

CA FINAL (OLD SCHEME)
STRATEGIC FINANCIAL MANAGEMENT
JULY 2021 EXAM PAPER – SUGGESTED ANSWERS

Question 1(a) [5 Marks]:

The Asset Management Company of the Mutual Fund (MF) has declared a dividend of 9.98% on the units under the dividend reinvestment plan for the year ended 31st March 2021. The investors are issued additional units for the dividend at the rate of closing Net Asset Value (NAV) for the year as per the conditions of the Scheme. The Closing NAV was Rs. 24.95 as on 31st March 2021. An investor Mr. X who is having 20,800 units at the year-end has made an investment in the units before the declaration of the dividend and at the rate of opening NAV plus an entry load of Rs. 0.04. The NAV has appreciated by 25% during the year.

Assume the face value of the unit as Rs. 10.00

You are required to calculate:

- (i) Opening NAV,
- (ii) Number of units purchased,
- (iii) Original amount of the investment.

Solution

Question (i):

Let 'X' be the Opening NAV.

Problem states that NAV has appreciated by 25% during the year.

So, $X(1+0.25) = \text{Closing NAV}$

Closing NAV is Rs. 24.95

Therefore, $X(1+0.25) = \text{Rs. 24.95}$

$$X = \frac{\text{Rs. 24.95}}{1.25} = \text{Rs. 19.96}$$

That is, Opening NAV is **Rs. 19.96**

Question (ii):

Let 'N' be the numbers of units purchased.

Number of units at the end of the year is 20,800.

Since the Mutual Fund is a 'dividend reinvestment plan', the number of units at the end of the year is equal to 'No. of units purchased + No. of units issued in lieu of dividends.'

Dividends are declared @ 9.98%. Face value being Rs. 10 per unit, the dividend per unit is Rs. 0.998. For N units, the total dividend payable is 0.998N.

Units are issued at closing NAV of Rs. 24.95.

So, Number of units at the end of the year = $N + \frac{0.998 N}{\text{Rs. } 24.95}$

That is, $N + \frac{0.998 N}{\text{Rs. } 24.95} = 20,800$

$$\frac{24.95N + 0.998 N}{24.95} = 20,800$$

$$25.948N = 20,800 \times 24.95$$

$$N = \frac{20,800 \times 24.95}{25.948} = \mathbf{20000}$$

Therefore, number of units purchases is **20,000**

Question (iii):

Purchase price per unit (i.e., Opening NAV)	Rs. 19.96
Entry Load per unit	Rs. 0.04
Total	<u>Rs. 20.00</u>

Number of units purchased 20,000

So, Original amount of investment = 20,000 units X Rs. 20 per unit = **Rs. 4,00,000**

Question 1(b) [5 Marks]:

The Bank BK enters into a Repo for 9 days with Bank NE in 6% Government bonds 2022 for an amount of Rs. 2 Crores. The other relevant details are as follows:

First Leg Payment (Start Proceed)	Rs. 2,00,06,750
Second Leg Payment (Repayment Proceed)	Rs. 2,00,31,759
Initial Margin	1.25%
Days of accrued interest	240

Assume 360 days in a year.

You are required to calculate:

- (i) Repo Rate
- (ii) Dirty Price, and
- (iii) Clean Price

Solution

Money Market Instruments include 'Repo' and 'Reverse Repo' transactions. 'Repo' or 'Repurchase Agreement' refers to short-term borrowing for dealers in Government Securities. It involves selling Government Securities to investors for a short-duration and buying them back at a slightly higher price.

The 'sale of Government securities' is the first leg and 'repurchase of securities' is the second leg.

Question (i):

Repo Rate is the rate at which the short-term borrowing is made through 'sale and repurchase of government securities.'

It is the difference between 'sale proceeds' and 'repayment proceeds', expressed as a percentage of 'Start Proceeds.'

Problem has given 'Start Proceeds' and 'Repayment Proceeds' (i.e., the First Leg Payment and the Second Leg Payment).

$$\text{Second Leg Payment} = \text{Start Proceeds} \times \left(1 + \text{Repo Rate} \times \frac{\text{No. of Days}}{360}\right)$$

$$\text{So, Rs. 2,00,31,759} = \text{Rs. 2,00,06,750} \times \left(1 + \text{Repo Rate} \times \frac{9}{360}\right)$$

$$\text{Therefore, Repo Rate} = \left[\frac{\text{Rs. 2,00,31,759}}{\text{Rs. 2,00,06,750}} - 1\right] \times \frac{360}{9} = 0.05 \text{ or } 5\%$$

Hence, the Repo Rate is **5%**

Question (ii):

'Dirty Price' is the 'cum-interest' price of government securities. That is, 'Dirty Price' is the price of the government securities, which is inclusive of accrued interest till date.

The first leg payment (i.e., start proceeds) are always made at 'dirty price'.

Further, the start proceeds includes the margin paid to the dealer.

So,

$$\text{First Leg Payment} = \text{Nominal Value of Government Securities} \times \frac{\text{Dirty Price}}{\text{Face Value}} \times \frac{100 - \text{Initial Margin}}{100}$$

That is,

$$\text{Rs. 2,00,06,750} = \text{Rs. 2,00,00,000} \times \frac{\text{Dirty Price}}{\text{Rs. 100}} \times \frac{100 - 1.25}{100}$$

(Note: The Face Value of the Securities is assumed as Rs. 100)

$$\text{So, Dirty Price} = \text{Rs. 2,00,06,750} \times \frac{100}{98.75} \times 100 \times \frac{1}{2,00,00,000} = \text{Rs. 101.30}$$

Therefore, the Dirty Price = **Rs. 101.30**

Question (iii):

'Clean Price' refers to the price of government securities excluding accrued interest. That is, it is the ex-interest price.

Dirty Price = Clean Price + Accrued Interest.

So, Clean price = Dirty Price – Accrued Interest.

