

**CA FINAL - STRATEGIC FINANCIAL MANAGEMENT
MAY 2022 EXAM PAPER – SUGGESTED ANSWERS**

Question 1(a) [8 Marks]:

M/s Daksh Limited is planning to import multipurpose machine from USA at a cost of \$15000. The company can avail loans at 19% interest per annum with quarterly rests with which it can import the machine. However, there is an offer from New York branch of an Indian based bank extending credit of 180 days at 2% per annum against opening of an irrevocable letter of credit.

Other information:

Spot rate US\$ 1 = Rs. 75

180-day forward rate US \$ 1 = Rs. 77

Commission charges for letter of credit at 2% per 12 months.

(i) Justify why the offer from the foreign branch should be accepted?

(ii) Based on the present market condition it is not interested to take the risk of currency fluctuations and wanted to hedge with an additional expense of Rs. 30,000. If so, what is your advice to the company?

Assume 360 days in the year.

Solution

Question (i)

1. If loan is availed for purchase of the machine

Cost of the Machine:	\$15000
Spot Rate:	US\$1 = Rs. 75
Amount of loan to be borrowed:	\$15000 X Rs. 75/\$ = Rs. 11,25,000
Rate of Interest:	19% p.a with quarterly rests
Amount Repayable after 180 days is-	

$$\begin{aligned}
 \text{Loan Amount} \times \left(1 + \frac{i}{f}\right)^{n \times f} &= \text{Rs. } 11,25,000 \times \left(1 + \frac{0.19}{4}\right)^{0.5 \times 4} \\
 &= \text{Rs. } 11,25,000 \times (1 + 0.0475)^2 \\
 &= \text{Rs. } 12,34,413.28
 \end{aligned}$$

So, Total Cash Outflow after 180 days = **Rs. 12,34,413.28**

2. If the offer of foreign branch is accepted

Amount to be borrowed towards Commission for Letter of Credit (\$15000 X Rs. 75 X 2% X 180/360)	Rs. 11,250
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Amount payable after 180 days-

	Rs.
Towards Cost of Machine: [\$15000 + (\$15000 X 2% X 180/360)] X Rs. 77 per \$	11,66,550.00
Towards loan borrowed for Commission: $\text{Rs. } 11,250 \times \left(1 + \frac{0.19}{4}\right)^{0.5 \times 4}$	12,344.13
	11,78,894.13

So, Total Cash Outflow after 180 days = **Rs. 11,78,894.13**

Net savings in cash outflow if the offer of Foreign Branch is accepted will be-
(Rs. 12,34,413.28 – Rs. 11,78,894.13) = **Rs. 55,519.15**

Hence, it is advisable to accept the offer of the Foreign Branch.

Question (ii)

Hedging for an additional cost of Rs. 30,000 can be considered since the net savings after adjusting the cost will still be a substantial amount of **Rs. 25,519.15** [i.e., Rs. 55,519.15 (-) Rs. 30,000]

Question 1(b) [8 Marks]:

You had purchased a 3-month call option on the Equity shares of Satya Ltd., for a premium of Rs. 30 each, the current market price of the share is Rs. 560 and the exercise price is Rs. 590. You expect the price range between Rs. 540 and Rs. 640.

The expected price range of Satya Ltd., and related probability is given below:

Expected Price (Rs.)	540	560	580	600	620	640
Probability	0.10	0.15	0.05	0.35	0.20	0.15

Compute the following:

- Expected share price at the end of 3 months
- Value of call option at the end of 3 months, if the exercise price prevails,
- In case the option is held to its maturity, what will be the expected value of the call option?
- Find out the price of the shares quoted on the stock exchange to get the value of call option as computed in (iii) above.

Solution

Question (i):

Stock Price (Rs.)	Probability	Price X Probability
540	0.10	54.00
560	0.15	84.00
580	0.05	29.00
600	0.35	210.00
620	0.20	124.00
640	0.15	96.00
Expected Stock Price		597.00

Question (ii):

If exercise price prevails i.e., if the price of stock after 4 months is same as exercise price. Then, Value of Call Option will be zero.

Or

$$\text{Value of Call Option} = [\text{Max}(S-E, 0)] = [\text{Max}(590-590, 0)] = 0$$

Question (iii):

Value of Call Option = $[\text{Max}(S-E, 0)]$

Exercise Price is Rs. 590.

Stock Price (S) (Rs.)	Value of Call Option (Rs.)	Probability	Value X Probability
540	0	0.10	0
560	0	0.15	0
580	0	0.05	0
600	10	0.35	3.50
620	30	0.20	6.00
640	50	0.15	7.50
Expected Value of Call Option			17.00

Question (iv):

If the value of call option on exercise date must be Rs. 17.00, the price of the stock on the exercise date must be =

Exercise Price + Required Value
= Rs. 590 + Rs. 17 = **Rs. 607**

Question 1(c) [4 Marks]:

What is the Net Interest Position risk and price risk?

Answer

Net Interest Position Risk:

The size of non-paying liabilities is one of the significant factors contributing to towards profitability of banks. Where banks have more earnings assets than paying liabilities, interest rate risk arises when the market interest rates adjust downwards. Thus, banks with positive net interest positions will experience a reduction in Net Interest as the market interest rate declines and increases when interest rate rises. Thus, large float is a natural hedge against the variations in interest rates.

Price Risk:

Price risk occurs when assets are sold before their stated maturities. In the financial market, bond prices and yields are inversely related. The price risk is closely associated with the trading book, which is created for making profit out of short-term movements in interest rates. Banks which have an active trading book should, therefore, formulate policies to limit the portfolio size, holding period, duration, defeasance period, stop-loss limits, marking to market etc.

