



CMA-SFM

Suggested Solution

Test-16



SECTION - A (Compulsory)

Q.1 MCQ

	Answer	Hint:
i.	A. Gain of ₹3200	<u>Cancellation after 2 months:</u> Remaining period for the contract: 1 month <u>Rates at the time of cancellation:</u> Spot rate: ₹27.30 / ₹27.35 per SF One-month forward rate: ₹27.45 / ₹27.57 per SF When the contract is cancelled, the bank needs to enter into an opposite contract to offset the original forward contract. Here, the bank initially entered into a forward purchase contract, so the bank would need to sell SF 10,000 at the current one-month forward rate. <u>Calculation of Loss/Gain:</u> The bank originally agreed to buy SF 10,000 at ₹27.25. At cancellation, the bank will sell SF 10,000 at the one-month forward rate. i.e, 27.57 Gain to bank = ₹27.57-27.25 = 0.32 per \$ Total Gain to bank = 0.32 ×10,000 = ₹3200
ii.	A. \$1,64,08,227.85	(i) <u>Cash requirement under decentralised cash management</u> <u>Note:</u> Under decentralised cash management surplus of one subsidiary can't be utilised for deficit of other subsidiaries. (a) Deficit of Canadian Sub $\text{\\$1} = \text{Can\\$ } 1.58$ $\text{Can\\$ } 2,50,00,000 = \text{\\$} \left(\frac{1}{1.58} \times 2,00,00,000 \right)$ $=\text{\\$}1,26,58,227.85$ (b) Deficit of UK Sub $\text{£1} = \text{\\$1.5}$ $\text{£}25,00,000 = \text{\\$} (1.5 \times 25,00,000) = \text{\\$ } 37,50,000$ (c) Total cash requirement $= \text{\\$} (1,26,58,227.85 + 37,50,000) = \text{\\$}1,64,08,227.85$
iii.	B.	Arbitrator buys and sells simultaneously the currency with a view to making riskless profit.
iv.	B. \$1.2298 /£	<u>Adjusting for Semi-Annual Period:</u> Semi-annual US inflation rate = 0.06/2 = 0.03 Semi-annual Eurozone inflation rate = 0.01/2 =0.005 <u>As per PPP,</u> expected rate = Current spot rate × $\frac{1+\text{Inflation Rate in USD}}{1+\text{Inflation Rate in EUR}}$



		$= 1.20 \times (1.03/1.005) = \$1.2298/\text{€}$																
v.	B.	Investment of 15,000 with a 4% front-end load comes to $15,000 \times (1- 0.04) = 14,400$																
	23,993	The portfolio rate of return is 12% annually, but we need to account for the annual expense ratio of 1.25%. The net annual return is $(12\%-1.25\%) = 10.75\%$ $FV = \text{Rs.}14,400 \times (1+0.1075)^5 = \text{Rs.}14,400 \times 1.6661 = \text{Rs.}23,992.8$																
vi.	C.	Initial Margin=Nifty Index Price at Purchase× Lot Size × Initial Margin Percentage																
	34,500 & 7.25%	Initial Margin = $1380 \times 250 \times 0.10 = 34,500$																
		<table><tr><td colspan="2">Loss/gain from future contract</td></tr><tr><td>Profit per Lot = $(1390-1380) \times 250$</td><td>2500</td></tr><tr><td>Percentage gain (Gain/ initial margin) = $2500/34500 \times 100\%$</td><td>7.25%</td></tr></table>	Loss/gain from future contract		Profit per Lot = $(1390-1380) \times 250$	2500	Percentage gain (Gain/ initial margin) = $2500/34500 \times 100\%$	7.25%										
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vii.	B.	Composition of Portfolio:																
	Buy 40 contracts	<table><tr><th>Security/ Assets</th><th>Value</th><th>Beta</th><th>weight</th></tr><tr><td>Equity</td><td>800,000</td><td>0.69</td><td>(8/10)</td></tr><tr><td>Cash</td><td>200,000</td><td>0</td><td>(2/10)</td></tr><tr><td>Total</td><td>10,00,000</td><td>--</td><td>1</td></tr></table>	Security/ Assets	Value	Beta	weight	Equity	800,000	0.69	(8/10)	Cash	200,000	0	(2/10)	Total	10,00,000	--	1
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Total	10,00,000	--	1															
		Overall beta of portfolio = $(\beta_E \times W_E) + (\beta_C \times W_C)$ $= \left(0.69 \times \frac{8}{10}\right) + \left(0 \times \frac{2}{10}\right) = .552$																
		Objective: Increase beta to 1.10																
		Value of Index future to be bought = $\left(\frac{\text{Value of Portfolio}}{\text{Change in Beta}}\right)$ $= 10,00,000 \times (1.10 - .552)$ $= ₹ 5,48,00$																
		Value of one contract = $(137 \times 100) = 13,700$																
		No. of Contract = $\left[\frac{548000}{13,700}\right] = 40$																
viii.	B.	An option holder is a party in a contract who has the right, but not the obligation, to buy (call option) or sell (put option) an asset at a specified price within a specified period. This differs from other types of contracts such as forward contracts or futures contracts, which generally obligate the parties to execute the transaction on a specified future date.																
	Option Holder																	
ix.	B.	Beta Coefficient																
	11.89%	$= \frac{\text{Correlation coefficient between the security and the market} \times \text{Std.deviation of the security return}}{\text{Std.deviation of the market return}}$ $= \frac{(0.8)(0.04)}{(0.022)} = 1.454$																
		New required return on the security: $R = R_f + \beta(R_m - R_f) = 5.2 + 1.454 (9.8 - 5.2) = 11.89\%$																