Dirty Price is Rs. 101.30

Accrued Interest for 240 days = $Rs. 100 \times 6\% \times \frac{240}{360}$ = Rs. 4.00

So, Clean Price = Rs. 101.30 – Rs. 4.00 = **Rs. 97.30**

Question 1(c) [5 Marks]:

M/s SKPD Ltd., employs certainty-equivalent approach in the evaluation of risky investments. The finance department of the company has developed the following information regarding a new project:

Year	Expected CFAT (Rs.)	Certainty-Equivalent Quotient
0 (Initial Outlays)	3,00,000	1.0
1	1,40,000	0.8
2	1,30,000	0.7
3	1,20,000	0.6
4	1,15,000	0.4
5	80,000	0.3

Following is the other information:

- (i) The firm's cost of equity capital is 18%
- (ii) Cost of debt is 9%
- (iii) Present risk-free rate of interest in the Market on the treasury bonds is 6%, which will rise by 200 basis points from 4th year onwards.

Year (t)	1	2	3	4	5
PVIF (6%, t)	0.943	0.890	0.840	0.792	0.747
PVIF (8%, t)	0.926	0.857	0.794	0.735	0.681

You are required to:

- (i) find out the viability of the project, and
- (ii) advise on the popularity of this method.

Solution

Question (i):

Year	Certain Cash Inflows (Rs.)	PV of Re. 1 @ 6%	PV of Certain Cash Inflows
1	1,40,000 X 0.8 = 1,12,000	0.943	1,05,616
2	1,30,000 X 0.7 = 91,000	0.890	80,990
3	1,20,000 X 0.6 = 72,000	0.840	60,480
4	1,15,000 X 0.4 = 46,000	0.777	35,742
5	80,000 X 0.3 = 24,000	0.720	17,280
Total PV of Cash Inflows			3,00,108
<u>Less:</u> Cash Outflows			3,00,000
Net Present Value			108

The Project almost breaks-even. While it is not profitable, it does not result in a loss. The company can consider investing in the project.

Note: The Present value of Re. 1 for Year 4 is: $\frac{0.840}{1.08} = 0.777$ and for Year 5 it would be $\frac{0.777}{1.08} = 0.720$.

Verification: If Rs. 0.720 is invested at the beginning of Year 1, by the end of Year 5 it would be: $0.720 \times 1.06 \times 1.06 \times 1.06 \times 1.08 \times 1.08 = \text{Re. } 1.00$

Question (ii):

A study conducted by Stanley Block titled “Are There differences in Capital Budgeting Procedures between Industries? An Empirical Study”, published in ‘The Engineering Economist’ in 2005 shows that among the Fortune 1000 Companies of the World, 2 Technology Companies, 1 Manufacturing Company, 3 Finance Companies, 4 Health Care Companies and 5 Utility Companies were found to be using ‘Certainty Equivalent Approach’ for making Capital Budgeting Decisions.

The usage of this method is very minimal on account of inability of business entities to clearly forecast the certainty equivalent quotient. The estimate can differ from person to person and from context to context. Hence, this method is not found to be helpful for practical adoption.

Question 1(d) [5 Marks]:

NM Limited (NML) is aspiring to enter the capital market in a three years’ time. The Board wants to attain the target price of Rs. 70 for its shares at the end of three years. The present value of its shares is Rs. 52.03. The dividend is expected to grow at a rate of 15% for the next three years. NML uses dividend growth model for its projections.

The required rate of return is 15%.

You are required to calculate the amount of dividend to be declared by the board in the base year so as to achieve the target price.

Period (t)	1	2	3
PVIF (15%, t)	0.8696	0.7561	0.6575

Solution

Value of Share = PV of Future Inflows.

The Present value of the Share is Rs. 52.03.

The expected price by the end of year 3 is Rs. 70.

While the dividends of next three years are not known, it is known that it grows @ 15% per annum.

Let Dividends for base year be D_0 .

Then,

Dividends for Year 1 will be $D_0 (1 + g)^1$ i.e., $D_0 (1 + 0.15)^1 = 1.15D_0$

Dividends for Year 2 will be $D_0 (1 + g)^2$ i.e., $D_0 (1 + 0.15)^2 = 1.3225D_0$

Dividends for Year 3 will be $D_0 (1 + g)^3$ i.e., $D_0 (1 + 0.15)^3 = 1.520875D_0$

PV of Future Inflows will be:

Year End	Future Cash Flows	PV of Re. 1 @ 15%	PV of Future Cash Flows
1	$1.15D_0$	0.8696	$1.00D_0$
2	$1.3225D_0$	0.7561	$1.00D_0$
3	$70 + 1.520875D_0$	0.6575	$46.025 + 1.00D_0$

So, Total PV of Cash Inflows = Rs. 46.025 + $3D_0$

Present Value of the Share = Rs. 52.03

$$\text{So, } 52.03 = \text{Rs. } 46.025 + 3D_0$$

$$3D_0 = \text{Rs. } 52.03 - \text{Rs. } 46.025 = \text{Rs. } 6.005$$

$$\text{So, } D_0 = \frac{\text{Rs. } 6.005}{3} = \text{Rs. } 2.00$$

So, the amount of dividend to be declared by the Board in the base year must be **Rs. 2.00 per share.**

Question 2 (a) [8 Marks]:

XL Limited (XLL) is considering a proposal to expand its plant capacity and is seriously considering equipment on lease for a period of three years. The CFO has advised that an amount of Rs. 15,78,039 will be available during the next three years. This amount can be utilised towards annual lease rent to be paid at the end of each year. However, this amount will be available in an increasing manner such that they are in the ratio of 1:2:3 over the next three years.

LF Limited (LFL), a leasing company, can provide the required equipment. Depreciation is to be charged at Written Down Value (WDV) basis at the rate of 20%. Marginal Income Tax Rate of LFL is 30%. The required rate of return is 12%.

Ignore salvage value.

You are required to calculate the cost of equipment (to be leased), which can be supported by the cash flow of XLL.

