SUGGESTED SOLUTION

FINAL MAY 2019 EXAM

SUBJECT- SFM

Test Code – FNJ 7178

BRANCH - () (Date :)

Answer 1:

(A)

Qtrs. (1)	Sensex (2)	Sensex Return (%) (3)	Amount Payable (Rs. Crore) (4)	Fixed Return (Receivable) (Rs. Crore) (5)	Net (Rs. Crore) (5) – (4)
0	21,600	-	-	-	-
1	21,860	1.2037	4.8148	4.6000	- 0.2148
2	21,780	-0.3660	-1.4640	4.6000	6.0640
3	22,080	1.3774	5.5096	4.6000	- 0.9096
4	21,960	-0.5435	-2.1740	4.6000	6.7740

(5 marks)

(B)

(i) Determination of EPS, P/E Ratio, ROE and BVPS of R Ltd.& S Ltd.

	R Ltd.	S Ltd.
EAT (Rs.)	5,33,000	2,49,600
N	200000	160000
EPS (EAT÷N)	2.665	1.56
Market Price Per Share	50	20
PE Ratio (MPS/EPS)	18.76	12.82
Equity Fund (Equity Value)	2400000	1600000
BVPS (Equity Value ÷ N)	12	10
ROE (EAT÷ EF) or	0.2221	0.156
ROE (EAT ÷ EF)	22.21%	15.60%

(4 marks)

(ii) Determination of Growth Rate of EPS of R Ltd.& S Ltd.

	R Ltd.	S Ltd.
Retention Ratio (1-D/P Ratio)	0.80	0.70
Growth Rate (ROE x Retention Ratio) or	0.1777	0.1092
Growth Rate (ROE x Retention Ratio)	17.77%	10.92%

(2 marks)

(iii) Justifiable equity share exchange ratio

    (a) Market Price Based = MPS_S/MPS_R = Rs. 20/ Rs. 50 = 0.40:1 (lower limit)

    (b) Intrinsic Value Based = Rs. 25/ Rs. 50 = 0.50:1 (max. limit)

Since R Ltd. has higher EPS, PE, ROE and higher growth expectations the negotiated term would be expected to be closer to the lower limit, based on existing share price. **(2 marks)**

(C)

(i)   **Expected NPV**

(` inlakhs)

Year I			Year II			Year III		
CFAT	P	CF×P	CFAT	P	CF×P	CFAT	P	CF×P
12	0.1	1.2	12	0.1	1.2	18	0.2	3.6
15	0.2	3.0	18	0.3	5.4	20	0.5	10
18	0.4	7.2	30	0.4	12	32	0.2	6.4
32	0.3	9.6	40	0.2	8	45	0.1	4.5
	$\bar{x}$ or CF	21.		$\bar{x}$ or CF	26.60		$\bar{x}$ or CF	24.50

NPV (` in lakhs)	PV factor @ 7%	Total PV (` in lakhs)
21	0.935	19.635
26.60	0.873	23.222
24.50	0.816	19.992
	PV of cash inflow	62.849
	Less: Cash outflow	40.000
	NPV	22.849

(3 marks)

(ii) Possible deviation in the expected value

Year I

$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	P_1	$(X - \bar{X})^2 P_1$
12 – 21	-9	81	0.1	8.10
15 – 21	-6	36	0.2	7.2
18 – 21	-3	9	0.4	3.6
32 – 21	11	121	0.3	36.30
				55.20

$$\sigma_1 = \sqrt{55.20} = 7.43$$

Year II

$X - \bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$	P_2	$(X - \bar{X})^2 \times P_2$
12-26.60	-14.60	213.16	0.1	21.32
18-26.60	-8.60	73.96	0.3	22.19
30-26.60	3.40	11.56	0.4	4.62
40-26.60	13.40	179.56	0.2	35.91
				84.04

$$\sigma_2 = \sqrt{84.04} = 9.17$$

Year III

X - X̄	X - X̄	(X - X̄)²	P_3	(X - X̄)² × P_3
18-24.50	-6.50	42.25	0.2	8.45
20-24.50	-4.50	20.25	0.5	10.13
32-24.50	7.50	56.25	0.2	11.25
45-24.50	20.50	420.25	0.1	42.03
				71.86