x.	A. 7860 & 2140	Objective $\Rightarrow ER_{port} = 16.5\%$ We know, $ER_{port} = (ER_x W_x) + (ER_y W_y)$ $16.5 = (18 \times W_x) + [11 \times (1-W_x)]$ or, $16.5 = 18W_x + 11 - 11W_x$ or, $16.5 - 11 = 7W_x$ $\therefore W_x = \frac{5.5}{7} = 0.786$ $\therefore W_y = 1 - 0.786 = 0.214$ Investment in X = $10,000 \times 0.786 = 7860$ Investment in Y = $10,000 \times 0.214 = 2140$						
xi.	A. Modern Portfolio Analysis	The Markowitz Mean-Variance Model, developed by Harry Markowitz, is a foundational concept in Modern Portfolio Theory (MPT). It focuses on creating an optimal portfolio by considering the trade-off between risk and return, aiming to maximize expected return for a given level of risk or minimize risk for a given level of expected return.						
xii.	A. ₹56.84	Required return $(K_e) = R_f + (K_m - R_f) \cdot \beta$ $= 0.10 + (0.15 - 0.10) \times 1.5 = 0.175$ Now $K_e = 17.5\%$ and $g = 8\%$ Equilibrium Price = $D_1 / (K_e - g)$ $= (5 \times 1.08) / (0.175 - 0.08)$ $= (5.40) / (0.095)$ $= ₹56.84$						
xiii.	B ₹203.80 Cr	Market capitalization = 1500cr Market price = ₹1500 No. of share = $\frac{1500cr}{1500} = 1cr$ PAT = 200cr Buyback share = $1cr \times 20\% = 0.20cr$ Buyback price = $1500 \times 110\% = 1650$ Bank loan = Buyback value = $0.20cr \times 1650 = 330cr$ <u>Post buyback EPS:</u> $PBT = \left[\frac{200cr}{70\%} \right] = 285.714 \Rightarrow$ [It should be equal to EBIT as there was no debt before buyback] <table><tr><th></th><th>₹ in cr.</th></tr><tr><td>EBIT</td><td>285.714</td></tr><tr><td>Less: Interest on loan $(330 \times 16\%)$</td><td>52.80</td></tr></table>		₹ in cr.	EBIT	285.714	Less: Interest on loan $(330 \times 16\%)$	52.80
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		EBT	232.914
		Less: Tax @30%	69.874
		EAT (or, EAE)	163.0398
		EPS $\left[\frac{\text{EAE}}{\text{No. of share}} \right]$	$\left[\frac{163.0398}{0.80} \right] = 203.80$
xiv.	A.	These are the four primary strategies for dealing with risk:	
	Accept,	1. Accept: Acknowledge the risk and choose to deal with any potential consequences if it occurs.	
	Mitigate,	2. Mitigate: Take steps to reduce the likelihood or impact of the risk.	
	Transfer and	3. Transfer: Shift the risk to another party, often through insurance or outsourcing.	
	Avoid	4. Avoid: Change plans to eliminate the risk entirely.	
xv.	D.	Explanation: Open-ended mutual funds allow investors to buy and sell units at any time at the prevailing net asset value (NAV), providing liquidity and flexibility. Close-ended mutual funds have a fixed number of units and a fixed maturity period. Investors can only redeem their units at the end of the scheme's term or trade them on a stock exchange if they are listed. Therefore, option D correctly highlights the indefinite redemption period for open-ended schemes and the limited life for close-ended schemes.	