Period (t)	1	2	3
PVIF (12%, t)	0.893	0.797	0.712

Solution

Let 'X' be the 'Cost of the equipment' to be leased, which can be supported by the Cash Flow from XLL.

PV of 'After-Tax Lease Rentals' = 'Effective Cost' of the Equipment

Step 1: Calculation of Present Value of After-Tax Lease Rentals:

XLL has Rs. 15,78,039 to be paid as lease rent over the next 3 years in the ratio of 1:2:3.

Let, the rent for Year 1 be 'Y'. Then, Rent for Year 2 will be '2Y' and Rent for Year 3 will be '3Y'.

$$Y + 2Y + 3Y = \text{Rs. } 15,78,039$$

$$6Y = \text{Rs. } 15,78,039$$

$$\text{So, } Y = \text{Rs. } 2,63,006.50$$

Therefore, Lease Rent that XLL would pay is:

Year 1: Rs. 2,63,006.50

Year 2: Rs. 5,26,013.00

Year 3: Rs. 7,89,019.50

The tax rate applicable to LFL is 30%.

So, the 'After-Tax' lease rent receivable by LFL would be:

Year 1: Rs. 2,63,006.50 (1-0.3) = **Rs. 1,84,104.55**
Year 2: Rs. 5,26,013.00 (1-0.3) = **Rs. 3,68,209.10**
Year 3: Rs. 7,89,019.50 (1-0.3) = **Rs. 5,52,313.65**

Present Value of 'After-tax Lease Rent' receivable by LFF will be:

Year	After-tax Lease Rent (Rs.)	PV of Re. 1 @ 12%	PV of After-tax Lease Rent (Rs.)
1	1,84,104.55	0.893	1,64,405.36
2	3,68,209.10	0.797	2,93,462.65
3	5,52,313.65	0.712	3,93,247.32
			8,51,115.33

Step 2: Calculation of Effective Cost of the Equipment:

Effective Cost of the Equipment = Cost of the Equipment (-) PV of Tax Savings on account of Depreciation (-) PV of Salvage.

In the absence of information, it is assumed that there is not salvage for the equipment.

'X' is the Cost of Equipment.

Depreciation is 20% of Written Down Value.

So,

Depreciation for Year 1 = 20% of X = 0.20X

Depreciation for Year 2 = 20% of (X-0.2X) = 0.16X

Depreciation for Year 3 = 20% of (X - 0.2X - 0.16X) = 0.128X

Tax Rate is 30%

So, PV of Tax Savings on account of depreciation will be:

Year	Depreciation (Rs.)	Tax Savings on Depreciation @ 30%	PV of Re. 1 @ 12%	PV of Tax Savings on account of Depreciation (Rs.)
1	0.20X	0.06X	0.893	0.0535800X
2	0.16X	0.048X	0.797	0.0382560X
3	0.128X	0.0384X	0.712	0.0273408X
				0.1191768X

Effective Cost of the Equipment = X - 0.1191768X = **0.8808232X**

Step 3: Calculation of 'Cost of the Equipment'

PV of 'After-Tax Lease Rentals' = 'Effective Cost' of the Equipment

That is,

Rs. 8,51,115.33 = 0.8808232X

So, $X = \frac{\text{Rs. } 8,51,115.33}{0.8808232} = \text{Rs. } 9,66,272.61$

So, the Cost of the Equipment to be leased by LFL that can be supported by the Lease Rentals to be paid by XLL is **Rs. 9,66,272.61**

Question 2 (b) [8 Marks]:

An investor has recently purchased substantial number of 7-year, 6.75% Rs. 1000 bond with 5% premium payable on maturity at a required Yield to Maturity (YTM) of 9%. However, due to a financial crunch he is looking to sell these bonds and has got a proposal from another investor, who is willing to purchase these bonds by shelling out a maximum amount of Rs. 897 per bond. Investors follow intrinsic value method for valuation of bonds.

- (i) You are required to determine-
- (1) The Market Price, Duration and Volatility of the bond, and
 - (2) Required YTM of the new investor.
- (ii) What is the relationship between the price of the bond and YTM?

Period (t)	1	2	3	4	5	6	7
PVIF (9%,t)	0.917	0.842	0.772	0.708	0.650	0.596	0.547

Solution

Question (i)(1):

Year	Cash Inflows	PV of Re. 1 @ 9%	PV of Cash Inflows	Weight	Weight X Time
1	67.50	0.917	61.90	0.068	0.068
2	67.50	0.842	56.84	0.062	0.124
3	67.50	0.772	52.11	0.057	0.171
4	67.50	0.708	47.79	0.052	0.209
5	67.50	0.650	43.88	0.048	0.240
6	67.50	0.596	40.23	0.044	0.264
7	1117.5	0.547	611.27	0.669	4.681
			914.01	1	5.758
			P₀		Duration

$$\text{Volatility of the Bond or Modified Duration (MD)} = \frac{\text{Duration}}{(1+y)} = \frac{5.758}{(1+0.09)} = \mathbf{5.28}$$

Question (i)(2):

$$\text{Yield to New Investor} = \frac{C + \frac{(M-P)}{n}}{0.4M + 0.6P} = \frac{\text{Rs. } 67.50 + \frac{(\text{Rs. } 1050 - \text{Rs. } 897)}{7}}{0.4(1050) + 0.6(897)} = \frac{\text{Rs. } 89.36}{\text{Rs. } 958.20} = \mathbf{9.33\%}$$

Question (ii):

The price of the Bond and YTM (i.e., Required rate of return of the investor) are inversely related.

Question 3 (a) [12 Marks]:

SM Limited has a market capitalisation of Rs. 3,000 crore and the current earnings per share (EPS) is Rs. 200 with a price earnings ratio (PER) of 15. The Board of directors is considering a proposal to buy back 20% of the shares at a premium which can be supported by the financials of the company. The Board expects post buy-back market price per share (MPS) of Rs. 3,057. Post buy back PER will remain same. The company proposes to fund the buy back by availing 8% bank loan since available resources are committed for expansion plans.