Question 2(a) [8 Marks]:

Mr. D has invested in the three mutual funds (MF) as per the following details:

	Mutual Fund 'A'	Mutual Fund 'B'	Mutual Fund 'C'
Amount of Investment (Rs.)	2,00,000	5,00,000	4,00,000
Net Assets Value at the time of purchase (Rs.)	10.00	25.00	20.00
Dividend Yield up to 30.03.2022	3%	5%	4%
NAV as on 30.03.2021 (Rs.)	10.50	22.80	20.80
Annualise Yield as on 31.03.2022	9.733%	-11.185%	15%

Assume 1 year = 365 days.

Mr. D has misplaced the documents of his investments.

You are required to help Mr. D to find out the following:

- (i) Number of units allotted in each scheme
- (ii) Value of his investments as on 31.03.2022
- (iii) Holding period of his investments in number of days as on 31.03.2022
- (iv) Dates of original investments
- (v) Total return on investments.
- (vi) Assuming past performance of all three schemes will continue for next one year, what action the investor should take? What will be the expected return for the next one year after the above action?
- (vii) Will your answer as point no.(vi) changes if the Mutual fund charges exit load of 5% if the investment is redeemed within one year? If so, advise the investor what and when the action to be taken to optimise the returns.

Solution

Questions (i), (ii) and (v):

	Mutual Fund 'A'	Mutual Fund 'B'	Mutual Fund 'C'
Amount of Investment (Rs.)	2,00,000	5,00,000	4,00,000
NAV at the time of purchase (Rs.)	10.00	25.00	20.00
Number of units allotted	20,000	20,000	20,000
NAV per unit on 31.03.2022	10.50	22.80	20.80
Total NAV on 31.03.2022 [i.e., Value of Investments on 31.03.2022]	2,10,000	4,56,000	4,16,000
Dividends Received (Rs.) [Amount of Investment X Dividend Yield]	6,000	25,000	16,000
Total Yield [Dividends + (Total NAV at the end of the period - Amount of Investment)]	16,000	-19,000	32,000

Questions (iii): Holding period of investments as on 31.03.2022

$$\text{Annualised Return or Yield} = \frac{D1 + CG1 + (NAV1 - NAV0)}{NAV0} \times 100 \times \frac{365 \text{ Days}}{N}$$

So,

$$N = \frac{D1 + CG1 + (NAV1 - NAV0)}{NAV0} \times \frac{100}{\text{Annualised Yield}} \times 365$$

In Case of Mutual Fund A:

$$N = \frac{\text{Rs. } 16,000}{\text{Rs. } 2,00,000} \times \frac{100}{9.733} \times 365 = \mathbf{300 \text{ days}}$$

In Case of Mutual Fund B:

$$N = \frac{\text{Rs. } (19,000)}{\text{Rs. } 5,00,000} \times \frac{100}{-11.185} \times 365 = \mathbf{124 \text{ days}}$$

In Case of Mutual Fund C:

$$N = \frac{\text{Rs. } 32,000}{\text{Rs. } 4,00,000} \times \frac{100}{15} \times 365 = \mathbf{195 \text{ days}}$$

Question (iv):

Mutual Fund 'A' = 31.03.2022 (-) 300 days = **5th June 2021**

Mutual Fund 'B' = 31.03.2022 (-) 124 days = **28th November 2021**

Mutual Fund 'C' = 31.03.2022 (-) 195 days = **18th September 2021**

Question (vi):

If the past performance has to continue for next one year, it is advisable for Mr. D to dispose units of Mutual Funds 'A' and 'B' and invest the proceeds in Mutual Fund 'C'. If this is done, a return of 15% can be expected on the entire investment.

Question (vii):

In case an exit load of 5% is charged for redeeming Mutual Fund within one year, Mutual Fund 'B' which is loss making can be sold immediately, but Mutual Fund 'A' can be redeemed after 65 days.

Question 2(b) [8 Marks]:

Calculate the value of share from the following information:

Profit of the company (after tax)	Rs. 560 crores
Equity share capital of company	Rs. 1900 crores
Par value of share	Rs. 50 each
Debt ratio [Debt / (Debt + Equity)]	43%
Long-run growth rate of the company	7%
Beta	0.1
Risk-free interest rate	9.5%

Market returns	12.6%
Capital expenditure per share	Rs. 53
Depreciation per share	Rs. 45
Increase in working capital per share	Rs. 4.62

Solution

$$\text{Value of Equity per Share} = \frac{\text{FCFE1 per Share}}{(K_e - g)}$$

In this case,

$$g = 7\%$$

$$K_e = R_f + \beta(R_m - R_f) = 9.5\% + 0.1(12.6\% - 9.5\%) = 9.81\%$$

$$\text{FCFE}_0 = \text{EPS} + \left[\text{Depreciation per Share} \times \left(1 - \frac{D}{A}\right) \right] - \left[\text{Gross Capital Expenditure per Share} \times \left(1 - \frac{D}{A}\right) \right] \pm \left[\text{Change in Working Capital per Share} \times \left(1 - \frac{D}{A}\right) \right]$$

Equity Share Capital: Rs. 1900 Crores

Par Value per Share: Rs. 50

Number of Equity Shares: 38 Crores

Profits of the Company: Rs. 560 Crores.