$\sigma_3 = \sqrt{71.86} = 8.48$

Standard deviation about the expected value:

$$\sqrt{\frac{55.20}{(1.07)^2} + \frac{84.04}{(1.07)^4} + \frac{71.86}{(1.07)^6}} = 12.6574$$

(4 marks)

Answer 2:

(A)

First of all we shall calculate premium payable to bank as follows:

$$P = \frac{rp}{(1-i) - \frac{1}{i \ x \ (1+i)t}} \ x \ A \quad \text{or} \quad \frac{rp}{PVAF \ (3.5\%,4)} \ x \ A$$

(1 mark)

Where

P = Premium

A = Principal Amount

rp = Rate of Premium

i = Fixed Rate of Interest

t = Time

$$= \frac{0.01}{(1 / 0.035) - \frac{1}{0.035 \ x \ (1.035)4}} \ x \ £15,000,000 \quad \text{or} \quad \frac{0.01}{(0.966+0.933+0.901+0.871)} \ x \ £15,000,000$$

$$= \frac{0.01}{(28.5714) - \frac{1}{0.04016}} \ x \ £15,000,000 \quad \text{or} \quad \frac{£15,000,000}{3.671} = £40,861$$

Please note above solution has been worked out on the basis of four decimal points at each stage. **(3 marks)**

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. **(4 marks)**

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

(B)

(i) Number of shares to be issued: 5,00,000

Subscription price Rs. 20,00,000 / 5,00,000 = Rs. 4

Ex-right Price $= \dfrac{Rs.1,30,00,000 + Rs.20,00,000}{15,00,000} = Rs.10$

Value of right $= \dfrac{Rs.10 - Rs.4}{2} = 3$

Or = Rs. 10 – Rs. 4 = Rs. 6 **(2 marks)**

(ii) Subscription price Rs. 20,00,000 / 2,50,000 = Rs. 8

Ex-right Price $= \dfrac{Rs.1,30,00,000 + Rs.20,00,000}{12,50,000} = Rs.12$

Value of right $= \dfrac{Rs.12 - Rs.8}{4} = Rs.1.$

Or = Rs. 12 – Rs. 8 = Rs. 4 **(2 marks)**

(iii) The effect of right issue on wealth of Shareholder's wealth who is holding, say 100 shares.

(a) When firm offers one share for two shares held.

Value of Shares after right issue (150 X Rs. 10)	Rs. 1,500
Less: Amount paid to acquire right shares (50XRs.4)	Rs. 200
	Rs.1,300

(b) When firm offers one share for every four shares held.

Value of Shares after right issue (125 X Rs. 12)	Rs. 1,500
Less: Amount paid to acquire right shares (25XRs.8)	Rs. 200
	Rs.1,300

(c)   Wealth of Shareholders before Right Issue   Rs.1,300

Thus, there will be no change in the wealth of shareholders from (i) and (ii).

(4 marks)

Answer 3:

(A)

Calculation of NPV

Year	0	1	2	3
Inflation factor in India	1.00	1.10	1.21	1.331
Inflation factor in Africa	1.00	1.40	1.96	2.744
Exchange Rate (as per IRP)	6.00	7.6364	9.7190	12.3696
Cash Flows in Rs.'000				
Real	-50000	-1500	-2000	-2500
Nominal (1)	-50000	-1650	-2420	-3327.50
Cash Flows in African Rand '000				
Real	-200000	50000	70000	90000
Nominal	-200000	70000	137200	246960
In Indian Rs. '000 (2)	-33333	9167	14117	19965
Net Cash Flow in Rs. '000 (1)+(2)	-83333	7517	11697	16637
PVF@20%	1	0.833	0.694	0.579
PV	-83333	6262	8118	9633

NPV of 3 years = -59320 (Rs. '000)

NPV of Terminal Value = (16637 / 0.20) x 0.579 = 48164 (Rs. '000)

Total NPV of the Project = -59320 (Rs. '000) + 48164 (Rs.'000) = -11156 (Rs.'000)

(8 marks)