Applicable income tax rate is 30%.

You are required to calculate:

- (i) The interest amount which can be paid for availing the bank loan,
- (ii) The loan amount to be raised, and
- (iii) The premium per share and percentage premium paid over the current MPS.

Solution

Question (i):

Earnings per Share: Rs. 200

PE Ratio = 15

So, Current Market Price per share = EPS X PE Ratio = Rs. 200 X 15 = Rs. 3000

Present Market Capitalisation: Rs. 3000 Crores

Therefore, Number of Shares = Market Capitalisation / Market Price per Share
= Rs. 3000 Crores / Rs. 3000
= 1 Crore Shares or 100 Lakh Shares

Present Earnings After Tax = No. of Shares X EPS = 100 Lakh X Rs. 200 = Rs. 20000 Lakhs

Present Earnings Before Tax = $\frac{\text{Earnings After Tax}}{(1-T)} = \frac{\text{Rs. 20,000 Lakhs}}{(1-0.3)} = \text{Rs. 28,571.429 Lakhs}$

No. of Shares proposed to be bought back: 20% of 100 Lakh Shares = 20 Lakh Shares

No. of Shares post buy-back = 100 Lakh – 20 Lakh = 80 Lakh Shares

Expected Market Price post buy-back: Rs. 3,057 per share

Expected PE Ratio post buy-back = same as present PE Ratio = 15

So, Earnings per Share post buy-back = $\frac{\text{Market Price per Share}}{\text{PE Ratio}} = \frac{\text{Rs. 3,057}}{15} = \text{Rs. 203.80}$

Expected Earnings After Tax Post buy-back = No. of Shares X EPS = 80 Lakh X Rs. 203.80
= Rs. 16,304 Lakhs

Expected Earnings Before Tax post buy-back = $\frac{\text{Earnings After Tax}}{(1-T)} = \frac{\text{Rs. 16,304 Lakhs}}{(1-0.3)} = \text{Rs. 23,291.429 Lakhs}$

Therefore, Interest amount that can be paid towards Bank Loan is-

Rs. 28,571.429 Lakhs (-) Rs. 23,291.429 Lakhs = **Rs. 5280 Lakhs**

Question (ii):

Rate of interest at which loan can be borrowed: 8%

Amount of interest that can be paid: Rs. 5280 Lakhs

Therefore, the Loan amount to be raised = $\frac{\text{Rs. 5,280 Lakhs}}{0.08} = \text{Rs. 66,000 Lakhs}$

Question (iii):

Loan amount that can be borrowed for buy-back: Rs. 66,000 Lakhs.

So, amount available for buy-back of Shares: Rs. 66,000 Lakhs

Number of shares proposed to be bought back: 20 Lakhs

Therefore, buy-back price per share = $\frac{\text{Rs. 66,000 Lakhs}}{20 \text{ Lakh Shares}} = \text{Rs. 3,300.}$

Current market price per share: Rs. 3,000.

Premium paid over current market price: Rs. 3,300 – Rs. 3,000 = **Rs. 300 per share**

Percentage of premium over current market price = $\frac{\text{RS. 300}}{\text{RS. 3000}} \times 100 = 10\%$

Question 3 (b) [4 Marks]:

Aggressive Ltd., is proposing to fund its expansion plan of Rs. 12 Crore by making a rights issue. The current market price (CMP) is Rs. 40. The Board is willing to offer a discount of 20% on the CMP for the rights issue. The Board is also desirous that the fall in Ex-right price of the shares be restricted to 10% of CMP.

You are required to calculate:

- (i) The number of new equity shares to be offered for each rights held,
- (ii) Theoretical value of right, and
- (iii) The total number of equity shares to be issued.

Solution

Question (i)

Post right-issue price per share = $\frac{(\text{Value of Existing Shares} + \text{Issue Value of Rights Shares})}{\text{Total Shares after Rights Issue}}$

Current Market Price per Share is Rs. 40

Issue Price of Right Shares: Rs. 40 – Discount of 20% = Rs. 40 – Rs. 8 = Rs. 32.

The Fall in Post Right-issue price per share should be restricted to 10% of Current Market Price.

So, Post Right-issue price per share = Rs. 40 – 10% of Rs. 40 = Rs. 40 – Rs. 4 = Rs. 36

Let 'N' be the Number of Shares to be offered for each Share held.

Then,

$$\text{Rs. 36} = \frac{(1 \times \text{Rs. 40} + N \times \text{Rs. 32})}{1+N}$$

$$36 + 36N = 40 + 32N$$

$$36N - 32N = 40 - 36$$

$$4N = 4$$

$$N = 1$$

Therefore, No. of Right Shares to be offered for each Share held = **1**

That is, the Ratio of Rights issue is **1:1**

Question (ii):

Theoretical Value of Right Share

= Post right-issue price per share (-) Issue Price of Right Shares

= Rs. 36 – Rs. 32 = **Rs. 4.00**

Question (iii):

Total Number of Equity Shares to be issued = $\frac{\text{Funds to be mobilised by issue of Right Shares}}{\text{Issue Price}}$

= Rs. 12,00,00,000 / Rs. 32

= **3,75,000 Shares**



VITTAM PRAVINA GURUSHALA

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Question 4 (a) [12 Marks]:

M/s Poor Ltd., (PL) has logged in a credit sales of Rs. 6 Crore for the year ended 31st March, 2021. The receivables are 15% of credit sales. The average financing cost of receivables is 5%. Administration cost and Bad debts, on an average, amount to 2% and 7% of the receivables respectively. PL, as per an internal assessment, expects that the Bad debts may rise to 10% of the receivables in the coming year.

PL is actively looking for a factor who can undertake management of credit administration on non-recourse basis. Factor, as per industry norms, will maintain a receivable collection period of 30 days and keeps a reserve of 20% of the receivables. The Factor charges an interest rate of 7% per annum of the advances.