So, Earnings per Share: Rs. 14.7368

$$\begin{aligned}\text{FCFE}_0 &= \text{Rs. } 14.7368 + [\text{Rs. } 45 (1-0.43)] - [\text{Rs. } 53 (1-0.43)] - [\text{Rs. } 4.62(1-0.43)] \\ &= \text{Rs. } 14.7368 + \text{Rs. } 25.65 - \text{Rs. } 30.21 - \text{Rs. } 2.6334 \\ &= \text{Re. } 7.5434\end{aligned}$$

$$\text{FCFE1} = \text{FCFE}_0 (1+g) = \text{Re. } 7.5434 (1.07) = \text{Rs. } 8.0714$$

$$\text{So, Value per Share} = \frac{\text{Rs. } 8.0714}{(0.0981 - 0.07)} = \text{Rs. } 287.24$$

Question 2(c) [4 Marks]:

Explain the outcomes of Financial Planning

Answer

Outcomes of financial planning are:

- (i) **Financial Objectives:** Financial objectives are to be decided at the very outset so that rest of the decisions can be taken accordingly. The objectives need to be consistent with the corporate mission and corporate objectives.
- (ii) **Financial Decision Making:** Financial decision making helps in analysing the financial problems that are being faced by the corporate and accordingly deciding the course of action to be taken by it.
- (iii) **Financial Measures:** The financial measures like ratio analysis, analysis of cash flow statement etc., are used to evaluate the performance of the company. The selection of these measures again depends on the corporate objectives.

Question 3(a) [8 Marks]:

Skylark Systems Ltd., is interested in expanding its operations in US for which it requires funds of \$20 Million, net of issue expenses and flotation costs, etc., which amounts to 3% of the issue size. To finance this project, it proposes to issue GDR.

Following factors are considered in pricing the issue:

- (i) Expected market price of share at the time of issue of GDR is Rs. 300 (face value Rs. 10).
- (ii) 3 shares shall underlay each GDR and shall be priced at 10% discount to market price.
- (iii) Expected exchange rate is Rs. 75/\$.
- (iv) 20% Dividend is expected to be paid for next year with growth rate of 15%.

You are required to compute the number of GDRs to be issued and cost of GDR to Skylark Systems Ltd.

If the company is able to raise the funds in US at the rate of 4% p.a. and the company is able to repay the loan along with interest from revenues generated from the operations of US, what is your advise to the company?

Solution

Net Issue: 20 Million \$

Gross Issue: 20 Million \$ / 0.97 = 20.6186 Million \$

Domestic Price per Share: Rs. 300

Issue Price per Share for GDR (in Rs): Rs. 300 X 90% = Rs. 270

No. of Shares underlying in each GDR: 3

Issue price per GDR is \$ = (Rs. 270 X 3) / Rs. 75 = 10.80\$

Number of GDRs to be issued: 20.6186 Million \$ / 10.80\$ = **1.9091 Million**

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

Face Value per Share is Rs. 10. Dividend per Share is Rs. 2 (@ 20%). Hence, Dividend per GDR = Rs. 2 X 3 = Rs. 6.

Issue price of GDR (net of issue expense) in Rs. = Rs. 270 X 3 = Rs. 810 X 97% = Rs. 785.70

Growth rate = 15%

$$\text{So, Cost of GDR} = \frac{\text{Rs. 6}}{\text{Rs. 785.70}} + 0.15 = 0.18378 = \mathbf{15.764\%}$$

In case, the company is able to raise loans in US at an interest rate of 4% p.a., it is advisable for the company to borrow loan rather than issuing GDRs

Question 3(b) [8 Marks]:

You have been given the following information about Sweccha Ltd.

Year	Sweccha Ltd., Average Share Price Rs.	Dividend per share Rs.	Average Market Index	Dividend Yield	Return on Government Securities
2017	460	30	4060	5.0%	5.5%
2018	497	33	4320	6.5%	5.5%
2019	523	38	4592	4.5%	5.5%
2020	556	43	4780	6.0%	5.5%
2021	589	50	4968	5.5%	5.5%

- (i) Compute the Beta value of the company as at the end of year 2021.
(ii) What is your observation?

Solution

$$\text{Market Return} = \frac{(\text{Index}_1 - \text{Index}_0)}{\text{Index}_0} + \text{Dividend Yield}$$

$$\text{Stock Return} = \frac{D_1 + (P_1 - P_0)}{P_0}$$

Year	Market Return (X)	Stock Return (Y)
2018	$\frac{4320 - 4060}{4060} + 0.065 = 12.90\%$	$\frac{33 + (497 - 460)}{460} = 15.22\%$
2019	$\frac{4592 - 4320}{4320} + 0.045 = 10.80\%$	$\frac{38 + (523 - 497)}{497} = 12.88\%$
2020	$\frac{4780 - 4592}{4592} + 0.060 = 10.09\%$	$\frac{43 + (556 - 523)}{523} = 14.53\%$
2021	$\frac{4968 - 4780}{4780} + 0.055 = 9.43\%$	$\frac{50 + (589 - 556)}{556} = 14.93\%$

Market Return(%) [X]	Stock Return(%) [Y]	x (X- $\bar{X}$)	y (Y- $\bar{Y}$)	x ²	y ²	xy
12.90	15.22	2.10	0.83	4.3890	0.6889	1.7389
10.80	12.88	-0.01	-1.51	0.0000	2.2801	0.0076
10.09	14.53	-0.72	0.14	0.5112	0.0196	-0.1001
<u>9.43</u>	<u>14.93</u>	<u>-1.38</u>	<u>0.54</u>	<u>1.8906</u>	<u>0.2916</u>	<u>-0.7425</u>
<u>43.22</u>	<u>57.56</u>	<u>0.00</u>	<u>0.00</u>	<u>6.7909</u>	<u>3.2802</u>	<u>0.9038</u>