SECTION - B

Question 2(a) Solution:

Original contract:

Bank bought \$ @ ₹62.32

Customer sold \$ @ ₹62.32

(i) Extension cost (loss/gain under cancellation)

Cancellation:

Bank has to sell \$ @ ₹61.5200 + 0.2%
= ₹61.6430

customer has to buy \$ @ ₹ 61.6430

Loss/gain to customer:

Sale price of \$ 62.32

Purchase price of \$ 61.6430

Gain per \$ 0.6770

Total gain for \$20,000 13540

Extension gain = ₹13540



(ii) New forward rate:

BANK has to buy \$ under 3m forward cont.
3mFR on 31.10.2018 (Bid rate)

\$1 = ₹ 61.5000

— 0.93% Discount

60.9281 Inter Bank Forward.

— 0.45% margin

60.6539 Ans.

Question No. - 2(b) Solution:

Working Notes:

(i) Depreciation = $\frac{₹ 5,00,00,000}{25} = ₹ 20,00,000$ Per Annum

(ii) Realization from Passenger

	Year 1	Year 2	Year 3	Year 4	Year 5
Passenger Capacity	60	60	60	60	60
Exp. Operational Capacity	80%	80%	90%	90%	90%
No. of Trips per Day	4	4	4	4	4
Average Realization Per Passenger (₹)	2,000	2,000	2,000	2,000	2,000
No. of Days	365	365	365	365	365
Realizations (₹)	14,01,60,000	14,01,60,000	15,76,80,000	15,76,80,000	15,76,80,000

(iii) Statement Showing Cost

(₹)

	Year 1	Year 2	Year 3	Year 4	Year 5
Annual Cost of Manpower	2,50,00,000	2,75,00,000	3,02,50,000	3,32,75,000	3,66,02,500
Airport Handling Charges	36,50,000	36,50,000	36,50,000	36,50,000	36,50,000
Annual Repair & Maintenance	5,00,00,000	5,50,00,000	6,05,00,000	6,65,50,000	7,32,05,000
Daily Operating Exp.	2,73,75,000	3,01,12,500	3,31,23,750	3,64,36,125	4,00,79,738
Total	10,60,25,000	11,62,62,500	12,75,23,750	13,99,11,125	15,35,37,238



(iv) Statement Showing NPV

(Amount in ₹)