You are required to advise

- The maximum amount which PL can offer as the commission to the Factor,
- Whether a deal can be structured, if Factor requires a commission of 2.5% on the credit sales,
- Whether a deal is possible by negotiation wherein PL may offer extra commission due to savings on account of probable increase in Bad debts and the Factor, who is also eager to get business offers a 20% discount on its commission.

Solution

Question (i):

Credit Sales for the year: Rs. 6,00,00,000

Estimated Receivables: Rs. 6,00,00,000 X 15% = Rs. 90,00,000

Estimated Receivables under Factoring arrangement = Rs. 6,00,00,000 X 30 days / 365 days
= Rs. 49,31,507

Reduction in Receivables if Factoring arrangement is considered = **Rs. 40,68,493**

Savings on account of Factoring:

	Rs.
Reduction in Finance Costs (Rs. 40,68,493 X 5%)	2,03,425
Savings in Administration Costs (2% of Rs. 90,00,000)	1,80,000
Savings in Bad Debts (7% of Rs. 90,00,000)	6,30,000
Total Savings	10,13,425

Cost of Factoring:

	Rs.
Interest on Advance by Factor (Rs. 49,31,507 X 80% X 7%)	2,76,164
<u>Less: Interest on overdraft</u> (Rs. 49,31,507 X 80% X 5%)	1,97,260
Net Interest	78,904

Net Savings on account of Factoring = Rs. 10,13,425 – Rs. 78,904 = **Rs. 9,34,521**

Therefore, the maximum commission that can be offered by PL is **Rs. 9,34,521**

Question (ii):

If the Factor requires a commission of 2.5% on Credit Sales, then the commission payable on Factoring will be: Rs. 60,00,00,000 X 2.5% = Rs.15,00,000
Maximum Commission that PL can afford to pay: Rs. 9,34,521.

Since, the required commission is too very high as compared to the amount that can be offered, **the factoring deal cannot be structured.**

Question (iii):

Present bad debts: 7% of Receivables.
Potential bad debts: 10% of Receivables.

Additional bad debts possible: 3% of Rs. 90,00,000 = Rs. 2,70,000.
This will be the additional savings if factoring arrangement is entered.

So, maximum commission that PL can offer considering the savings in additional bad debts = Rs. 9,34,521 + Rs. 2,70,000 = **Rs. 12,04,521.**

If Factor offers a 20% discount in commission, then the Commission payable will be:
Rs. 6,00,00,000 X 2.5% X 80% = **Rs. 12,00,000**

Since, the commission payable is within the maximum commission that can be offered by PL, **the deal can be structured.**

Question 4 (b) [4 Marks]:

M/s Strong an AMC has floated a dividend bonus plan on 1st April 2016 at a certain net asset value (NAV). The fund has a robust growth and has declared a bonus of 1:5 (1 bonus unit for 5 right units held) on 30th September, 2017 and a second bonus of 1:4 (1 bonus unit for 4 right units held) on 30th September 2019. The fund, as on 31st March 2021, has generated an average yield of 17.5%.

Mr. Optimistic has made an investment of Rs. 16 Lakhs in the plan before the declaration of the first bonus and remain invested thereafter.

The following information is also available:

Date	01.04.2016	30.09.2017	30.09.2019	31.03.2021
NAV (Rs.)	?	85	92	100

You are required to advise to Mr. Optimistic the opening NAV, which is required by him to calculate the capital appreciation.

Solution

In Case of Bonus Plan,

$$\text{Annualised Yield} = \frac{\text{Value}_1 - \text{Value}_0}{\text{Value}_0} \times 100 \times \frac{12 \text{ Months}}{N}$$

Annualised Yield = 17.5%

Value₁ = Value of Investment on 31.03.2021 = ?

Value₀ = Value of Investment made = Rs. 16,00,000

N = Period of Investment = 1st April 2016 to 31st March 2021 = 5 years or 60 months

So,

$$17.5 = \frac{\text{Value}_1 - \text{Rs. } 16,00,000}{\text{Rs. } 16,00,000} \times 100 \times \frac{12 \text{ Months}}{60 \text{ Months}}$$

Therefore,

$$\text{Value}_1 = \left[17.5 \times \frac{60}{12} \times \frac{1}{100} \times 16,00,000 \right] + 16,00,000 = \text{Rs. } 30,00,000$$

So, the Value of Investments of Mr. Optimistic in the Dividend Bonus Plan on 31st March 2021 is Rs. 30,00,000.

NAV on 31st March 2021 is Rs. 100.

$$\text{Hence, Number of units held by Mr. Optimistic on 31.03.2021 is } \frac{\text{Rs. } 30,00,000}{\text{Rs. } 100} = 30,000$$

Let 'X' be the number of units purchased by Mr. Optimistic on 01.04. 2016

The first bonus issue was made on 30th September 2017 in the ratio of 1:5

So, number of units with Mr. Optimistic after first bonus issue = $[X + 1/5(X)] = 1.20X$

The second bonus issue was made on 30th September 2019 in the ratio of 1:4

So, number of units with Mr. Optimistic after second bonus issue = $[1.2X + 1/4(1.2X)] = 1.5X$

Hence, as on 31st March 2021, the number of units with Mr. Optimistic is 1.5X

Actual Number of units held by Mr. Optimistic on 31.03.2021 is 30,000.

That is, $1.5X = 30,000$

So, $X = 30,000 / 1.5 = 20,000$.

The Number of units purchased by Mr. Optimistic on 01.04.2016 was 20,000.

Amount invested was Rs. 16,00,000.

$$\text{Therefore, NAV on 01.04.2016} = \frac{\text{Rs. } 16,00,000}{20,000 \text{ units}} = \text{Rs. } 80 \text{ per unit}$$

Question 5 (a) [10 Marks]:

Mr. X is having 1 lakh shares of M/s Kannyaka Ltd. The beta of the company is 1.40.