$$\bar{X} = \frac{\sum X}{n} = \frac{43.22}{4} = 10.81\%$$

$$\bar{Y} = \frac{\sum Y}{n} = \frac{57.56}{4} = 14.39\%$$

$$\text{VAR}_x = \frac{\sum x^2}{n-1} = \frac{6.7909}{4-1} = 2.2636\%^2$$

$$\text{VAR}_y = \frac{\sum y^2}{n-1} = \frac{3.2802}{4-1} = 1.0934\%^2$$

$$\sigma_x = \sqrt{\frac{\sum x^2}{n-1}} = \sqrt{2.2636} = 1.50\%$$

$$\sigma_y = \sqrt{\frac{\sum y^2}{n-1}} = \sqrt{1.0934} = 1.05\%$$

$$\text{COV}_{xy} = \frac{\sum xy}{n-1} = \frac{0.9038}{4-1} = 0.3012\%^2$$

$$\text{Correlation (r)} = \frac{\text{COV}_{xy}}{\sigma_x \sigma_y} = \frac{0.3012}{1.50 \times 1.05} = 0.1912$$

$$\beta = r \times \frac{\sigma_y}{\sigma_x} = 0.1912 \times \frac{1.05}{1.50} = \mathbf{0.133}$$

or

$$\beta = \frac{\text{COV}_{xy}}{\sigma_x^2} = \frac{0.3012}{2.2636} = \mathbf{0.133}$$

or

$$\beta = \frac{\sum xy}{\sum x^2} = \frac{0.9038}{6.7909} = \mathbf{0.133}$$

Question 3(c) [4 Marks]:

What are Foreign Currency Convertible Bonds? What are their advantages?

Solution

Foreign Currency Convertible Bond is a type of convertible bond issued in a currency different from the issuer's domestic currency. In other words, the money being raised by the issuing company is in the form of a foreign currency. A convertible bond is a mix between a debt and equity instrument. It acts like a bond by making regular coupon and principal payments, but these bonds also give the bondholder the option to convert bond into stock.

Following are some of the advantages of Foreign Currency Convertible Bonds:

- (i) The convertible bond gives the investor flexibility to convert bond into equity at a price or redeem the bond at the end of a specified maturity period.
- (ii) Companies prefer bonds as it leads to delayed dilution of equity and allows company to avoid any current dilution in earnings per share that a further issuance of equity would cause.
- (iii) These bonds are easily marketable as investors enjoy the option of conversion into equity, resulting in capital appreciation. Further, the investors are assured of minimum fixed interest earnings.



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Question 4(a) [8 Marks]:

Following information is available pertaining to ABC Ltd., which is expected to grow at a higher rate for 3 years after which growth rate will stabilize at a lower level.

Base year information is-

Revenues	EBIT (after Depreciation)	Capital Expenditure	Depreciation
Rs. 1000 Crores	Rs. 150 Crores	Rs. 140 Crores	Rs. 100 Crores

Information for high growth and stable growth period are as follows:

	High Growth	Stable Growth
Growth in Revenues and EBIT	20%	10%
Growth in Capital Expenditure and Depreciation	20%	Capital expenditure is offset by depreciation
Risk-free rate	10%	9%
Equity Beta	1.15	1.00
Market Risk Premium	6%	5%
Pre-tax Cost of Debt	13%	12.86%
Debt-Equity Ratio	1:1	2:3

Working capital is 25% of Revenue for all time.

Corporate tax rate is 30%

You are required to find out the value of ABC Ltd.

Solution

Calculation of WACC

K = K_dW_d + K_eW_e		
	High-growth Period	Stable Growth Period
Cost of Debt: (K _d) = R(1-T)	9.10%	9.00%
Weight of Debt	0.50	0.40
Cost of Equity: (K _e) = R _f + β(R _m -R _f)	16.90%	14.00%
Weight of Equity	0.50	0.60
WACC (K)	13.00%	12.00%

Year	0	1	2	3	4
Revenues	1000.00	1200.00	1440.00	1728.00	1900.80
Earnings Before Interest and Tax (EBIT)	150.00	180.00	216.00	259.20	285.12
Less: Tax @ 30%	45.00	54.00	64.80	77.76	85.54
NOPAT	105.00	126.00	151.20	181.44	199.58
Add: Depreciation	100.00	120.00	144.00	172.80	0.00
Less: Gross Capital Expenditure	-140.00	-168.00	-201.60	-241.92	0.00
Less: Increase in Working Capital		-50.00	-60.00	-72.00	-43.20
Free Cash Flow to the Firm (FCFF)		28.00	33.60	40.32	156.38
PV of Re. 1 @ 13%		0.885	0.783	0.693	
PV of FCFF		24.78	26.31	27.94	

	Rs. in Crores
Value for High Growth Period (Rs. 24.78 + Rs. 26.31 + R. 27.94) Crores	79.03
Add: Continuing Value [Rs. 156.38 Crores / (0.12-0.10)] X 0.693	5418.57
Value of the Firm	5497.60

Working Note:

YEAR	0	1	2	3	4
Working Capital	250.00	300.00	360.00	432.00	475.20
Change In Working Capital		-50.00	-60.00	-72.00	-43.20

Question 4(b) [8 Marks]:

A mutual fund made an issue of New Fund Offer (NFO) on 01/01/2021 of 10,00,000 units of Rs. 10 each. No entry load was charged. It made the following investments:

	Rs.
25,000 Equity shares of XYZ Ltd., of Rs. 100 each @ Rs. 320	80,00,000
5% Government Securities	4,00,000
10% Non-convertible Debentures (Unlisted)	5,00,000
8% Listed Debentures	10,00,000

During the year, dividends of Rs. 8,00,000 was received on equity shares. Interest on all types of debt securities was received. On 31st December 2021 equity shares were appreciated by 15% while listed debentures were quoted at 20% premium.