(B)

$$P = \frac{D + \dfrac{r}{ke}(E - D)}{ke}$$

Where

P= Price of Share

R= Rate of Earning

Ke = Rate of Capitalisation or Cost of Equity

		(i) DP ratio 50%	(ii) DP ratio 75%	(iii) DP ratio 100%
(a)	Price of Share if r = 15%	$\dfrac{5+\left(\frac{.15}{.10}\right)(10-5)}{.10}$ $\dfrac{12.5}{.10}$ ₹ 125	$\dfrac{7.5+\left(\frac{.15}{.10}\right)(10-7.5)}{.10}$ $\dfrac{11.25}{.10}$ ₹ 112.5	$\dfrac{10+\left(\frac{.15}{.10}\right)(10-10)}{.10}$ $\dfrac{10}{.10}$ ₹ 100
(b)	Price of Share if r = 10%	$\dfrac{5+\left(\frac{.10}{.10}\right)(10-5)}{.10}$ $\dfrac{10}{.10}=Rs.100$	$\dfrac{7.5+\left(\frac{.10}{.10}\right)(10-7.5)}{.10}$ $\dfrac{10}{.1}=100$	$\dfrac{10+\left(\frac{.10}{.10}\right)(10-10)}{.10}$ $\dfrac{10}{.1}=Rs.100$
(c)	Price of Share if r = 5%	$\dfrac{5+\left(\frac{.05}{.10}\right)(10-5)}{.10}$ $\dfrac{7.5}{.10}=Rs.75$	$\dfrac{7.5+\left(\frac{.05}{.10}\right)(10-7.5)}{.10}$ $\dfrac{8.75}{.10}=87.5$	$\dfrac{10+\left(\frac{.05}{.10}\right)(10-10)}{.10}$ $\dfrac{10}{.1}=Rs.100$

(8 marks)

Answer 4:

(A)

Net Issue Size = $10 million

Gross Issue = (Rs.10 million / 0.98) = $10.2041 million

Issue Price per GDR in Rs. (250 x 2 x 96%)   Rs.480

Issue Price per GDR in $ (Rs. 480/ Rs.64) $7.50

Dividend Per GDR (D1) = Rs. 15 x 2 =   Rs.30

Net Proceeds Per GDR = Rs. 480 x 0.98 =   Rs.470.40

(4 marks)

(i) **Number of GDR to be issued**
   ($10.2041 million / $ 7.50) =   1.360547 million   **(1 mark)**

(ii) **Cost of GDR to Omega Ltd.**
   $K_e = (30 / 470.40) + 0.12 = 18.378\%$ **(1 mark)**

(B)

Option - I

$20 x 5000 = $ 1,00,000

Repayment in 3 months time = $1,00,000 x (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 X Rs. 60.30) = Rs. 61,80,750

(2.5 marks)

Option -II

Overdraft ($1,00,000 x Rs. 60.55)	Rs. 60,55,000
Interest on Overdraft (Rs. 60,55,000 x 0.14/4)	Rs. 2,11,925
	Rs. 62,66,925

Option I should be preferred as it has lower outflow. **(2.5 marks)**

(C)

No. of the Future Contract to be obtained to get a complete hedge

$$= \frac{10000 \times Rs.22 \times 1.5 - 5000 \times Rs.40 \times 2}{Rs.1000}$$

$$= \frac{Rs.3,30,000 - Rs.4,00,000}{Rs.1000} = \textbf{70 contracts}$$

Thus, by purchasing 70 Nifty future contracts to be long to obtain a complete hedge.

Cash Outlay

= 10000 x Rs. 22 – 5000 x Rs. 40 + 70 x Rs. 1,000

= Rs. 2,20,000 – Rs. 2,00,000 + Rs. 70,000 = Rs. 90,000

Cash Inflow at Close Out

= 10000 x Rs. 22 x 0.98 – 5000 x Rs. 40 x 1.03 + 70 x Rs. 1,000 x 0.985

= Rs. 2,15,600 – Rs. 2,06,000 + Rs. 68,950 = Rs. 78,550

Gain/ Loss

= Rs. 78,550 – Rs. 90,000 = - Rs. 11,450
(Loss)

(5 marks)

Answer 5:

(A)

Particulars	Rs. Crores
1. Listed Shares (Cost 20.00 × $\frac{Present\ Index\ 2,300}{Previous\ Index\ 1,000}$	46.00