Mr. Y a financial advisor has suggested having the following portfolio:

Security	Beta	% holding
S	1.20	10
K	0.75	10
P	0.40	30
D	1.40	50
		100

Market Return is 12%

Risk free rate is 8%

You are required to calculate the following for the present investment and suggested portfolio:

(i) What is the expected return based on CAPM and also,

- (1) If the market goes up by 2.5%
- (2) If the market goes down by 2.5%
- (3) If the market gives Negative Returns of 2.5%

- (ii) If the probability of market giving negative return is more, please advise Mr. X, whether to continue the holdings of M/s. Kannyaka Ltd., or to buy the portfolio as per the suggestion of Mr. Y. If so, why?

Solution

Calculation of Portfolio Beta:

Security	Weight	Beta	W x Beta
S	0.10	1.20	0.120
K	0.10	0.75	0.075
P	0.30	0.40	0.120
D	0.50	1.40	<u>0.700</u>
Portfolio Beta			1.015

Question (i):

$$R_{CAPM} = R_f + \beta(R_m - R_f)$$

Under Present Situation:

For Investment in Kannyaka: $R_{CAPM} = 8\% + 1.40(12\% - 8\%) = \mathbf{13.6\%}$

For Investment in Portfolio: $R_{CAPM} = 8\% + 1.015(12\% - 8\%) = \mathbf{12.06\%}$

If Market goes up by 2.5% (i.e., if Market Return is 14.5%)

For Investment in Kannyaka: $R_{CAPM} = 8\% + 1.40(14.5\% - 8\%) = \mathbf{17.1\%}$

For Investment in Portfolio: $R_{CAPM} = 8\% + 1.015(14.5\% - 8\%) = \mathbf{14.6\%}$

If Market goes down by 2.5% (i.e., if Market Return is 9.5%)

For Investment in Kannyaka: $R_{CAPM} = 8\% + 1.40(9.5\% - 8\%) = \mathbf{10.10\%}$

For Investment in Portfolio: $R_{CAPM} = 8\% + 1.015(9.5\% - 8\%) = \mathbf{9.52\%}$

If Market gives a negative return of 2.5%

For Investment in Kannyaka: $R_{CAPM} = 8\% + 1.40(-2.5\% - 8\%) = \mathbf{-6.7\%}$

For Investment in Portfolio: $R_{CAPM} = 8\% + 1.015(-2.5\% - 8\%) = \mathbf{-2.66\%}$

Question (ii):

When the probability of market giving negative returns is high, it is advisable to have investments with lower beta since the erosion in the value of investment will be relatively lower. Hence, in this case it is advisable to invest in 'portfolio' of stocks as suggested by Mr. Y rather than holding shares of Kannyaka Ltd.

Question 5 (b) [6 Marks]:

M/s Raghu Ltd., is interested in expanding its operation and planning to install manufacturing plant at US. It requires 8.82 million USD (net of issue expenses / flotation cost) to fund the proposed project. GDRs are proposed to be issued to finance this project. The estimated flotation cost of GDRs is 2%.

Additional information:

- (i) Expected market price of share at the time of issue of GDR is Rs. 360 (Face Value Rs. 100)
 - (ii) Each GDR will represent two underlying shares.
 - (iii) The issue shall be priced at 10% discount to the market price.
 - (iv) Expected exchange rate is INR/USD 72.
 - (v) Dividend is expected to be paid at the rate of 20% with growth rate of 12%.
- (1) You, as a financial consultant, are required to compute the number of GDRs to be issued and the cost of the GDR.
- (2) What is your suggestion if the company receives an offer from a US Bank willing to provide an equivalent loan with an interest rate of 12%?
- (3) How much company can save by choosing the option as recommended by you?

Solution

Question (1):

Net Issue: 8.82 Million USD

Gross Issue: 8.82 Million USD / 0.98 = 9 Million USD

Domestic Price per Share: Rs 360

Issue Price per Share for GDR (in Rs): Rs. 360 X 90% = Rs. 324

No. of Shares underlying in each GDR: 2

Issue price per GDR is \$ = (Rs. 324 X 2) / Rs. 72 = 9 USD

Number of GDRs to be issued: 9 Million USD / 9 USD = **1 Million**

$$\text{Cost of GDR} = \frac{D_1}{P_0} + g$$

Face Value per Share is Rs. 100. Dividend per Share is Rs. 20 (@ 20%). Hence, Dividend per GDR = Rs. 20 X 2 = Rs. 40.

Issue price of GDR (net of issue expenses) in Rs. = Rs. 324 X 2 = Rs. 648 X 98% = Rs. 635.04

Growth rate = 12%

$$\text{So, Cost of GDR} = \frac{\text{Rs. 40}}{\text{Rs. 635.04}} + 0.12 = 0.1830 = \mathbf{18.30\%}$$

Question (2):

If the company receives an offer from a US Bank for providing a loan at an interest rate of 12%, it is advisable for the company to accept it since it is cheaper than the cost of raising funds issuing GDR.

Question (3):

If the above recommendation is considered, there will be saving of 6.3% [i.e., 18.3% - 12%] in the cost of funding the expansion.

Question 6 (a) [10 Marks]:

On 1st October, 2020 Mr. Guru, an exporter, enters into a forward contract with the Bank to sell USD 1,00,000 on 31st December 2020 at INR/USD 75.40. However, at the request of the importer, Mr. Guru received the amount on 30th November, 2020. Mr. Guru requested the bank take delivery of the remittance on 30th November, 2020 i.e., before due date.

The inter-bank rate on 30th November 2020 was as follows:

Spot: INT/USD 75.22 – 75.27

One Month Premium: 10/15

Assume 365 days in a year.

- (1) If bank agrees to take early delivery, then what will be the net inflow to Mr. Guru assuming that the prevailing prime lending rate is 18% per annum.
- (2) If Mr. Guru can deploy these funds in USD, he gets return at the rate of 3% per annum. Which is better? Why?