XYZ Ltd., on 15th December 2021 in its AGM declared an interim dividend of 10% and bonus shares at 1:10 with the record date of 28th December 2021.

- Find out the NAV per unit as on 31st December given that operating expenses paid during the year amounted to Rs. 3,00,000.
- Find out the NAV, if the Mutual Fund had distributed a dividend of Rs. 0.50 per unit during the year to the investors.
- If you are investor, find out what is the annualised return you have got.

Solution

Questions (i) and (ii):

Calculation of Net Asset Value per unit on 31st December 2021

	When Dividends are	
	Not distributed	Distributed
	Rs.	Rs.
Value of Equity Shares [27,500 Shares X Rs 368 per share] – See Note	1,01,20,000	1,01,20,000
Value of 5% Government Securities	4,00,000	4,00,000
Value of 10% Debentures (Unlisted)	5,00,000	5,00,000
Value of 8% Debentures (Listed) (120% of Rs. 10,00,000)	12,00,000	12,00,000
Cash in hand (See Working Note)	10,00,000	5,00,000
Net Assets	1,32,20,000	1,27,20,000
Number of Units	10,00,000	10,00,000
NAV per unit (Rs.)	13.22	12.72

Note:

Bonus shares in the ratio of 1:10 are issued on Equity Shares in December 2021. Hence, on 31st December the total number of Equity Shares of XYZ Ltd., are 25,000 + (1/10 X 25,000) = 27,500. Further, there is appreciation in the value of equity shares by 15%. So, the price per share on 31st December 2021 is – Rs. 320 + (15% of Rs. 320) = Rs. 368

Working Note:

Memorandum Cash Account					
Receipts	When Dividends are not distributed	When Dividends are distributed	Payments	When Dividends are not distributed	When Dividends are distributed
	Rs.	Rs.		Rs.	Rs.
Proceeds on issue of Units	1,00,00,000	1,00,00,000	Investments made	99,00,000	99,00,000
Dividends received (Final Dividend Rs. 8,00,000 + Interim Dividend Rs. 2,50,000)	10,50,000	10,50,000	Operating Expenses	3,00,000	3,00,000
Interest on 5% Government Securities	20,000	20,000	Dividends paid @ Rs.0.50 per unit		5,00,000
Interest on 10% Unlisted Debentures	50,000	50,000	Cash Balance at the end of the year (Balancing Figure)	10,00,000	5,00,000
Interest on 8% Listed Debentures	80,000	80,000			
	1,12,00,000	1,12,00,000		1,12,00,000	1,12,00,000

Note: It is assumed that interim dividend of 10% on Equity Shares of XYZ Ltd., is received before 31st December 2021. Since, the interim dividend was declared on 15th December (which is before the date of declaration of bonus shares), the amount of dividend is calculated only on 25,000 Shares. Face Value is Rs. 100 per share. So, Dividend @ 10% is Rs 10 per share. For 25,000 shares, the amount of interim dividend is Rs. 2,50,000

Questions (iii):

$$\text{Return or Yield} = \frac{D1 + (\text{NAV}_1 - \text{NAV}_0)}{\text{NAV}_0} \times 100$$

When Dividends are not distributed:

$$\text{Return or Yield} = \frac{0 + (\text{Rs. } 13.22 - \text{Rs. } 10)}{\text{Rs. } 10} \times 100 = \mathbf{32.20\%}$$

When dividends are distributed:

$$\text{Return or Yield} = \frac{\text{Rs. } 0.50 + (\text{Rs. } 12.72 - \text{Rs. } 10)}{\text{Rs. } 10} \times 100 = \mathbf{32.20\%}$$

Question 4(c) [4 Marks]:

What are the benefits of securitisation?

Answer

Following are the benefits of securitisation:

(A) To the Originator:

- (i) The assets are shifted off the balance sheet, thus giving the originator recourse to off-balance sheet funding.
- (ii) It converts illiquid assets to a liquid portfolio.
- (iii) It facilitates better balance sheet management as assets are transferred off Balance Sheet facilitating satisfaction of capital adequacy norms.
- (iv) The credit rating of the originator enhances.

(B) To the Investor:

- (i) New investment avenues are available.
- (ii) Securities are backed by definite asset pool and hence help investors in diversifying risk.

Question 5(a) [8 Marks]:

M/s Vasavi Ltd., is considering take-over of M/s SKPD Ltd., by exchange of five new shares in M/s Vasavi Ltd., for every eight shares in M/s SKPD Ltd. The relevant financial details of the two companies prior to merger announcement are as follows:

	M/s Vasavi Ltd.,	M/s SKPD Ltd.,
Profits before Tax (Rs. Crore)	18	20.8
No. of Shares (in crore)	20	18
PE Ratio	11	8

Corporate tax rate is 30%.

You are required to determine:

- (i) Market value of both the companies.
- (ii) Value of original shareholders.
- (iii) Price per share after merger.
- (iv) Effect on share price of both the companies if Directors of Vasavi Ltd., expect their own pre-merger PE Ratio to be applied to the combined earnings.

Solution

Questions (i) and (ii):

SKPD Ltd., has 18 Crore Shares outstanding.