2. Cash in Hand	1.23
3. Bonds and Debentures at Cost	
a) Unlisted / Unquoted Bonds (Cost 1.00 Less 20% Diminution)	0.80
b) Listed Bonds and Debentures	8.00
c) Other Fixed Interest Securities (Cost Rs. 4.50 Cr. × Current Realizable value 106.50 ÷ FV Rs. 100.00)	4.79
4. Dividend Accrued	0.80
Total of Assets	**61.62**
1. Amount Payable on Shares	6.32
2. Expenditure Accrued	0.75
Total of Liabilities	**7.07**
Net Asset Value (Rs. Crores)	**54.55**
No. of Units Outstanding (in Crores)	**0.20**
NAV Per Unit $= \frac{Net\ Assets\ of\ the\ Scheme}{Number\ of\ Units\ outstanding} = \frac{54.55}{0.20} =$ **Rs. 272.75**	

(7 marks)

(B)

(i) Straight Value of Bond

Rs. 85 x 0.9132 + Rs. 85 x 0.8340 + Rs. 1085 x 0.7617 = Rs. 974.96   **(1.5 mark)**

(ii) Conversion Value

Conversion Ration x Market Price of Equity Share

= Rs. 45 x 25 = Rs. 1,125   **(1.5 mark)**

(iii) Conversion Premium

Conversion Premium = Market Conversion Price - Market Price of Equity Share

= (Rs. 1175 / 25) - Rs. 45 = Rs. 2

or = Rs. 1,175 - Rs. 45 x 25 = Rs. 50

Or [(Rs. 1175 - Rs. 1125) / Rs. 1125] = 4.47%   **(2 marks)**

(iv) Percentage of Downside Risk

[(Rs. 1175 – Rs. 974.96) / Rs. 974.96] x 100 = 20.52%

Or

[(Rs. 1175 - Rs. 974.96) / Rs.1175] = 17.02%   **(2 marks)**

(v) Conversion Parity Price

(Bond Price / No. of Share on conversion)

= (Rs. 1175 / 25)

= Rs. 47   **(2 marks)**

Answer 6:

(A)

Capital sum to be placed under Lease

₹ in lakhs

Cash Down price of machine	300.00	
Less: Present value of depreciation Tax Shield		
$100 \times .35 \times \dfrac{1}{(1.10)}$	31.82	
$100 \times .35 \times \dfrac{1}{(1.10)^2}$	28.93	
$100 \times .35 \times \dfrac{1}{(1.10)^3}$	26.30	87.05
		212.95

If the normal annual lease rent per annum is x, then cash flow will be:

Year	Post-tax cash flow	P.V. of post-tax cash flow
1	$3x \times (1 - .35) = 1.95x$	$1.95 \times (1/1.10) = 1.7727x$
2	$2x \times (1 - .35) = 1.3x$	$1.30 \times [1/(1.10)^2] = 1.0743x$
3	$x \times (1 - .35) = 0.65x$	$0.65 \times [1/(1.10)^3] = \underline{0.4884x}$
		$= 3.3354x$

Therefore $3.3354\,x = 212.95$ or $x = ₹\ 63.8454$ lakhs

Year-wise lease rentals:

₹ in lakhs

Year 1	3×63.8454 lakhs	$= 191.54$
2	2×63.8454 lakhs	$= 127.69$
3	1×63.8454 lakhs	$= 63.85$

(6 marks)

(B)

Impact of Financial Restructuring

(i) Benefits to Grape Fruit Ltd.

(a) Reduction of liabilities payable

Rs. in lakhs	
Reduction in equity share capital (6 lakh shares x Rs.75 per share)	450
Reduction in preference share capital (2 lakh shares x Rs.50 per share)	100
Waiver of outstanding debenture Interest	26
Waiver from trade creditors (Rs.340 lakhs x 0.25)	85
	661
(b) *Revaluation of Assets*	
Appreciation of Land and Building (Rs.450 lakhs - Rs.200 lakhs)	250
Total (A)	911

(3 marks)

Amount of Rs.911 lakhs utilized to write off losses, fictious assets and over- valued assets.