Solution

Question (1):

	INR
Guru has to receive (100000 USD X Rs. 75.40)	75,40,000.00
Guru has to pay:	
Interest on Outlay of Funds	
[(Rs. 75.22 – Rs. 75.40) X 100000 USD X 18% X 31/365]	(275.18)
Swap Loss	
[(Rs. 75.22 – Rs. 75.42) X 1,00,000 USD]	(20000.00)
	75,19,724.82

Note: Bank has to enter into a one-month forward for buying 100000 USD @ Rs. 75.42 (i.e., 75.27 + 0.15).

Question (2):

In Case Guru deploys the funds received early in USD @ 3% per annum, then,

Amount deployed on 30 th November 2020:	1,00,000.00 USD
Interest for 31 Days @ 3%	
(1,00,000 USD X 3% X 31/365)	254.79 USD
Total Amount realisable on 31 st December 2020	1,00,254.79 USD

Amount of INR Realisable:

1,00,000 USD at Forward Contract Rate of 74.50 INR / USD	75,40,000.00 INR
254.70 USD at Spot Rate on 31.12.2020 [75.22 + 0.10] INR / USD (254.79 INR X 75.32 INR / USD)	19,190.78 INR

Total Receipt in INR **74,59,590.78 INR**

The Inflows being high in case of deployment of early receipts in USD than early execution of the Forward Contract, it is advisable for Guru to deploy the funds in USD.

Question 6 (b) [6 Marks]:

Mr. Mammen, an Indian investor invests in a listed bond in USA. If the price of the bond at the beginning of the year is USD 100 and it is USD 103 at the end of the year. The coupon rate is 3% payable annually.

Find the return on investment in terms of home country currency, if:

- (i) USD is Flat.
- (ii) USD appreciates during the year by 3%
- (iii) USD depreciates during the year by 3%
- (iv) Indian Rupee appreciates during the year by 5%
- (v) Will your answer differ if Mr. Mammen invests in the bond just before the interest is payable?

Solution

$$\text{Return on Investment in Bond} = \frac{C + (P_1 - P_0)}{P_0}$$

P_0 = Price of the Bond at the beginning of the year (100\$)

P_1 = Price of the Bond at the end of the year (103\$)

C = Coupon for the year = 3% of Face Value. Assuming Price at the beginning of the year as Face Value, Coupon for the year is 3% of 100\$ = 3\$

Assuming (INR/USD) at the beginning of the year as Rs. 70.

Situation (i): if USD is Flat

P_0 = 100\$ X Rs. 70 per \$ = Rs. 7000

P_1 = 103\$ X Rs. 70 per \$ = Rs. 7210

C = 3\$ X Rs. 70 per \$ = Rs. 210

$$\text{So, Return on Investment} = \frac{\text{Rs. 210} + (\text{Rs. 7210} - \text{Rs. 7000})}{\text{Rs. 7000}} = 0.06 = \mathbf{6\%}$$

Situation (ii): If USD Appreciates by 3% during the year:

If USD appreciates by 3% during the year, (INR/USD) at the end of the year = 72.10

Then,

P_0 = 100\$ X Rs. 70.00 per \$ = Rs. 7000

P_1 = 103\$ X Rs. 72.10 per \$ = Rs. 7426.30

C = 3\$ X Rs. 72.10 per \$ = Rs. 216.30

$$\text{So, Return on Investment} = \frac{\text{Rs. } 216.30 + (\text{Rs. } 7426.30 - \text{Rs. } 7000)}{\text{Rs. } 7000} = 0.0918 = \mathbf{9.18\%}$$

Situation (iii): If USD Depreciates by 3% during the year

If USD depreciates by 3% during the year, (INR/USD) at the end of the year = 67.90

Then,

$$P_0 = 100\$ \times \text{Rs. } 70.00 \text{ per } \$ = \text{Rs. } 7000$$

$$P_1 = 103\$ \times \text{Rs. } 67.90 \text{ per } \$ = \text{Rs. } 6993.70$$

$$C = 3\$ \times \text{Rs. } 67.90 \text{ per } \$ = \text{Rs. } 203.70$$

$$\text{So, Return on Investment} = \frac{\text{Rs. } 203.70 + (\text{Rs. } 6993.70 - \text{Rs. } 7000)}{\text{Rs. } 7000} = 0.0282 = \mathbf{2.82\%}$$

Situation (iv): If Indian Rupee appreciates by 5% during the year:

(INR/USD) has been assumed as '70' at the beginning of the year.

$$\text{So, (USD/INR) at the beginning of the year will be } \frac{1}{70} = 0.0142857$$

If INR appreciates by 5% during the year, (USD/INR) at the end of the year will be:
 $0.0142857 \times 1.05 = 0.014999$ or 0.015

$$\text{Then, (INR/USD) at the end of the year will be } \frac{1}{0.015} = 66.67$$

Then,

$$P_0 = 100\$ \times \text{Rs. } 70.00 \text{ per } \$ = \text{Rs. } 7000$$

$$P_1 = 103\$ \times \text{Rs. } 66.67 \text{ per } \$ = \text{Rs. } 6867.01$$

$$C = 3\$ \times \text{Rs. } 66.67 \text{ per } \$ = \text{Rs. } 200.01$$

$$\text{So, Return on Investment} = \frac{\text{Rs. } 200.01 + (\text{Rs. } 6867.01 - \text{Rs. } 7000)}{\text{Rs. } 7000} = 0.0096 = \mathbf{0.96\%}$$

Situation (v): If Investment is made just before the interest is payable

Just before interest is payable, the price of the bond in the market will be 'cum-interest price'.
So, the price of the bond before interest is payable will be 103\$ (i.e., Face Value 100\$ + Interest outstanding 3\$). The price of the bond at the end of the year is also 103\$.

Hence, Mammen will have return only in the form of 'Coupon', since the Capital Gain Yield will be Nil.