Vasavi Ltd., has proposed to issue 5 shares of Vasavi Ltd., for every 8 shares of SKPD Ltd. So, number of Shares to be issued by Vasavi Ltd., to SKPD Ltd., shareholders are:

18 Crore Shares X 5/8 = **11.25 Crore Shares.**

	Vasavi Ltd.	SKPD Ltd.	Merged Entity
Earnings before Tax (in Rs. Crores)	18.00	20.80	
Less: Tax @ 30% (in Rs. crores)	5.40	6.24	
Earnings After Tax (in Rs. Crores)	12.60	14.56	27.16
Number of Shares (in Crores) (*20 Crores of Vasavi Ltd., + 11.25 Crore shares issued by Vasavi Ltd., to Shareholders of SKPD Ltd.)	20	18	31.25*
Earnings per Share (Earnings After Tax / No. of Shares)	Rs. 0.63	Rs. 0.81	Rs. 0.8691
PE Ratio	11	8	
Price per Share (EPS X PE Ratio)	Rs. 6.93	Rs. 6.48	
Market Value = (No. of Shares X Price per share) Or (Earnings After Tax X PE Ratio)	Rs. 138.60 Crores	Rs. 116.64 Crores	Rs. 255.24 Crores
Proportion of shares held by shareholders	20 / 31.25 = 64%	18 / 31.25 = 36%	
Value of Combined entity belonging to shareholders (Value of Combined Entity X Proportion of Shareholding)	64% X Rs. 255.24 Crores = Rs. 163.35 Crores	36% X Rs. 255.24 Crores = Rs. 91.89 Crores	

Question (iii):

If post-merger PE Ratio is same as pre-merger PE Ratio of Vasavi Ltd.

Post-merger EPS = Rs. 0.8691

Post-merger PE Ratio = 11

Post-merger Market Price per share = Rs. 0.8691 X 11 = **Rs. 9.56**

Post-merger Market Value of the firm

Post-merger No. of Shares X Post-merger Price per share = 31.25 Crores X Rs. 9.56
= **Rs. 298.75 Crores**

Or

Post-merger Earnings After Tax X Post-merger PE Ratio = Rs. 27.16 Crores X 11
= **Rs. 298.76 Crores**

Impact on Market-price per share:

	Vasavi Ltd.	SKPD Ltd.
Pre-merger Market Price per share of Vasavi Ltd.,	6.93	10.37*
Post-merger Market Price per share	9.56	9.56
Impact on Market Price per share	Increase by Rs. 2.63	Decrease by Rs. 0.81
Percentage Change	37.95%	(-)7.81%

* Equivalent MPS for SKPD Ltd., = Pre-merger MPS / Exchange Ratio
= Rs. 6.48 / 0.625
= Rs. 10.37

Question 5(b) [8 Marks]:

Closing values of NIFTY Index from 3rd to 12th day of the month of January of the year 2022 were as follows:

Days	Date	Closing Values of NIFTY INDEX
1	03/01/2022	17626
2	04/01/2022	17805
3	05/01/2022	17925
4	06/01/2022	17746
5	07/01/2022	17813
6	10/01/2022	18003
7	11/01/2022	18056
8	12/01/2022	18212

The simple moving average of NIFTY Index for the month of December 2021 was 17174.

You are required to calculate:

- The value of exponent for 15 days EMA.
- The exponential moving average (EMA) of NIFTY during the above period. (Calculations to be done up to 2 decimals only)
- Analyse the buy & sell signal on the basis of your calculations.

Solution

Question (i):

