15 + 0.36 x 6.03 + 0.19 x 4.27 = 6.20 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	2.7825 Year

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 = $\frac{\text{Rs. 1500 crore}}{\text{Rs. 1,500}}$ = 1 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

6. (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)	ß (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	40000	0.3333	1.2	0.400
			120000	1		1.108

(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)	ß (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

7. **(a)** 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.

(b) 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.

(c) In a wider spectrum, a money market can be defined as a market for short-term money and financial assets that are near substitutes for money with minimum transaction cost.

Features:

- The term short-term means generally a period upto one year and near substitutes to money is used to denote any financial asset which can be quickly converted into money.
- Low cost.
- It provides an avenue for equilibrating the short-term surplus funds of lenders and the requirements of borrower
- It, thus, provides a reasonable access to the users of short term money to meet their requirements at realistic prices.
- The money market can also be defined as a centre in which financial institutions congregate for the purpose of dealing impersonally in monetary assets.

(d) **The Modigliani & Miller hypothesis is based on the following assumptions:**

(i) The firm operates in perfect capital markets in which all investors are rational and information is freely available to all.

(ii) There are no taxes. Alternatively, there are no differences in the tax rates applicable to capital gains and dividends.

(iii) The firm has a fixed investment policy.

(iv) There are no floatation or transaction costs.

(v) Risk of uncertainty does not exist. Investors are able to forecast future prices and dividends with certainty, and

(vi) one discount rate is appropriate for all securities and all time periods. Thus, $r = k = k_t$ for all t.

(e) Around 80 per cent of private sector companies in India are family-managed companies. The family-owned companies are, under extraordinary pressure to yield control to professional managements, as, in the emerging scenario of a liberalised economy the capital markets are broadening, with attendant incentives for growth. So, many of these companies are arranging to hive off their unprofitable businesses or divisions with a view to meeting a variety of succession problems.

Even otherwise, a group of such family-managed companies may undertake restructuring of its operations with a view also to consolidating its core businesses. For this, the first step that may need to be taken is to identify core and non-core operations within the group. The second step may involve reducing interest burden through debt restructuring along with sale of surplus assets. The proceeds from the sale of assets may be employed for expanding by acquisitions and rejuvenation of its existing operations. The bottom line is that an acquisition must improve economies of scale, lower the cost of production, and generate and promote synergies. Besides acquisitions, therefore, the group may necessarily have to take steps to improve productivity of its existing operations.