Therefore, in all the situations given above, the Coupon Rate of **3%** will be the Return on Investment.

Question 7 (a) [4 Marks]:

Unrelated companies come together to form an entity. What this relationship is called? Discuss briefly the features of this entity.

Answer

Unrelated companies getting together and forming an entity is called 'Conglomerate Merger.' In a Conglomerate Merger, the business activities of acquirer and the target are neither related to each other horizontally (i.e., producing same or competing products) not vertically (having relationship of buyer and seller).

In a pure conglomerate merger, there are no important common factors between the companies in production, market, research and development, and technology. There may be however some degree of overlapping in one or more of these common factors. Such mergers are in fact, unification of different kinds of business under one flagship company. The purpose of merger remains utilisation of financial resources, enlarged debt capacity and also synergy of managerial functions.

Question 7 (b) [4 Marks]:

Investors are the lifeline of the capital markets. Who are the other participants giving lifeline to capital markets? Discuss briefly any one.

Answer

Investors are the lifeline of any capital market. Investors belong to various categories such as retail investors, institutional investors like Mutual Funds, Insurance Companies and FPIs. However, apart from investors, effective functioning of capital markets depend on the following participants:

1. **Stock Exchange:** Stock Exchange is a place where securities issued by issuer companies are listed and traded. The term is synonymously used for secondary market.
2. **Depository:** A Depository is an organisation which holds the securities (like shares, bonds, mutual fund units, government securities etc.) of investors in electronic form at the request of the investors through a registered Depository Participant. It also provides services related to transactions in Securities. In India there are two Depositories viz., National Securities Depository Limited (NSDL) and Central Depository Service (India) Limited (CDSL).
3. **Intermediaries:** Intermediaries are those entities which offer various services in relation to the capital markets. There are various categories of intermediaries such as stock brokers, merchant bankers, underwriters etc.

Question 7 (c) [4 Marks]:

“Liquidity is the effectiveness of working capital management, corporate policies for stock and creditors, management and ability of the corporate to meet their commitment in the short run.” This is one of the ingredients in credit rating analysis. What are the other ingredients of the model? Discuss briefly.

Answer

Credit rating refers to an expression of opinion of a rating agency with regard to a debt instrument, as on a specific date, on the basis of risk-evaluation of the issuer of the debt instrument and the probability of timely payment of principal and interest.

Credit rating agencies adopt various models for evaluating the risk of an entity. One such model which calls for special mention is CAMEL Model. The Model evaluates a business entity on the basis of five factors viz., **Capital Adequacy**, **Asset Quality**, **Management Quality**, **Earnings Quality** and **Liquidity**.

The other ingredients of the Model, other than Liquidity, are explained below:

1. **Capital Adequacy:** Composition of Retained Earnings and External Funds raised; Fixed dividend component for preference shares and fluctuating dividend component for equity shares and adequacy of long-term funds adjusted to gearing levels; ability of issuer to raise further borrowings.
2. **Asset Quality:** Revenue generating capacity of existing / proposed assets, fair values, technological / physical obsolescence, linkage of asset values to turnover, consistency, appropriation of methods of depreciation and adequacy of charge to revenues. Size, ageing and recoverability of monetary assets viz receivables and its linkage with turnover.
3. **Management Quality:** Extent of involvement of management personnel, team-work, authority, timeliness, effectiveness and appropriateness of decision making along with directing management to achieve corporate goals.
4. **Earnings Quality:** Absolute levels, trends, stability, adaptability to cyclical fluctuations ability of the entity to service existing and additional debts proposed.

Question 7 (d) [4 Marks]:

There exists a vast difference between project and Parent Cash flow? What are these factors? Briefly discuss.

Answer

In Case of evaluating a project, ‘Cash Flows’ (i.e., Cash Profits on hand) are considered, while in case of the firm as a whole (i.e., the parent), ‘Free Cash Flows to the Firm’ (i.e., Profits available to shareholders after making re-investments) are considered.

‘Cash Flows’ are calculated in the following manner:

Net Operating Profits After Tax (NOPAT) + Depreciation.

‘Free Cash Flows to the Firm (FCFF)’ are calculated in the following manner:

$\text{NOPAT} + \text{Depreciation} (-) \text{Gross Capital Expenditure} (+/-) \text{Change in Working Capital} + \text{After-tax Non-operating Incomes (excluding income from investments)}$.

So, the three differentiating factors between 'project cash flow' and 'parent cash flow' are:

1. Gross Capital Expenditure.
2. Changes in Working Capital.
3. After-tax Non-operating Incomes.

'Gross Capital Expenditure' refers to 'investment made in Non-Current assets' during the year, towards growth and expansion of the business.

'Changes in Working Capital' refers to increase or decrease in the working capital requirements of the company in proportion to business activities of the firm. Working Capital refers to the capital required for the day-to-day operations and is ascertained by calculating the excess of current assets over current liabilities. An increase in working capital in any year as compared to previous year is an application of profits which must be deducted, while a decrease in working capital represents recovery of funds and hence must be added, in calculation of FCFF.

'After-tax Non-operating Incomes' is another component which is considered while calculating FCFF, but not considered for ascertaining Project cash flows. All non-operating incomes (adjusted for tax) must be considered, excluding any income from investments.

Question 7 (e) [4 Marks]:

"Cross-Border M & A is a popular route for global growth and overseas expansion." Do you agree or disagree? Justify your stand.

Answer

Cross-border M&A is a popular route for global growth and overseas expansion. Cross-border M&A is also playing an important role in global M&A. This is especially true for developing countries such as India, particularly in terms of technology, product profiles, product mix and good management.

The major factors that motivate multinational companies to engage in cross-border M&A includes the following:

- Globalisation of production and distribution of products and services.
- Integration of global economies
- Expansion of trade and investment relationships on international level
- Many countries are reforming their economic and legal systems, and providing generous investment and tax incentives to attract foreign investment
- Privatization of state-owned enterprises and consolidation of the banking industry.