$$\text{Value of Exponent} = \frac{2}{N+1}$$

Where, N = Number of days of EMA to be calculated

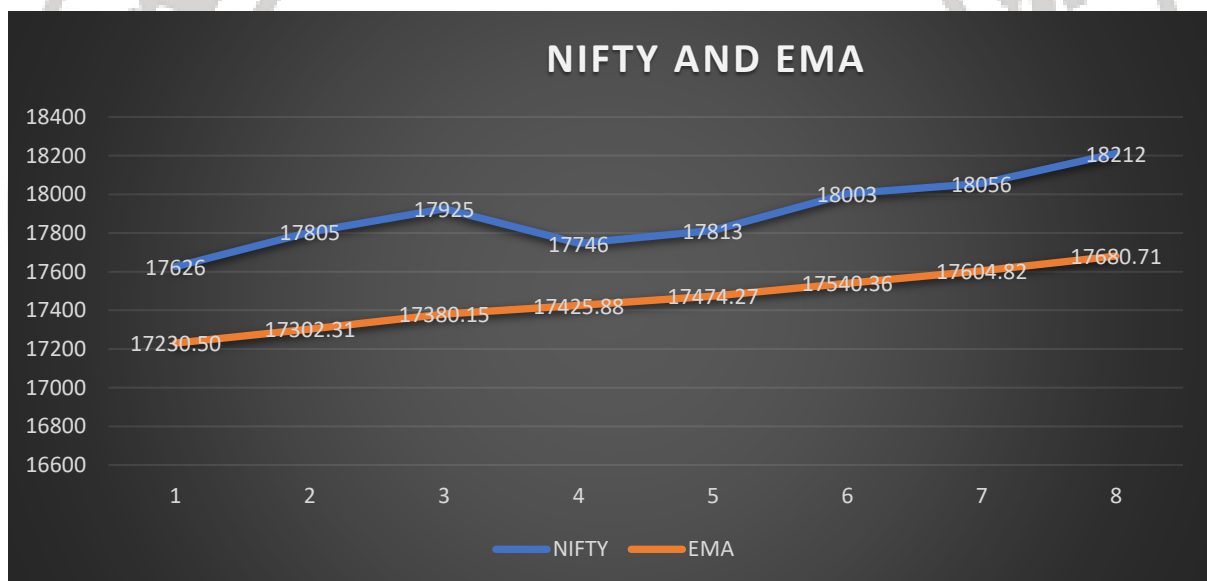
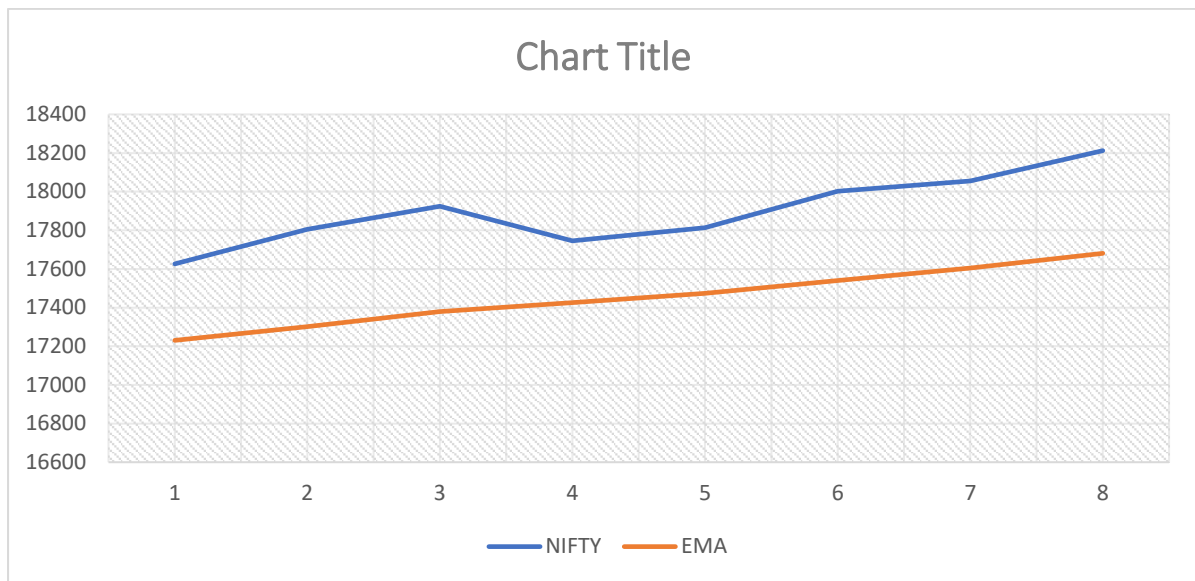
$$\text{So, Value of Exponent for 15-day EMA} = \frac{2}{15+1} = \mathbf{0.125}$$

Question (ii):

Date	NIFTY	Previous EMA	Difference	Difference X Exponential Value	EMA
03-Jan	17626	17174.00	452.00	56.50	17230.50
04-Jan	17805	17230.50	574.50	71.81	17302.31
05-Jan	17925	17302.31	622.69	77.84	17380.15
06-Jan	17746	17380.15	365.85	45.73	17425.88
07-Jan	17813	17425.88	387.12	48.39	17474.27
10-Jan	18003	17474.27	528.73	66.09	17540.36
11-Jan	18056	17540.36	515.64	64.45	17604.82
12-Jan	18212	17604.82	607.18	75.90	17680.71

Note: EMA = Previous EMA + (Difference X Exponent Value)

Question (ii):



The NIFTY values and EMA values are constantly rising indicating a bullish trend in the market. However, buy and sell signals is based on the following criteria:

- (a) When the EMA line cuts through the NIFTY line from bottom, it is an indication of bullishness and is a signal for 'Buying'.
- (b) When the EMA line cuts through the NIFTY line from top, it is an indication of bearishness and is a signal for 'Selling'.

In this case, though the trend is visible, the EMA line is not breaching the NIFTY line at any point. Hence, there is no signal for 'buying' or 'selling' in the market.

Question 5(c) [4 Marks]:

Briefly explain:

- (a) Compliance risk and
- (b) Operational risk

Answer

Compliance Risk:

Every business needs to comply with rules and regulations. For example, with the advent of Companies Act 2013, and continuous updating of SEBI guidelines, each business organisation has to comply with plethora of rules, regulations and guidelines. Non-compliance leads to penalties in the form of fine and imprisonment.

When a company ventures into a new business line or a new geographical area, the real problem occurs. If the company fails to comply with laws related to new area or industry or sector, it will pose a serious threat to its survival.

Operational Risk:

This type of risk relates to internal risk. It also relates to failure on the part of the company to cope with day to day operational problems. Operational risk relates to 'people' as well as 'processes.'

Question 6(a) [8 Marks]:

Calculate the Co-variance & Correlation Coefficient of the two securities, from the historical rates of return over the past 10 years:

Years	Security 1 (Return %)	Security 2 (Return %)
1	15	24
2	10	20
3	12	18
4	8	14
5	18	22
6	16	26
7	20	12
8	24	28
9	16	16
10	14	15

Solution

Security 1 Return(%) [X]	Security 2 Return(%) [Y]	x (X- $\bar{X}$)	y (Y- $\bar{Y}$)	x ²	y ²	xy
15.00	24.00	-0.30	4.50	0.09	20.25	-1.35
10.00	20.00	-5.30	0.50	28.09	0.25	-2.65
12.00	18.00	-3.30	-1.50	10.89	2.25	4.95
8.00	14.00	-7.30	-5.50	53.29	30.25	40.15
18.00	22.00	2.70	2.50	7.29	6.25	6.75
16.00	26.00	0.70	6.50	0.49	42.25	4.55