Writing off profit and loss account	525
Cost of issue of debentures	5
Preliminary expenses	10
Provision for bad and doubtful debts	15
Revaluation of Plant and Machinery (Rs.300 lakhs – Rs.180 lakhs)	120
Total (B)	675
Capital Reserve (A) – (B)	236

(2 marks)

(ii) Balance sheet of Grape Fruit Ltd as at 31st March 2011 (after re-construction)

(Rs. in lakhs)

Liabilities	Amount	Assets	Amount
12 lakhs equity shares of Rs. 25/- each	300	Land & Building	450
10% Preference shares of Rs. 50/- each	100	Plant & Machinery	180
Capital Reserve	236	Furnitures & Fixtures	50

9% debentures	200	Inventory		150
Loan from Bank	74	Sundry debtors	70	
Trade Creditors	255	Prov. for Doubtful Debts	-15	55
		Cash-at-Bank		280
		(Balancing figure)*		
	1165			1165

*Opening Balance of Rs.130/- lakhs + Sale proceeds from issue of new equity shares Rs.150/- lakhs. **(5 marks)**

Answer 7:

(A)

(i) Computation of Expected Return from Portfolio

Security	Beta (β)	Expected Return (r) as per CAPM	Amount (Rs. Lakhs)	Weights(w)	wr
Moderate	0.50	8%+0.50(10% - 8%) = 9%	60	0.115	1.035
Better	1.00	8%+1.00(10% - 8%) = 10%	80	0.154	1.540
Good	0.80	8%+0.80(10% - 8%) = 9.60%	100	0.192	1.843
V. Good	1.20	8%+1.20(10% - 8%) = 10.40%	120	0.231	2.402
Best	1.50	8%+1.50(10% - 8%) = 11%	160	0.308	3.388
Total			520	1	10.208

Thus Expected Return from Portfolio 10.208% say 10.21%. **(4 marks)**

Alternatively, it can be computed as follows:

Average β = $0.50 \times \dfrac{60}{520} + 1.00 \times \dfrac{80}{520} + 0.80 \times \dfrac{100}{520} + 1.20 \times \dfrac{120}{520} + 1.50 \times \dfrac{160}{520} = 1.104$

As per CAPM

= 0.08 + 1.104(0.10 – 0.08) = 0.10208 i.e. 10.208%.

(ii) As computed above the expected return from Better is 10% same as from Nifty, hence there will be no difference even if the replacement of security is made. The main logic behind this neutrality is that the beta of security 'Better' is 1 which clearly indicates that this security shall yield same return as market return. **(2 marks)**

(B)

Proforma profit and loss account of the Indian software development unit

	Rs.	Rs.
Revenue		65,00,00,000
Less: Costs:		

Rent	20,00,000	
Manpower (Rs.540 x 80 x 10 x 365)	15,76,80,000	
Administrative and other costs	16,20,000	16,13,00,000
Earnings before tax		48,87,00,000
Less: Tax		14,66,10,000
Earnings after tax		34,20,90,000
Less: Withholding tax		3,42,09,000
Repatriation amount (in rupees)		30,78,81,000
Repatriation amount (in dollars)		$4.7366 million

(3.5 marks)

Advise: The cost of development software in India for the foreign based company is $5.3 million. As the USA based Company is expected to sell the software in the international market at $12.0 million, it is advised to develop the software in India. **(0.5 mark)**

(C)

   (i) Total premium paid on purchasing a call and put option

     = (Rs. 30 per share × 100) + (Rs. 5 per share × 100).

     = 3,000 + 500 = Rs. 3,500

     In this case, X exercises neither the call option nor the put option as both will result in a loss for him.

     Ending value = - Rs. 3,500 + zero gain = - Rs. 3,500

     i.e Net loss = Rs. 3,500 **(2 marks)**

   (ii) Since the price of the stock is below the exercise price of the call, the call will not be exercised. Only put is valuable and is exercised.

     Total premium paid = Rs.3,500

     Ending value = − Rs. 3,500 + Rs.[(450 − 350) × 100] = − Rs.3,500 + Rs.10,000 = Rs.6,500

     Net gain = Rs. 6,500 **(2 marks)**

   (iii) In this situation, the put is worthless, since the price of the stock exceeds the put's exercise
price. Only call option is valuable and is

     exercised. Total premium paid = Rs. 3,500

     Ending value = -3,500 +[(600 − 550) × 100]

     Net Gain   = -3,500 + 5,000 = Rs.1,500 **(2 marks)**