20.00	12.00	4.70	-7.50	22.09	56.25	-35.25
24.00	28.00	8.70	8.50	75.69	72.25	73.95
16.00	16.00	0.70	-3.50	0.49	12.25	-2.45
<u>14.00</u>	<u>15.00</u>	<u>-1.30</u>	<u>-4.50</u>	<u>1.69</u>	<u>20.25</u>	<u>5.85</u>
<u>153.00</u>	<u>195.00</u>	<u>0.00</u>	<u>0.00</u>	<u>200.10</u>	<u>262.50</u>	<u>94.50</u>

$$\bar{X} = \frac{\sum X}{n} = \frac{153.00}{10} = 15.30\%$$

$$\bar{Y} = \frac{\sum Y}{n} = \frac{195.00}{10} = 19.50\%$$

$$VAR_x = \frac{\sum x^2}{n-1} = \frac{200.10}{10-1} = 22.2333\%^2$$

$$VAR_y = \frac{\sum y^2}{n-1} = \frac{262.50}{10-1} = 29.1667\%^2$$

$$\sigma_x = \sqrt{\frac{\sum x^2}{n-1}} = \sqrt{22.2333} = 4.72\%$$

$$\sigma_y = \sqrt{\frac{\sum y^2}{n-1}} = \sqrt{29.1667} = 5.40\%$$

$$COV_{xy} = \frac{\sum xy}{n-1} = \frac{94.50}{10-1} = 10.50\%^2$$

$$\text{Correlation (r)} = \frac{COV_{xy}}{\sigma_x \sigma_y} = \frac{10.50}{4.72 \times 5.40} = 0.412$$

Note: The above formulae have been used since the data given is sample data. In Case of Population data, the denominator in the Variance and Co-variance formulae would be 'n' and not 'n-1'.

Question 6(b) [8 Marks]:

MPD Limited issues a Rs. 50 Million Floating Rate Loan on July 1, 2018 with resetting of coupon rate every 6 Months equal to LIBOR + 50bps. MPD is interested in an Interest Rate Collar Strategy of selling a Floor and buying a Cap.

MPD buys the 3-years Cap and sells 3 years Floor as per the following details on July 1, 2018:

Principal Amount	Rs. 50 Million
Strike Rate	5% for Floor & 8% for Cap
Reference Rate	6 months LIBOR
Premium	NIL, since premium paid for Cap = premium received for Floor

The Reset dates & Interest rates p.a. on those dates are:

Reset Date	31/12/2018	30/06/2019	31/12/2019	30/06/2020	31/12/2020	30/06/2021
LIBOR (%)	7.00	8.00	6.00	4.75	4.25	5.25

Using the above data, you are required to determine:

- (i) Effective interest paid out at each reset dates (round off to the nearest rupee)
- (ii) Average overall effective rate of interest p.a. (round off to 2 decimals)

Solution

Question (i):

Pay-off on Cap bought = [Max {(Spot LIBOR Rate – Strike Rate) X Notional Principal Amount}, 0] X Number of Days in Settlement Period / 365

Pay-off on Floor sold = [Min {(Spot Libor Rate – Strike Rate) X Notional Principal Amount, 0}] X Number of Days in Settlement Period / 365

Strike Rate-

For Cap: 8%

For Floor: 5%

Notional Principal Amount: Rs. 5,00,00,000

Reset Date	LIBOR	Date of Interest Payment	Number of Days	Interest Payable @ LIBOR + 0.5%	Pay-off on Cap bought	Pay-off on Floor sold	Net Interest payable
31-12-2018	7.00	30-06-2019	181	-1859589	0	0	-1859589
30-06-2019	8.00	31-12-2019	184	-2142466	0	0	-2142466
31-12-2019	6.00	30-06-2020	182	-1616120	0	0	-1616120
30-06-2020	4.75	31-12-2020	184	-1319672	0	-62842	-1382514
31-12-2020	4.25	30-06-2021	181	-1177740	0	-185959	-1363699
30-06-2021	5.25	31-12-2021	184	-1449315	0	0	-1449315
			1096				-9813702

(-) indicates cash outflow and (+) indicates cash inflow

Question (ii):

Average overall effective rate of interest p.a. = $\frac{\text{Rs. } 98,13,702}{\text{Rs. } 5,00,00,000} \times 100 \times \frac{365}{1096} = 6.54\%$

Question 6(c) [4 Marks] – Choice Question (i):

Define Angel Investors. Are these only individuals? If not, list the entities.

Answer

Despite being a country of many cultures and communities traditionally inclined to business and entrepreneurship, India still ranks low on comparative ratings across entrepreneurship, innovation and ease of doing business. The reasons are obvious. These include our old and outdated draconian rules and regulations which provides a hindrance to our business environment for a long time. Other reasons are red-tapism, time-consuming procedures, and lack of general support for entrepreneurship. Of course, things are changing in recent times.

As per Investopedia, Angel Investors invest in small start-ups or enterprises. Often, Angel Investors are among the entrepreneur's family and friends. The capital angel investors provide may be a one-time investment to help the business propel on an ongoing injection of money to support and carry the company through its difficult early stages.

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

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

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

Question 6(c) [4 Marks] – Choice Question (ii):

Enlist the criteria for an entity to be classified as a Startup entity under the Startup India scheme initiated by the Government of India.

Answer

Start-up India Scheme was initiated by the Government of India on 16th of January, 2016. As per the GSR Notification 127(E) dated 19th February 2019, an entity shall be considered as Start-up:

- (i) up to a period of ten years from the date of incorporation / registration, if it is incorporated as a private limited company, or registered as a partnership firm, or a limited liability partnership in India,
 - (ii) turnover of the entity for any of the financial years since incorporation / registration has not exceeded One Hundred Crore Rupees,
 - (iii) entity is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation,
- provided that an entity formed by splitting up or reconstruction of an existing business shall not be considered as 'Start-up.'