	Year 1	Year 2	Year 3	Year 4	Year 5
Realizations	14,01,60,000	14,01,60,000	15,76,80,000	15,76,80,000	15,76,80,000
Cost of Operations	10,60,25,000	11,62,62,500	12,75,23,750	13,99,11,125	15,35,37,238
Depreciation	20,00,000	20,00,000	20,00,000	20,00,000	20,00,000
Profit Before Tax	3,21,35,000	2,18,97,500	2,81,56,250	1,57,68,875	21,42,762
Less: Tax	---	---	---	47,30,663	6,42,829
Profit after Tax	3,21,35,000	2,18,97,500	2,81,56,250	1,10,38,212	14,99,933
Add: Depreciation	20,00,000	20,00,000	20,00,000	20,00,000	20,00,000
	3,41,35,000	2,38,97,500	3,01,56,250	1,30,38,212	34,99,933
CE Factor	0.8	0.9	0.75	0.70	0.70
Certain Cash Flow	2,73,08,000	2,15,07,750	2,26,17,188	91,26,748	24,49,953
PVF@16%	0.862	0.743	0.641	0.552	0.476
PV of Cash Inflow	2,35,39,496	1,59,80,258	1,44,97,618	50,37,965	11,66,178

Total PV of Cash Inflow

6,02,21,515

PV of Cash Outflow

5,00,00,000

NPV

1,02,21,515

Since NPV is positive Airborne Ltd. should accept the project.

QUESTION - 3(a) Solution:

(i) Net exposure of each currency (i.e. Net fluctuation in currency)

Currency Net Exposure= (Net cash flows x change in rate)

(i) \$ (400 - 200) x (48.82 - 48.01)

= ₹ 162 lakhs (Gain)

(ii) FRF (200 - 80) x (8.12 - 7.45)

= ₹ 80.40 lakhs (Gain)

(iii) £ (300 - 200) x (75.98 - 75.57)

= ₹ 41 lakhs (Gain)

(iv) ¥ (150 - 250) x (2.40 - 3.20)

= ₹ 80 lakhs (Gain)

(ii) Net exposure in all currencies are offset by better forward rate (i.e. gain)



QUESTION - 3(b) Solution:

MF-A:

$$\text{Expected Return (ER)} = \frac{10+8+12}{3} = 10\%$$

$$\text{S.D.} = \sqrt{\frac{(10-10)^2+(8-10)^2+(12-10)^2}{3}} = 1.633\%$$

MF-B:

$$\text{ER} = \frac{5+10+8}{3} = 7.667\%$$

$$\text{S.D.} = \sqrt{\frac{(5-7.667)^2+(10-7.667)^2+(8-7.667)^2}{3}} = 2.055$$

MF-C:

$$\text{ER} = \frac{14+10+18}{3} = 14\%$$

$$\text{S.D.} = \sqrt{\frac{(14-14)^2+(10-14)^2+(18-14)^2}{3}} = 3.266 \%$$

Calculation of Beta

$$\text{Beta}(\beta) = \frac{\text{S.D. of M.F.}}{\text{S.D. of Market}} \times r(\text{MF \& Market})$$

$$\text{MF-A} = \frac{1.633}{\sqrt{9}} \times 0.45 = 0.245$$

$$\text{MF-B} = \frac{2.055}{3} \times 0.25 = 0.171$$

$$\text{MF-C} = \frac{3.266}{3} \times 0.65 = 0.708$$

$$\text{Sharpe Ratio} = \frac{R_{MF} - R_F}{\sigma_{MF}}$$

			Rank
MF-A	$\frac{10 - 7}{1.633}$	1.837	II
MF-B	$\frac{7.667 - 7}{2.055}$	0.325	III
MF-C	$\frac{14 - 7}{3.266}$	2.143	I

$$\text{Treynor's Ratio} = \frac{R_{MF} - R_F}{\beta_{MF}}$$

			Rank
MF-A	$\frac{10 - 7}{0.245}$	12.245	I
MF-B	$\frac{7.667 - 7}{0.171}$	3.900	III
MF-C	$\frac{14 - 7}{0.708}$	9.997	II



QUESTION - 4(a) Solution:

(i) Calculation of future price

Spot Price (ST)	= ₹ 356
Expected Rate of Dividend	= ₹ 30% or 0.30
Borrowing rate	= 20% p.a. continuously compounded
Time to expiration of the contract	= 3 months = (0.25 year)
Present value of dividend	= (30%, ₹10) $\times e^{-0.20 \times 0.25} = 3 \times e^{-0.05}$
	= ₹ 3/1.05127 = ₹ 2.8537
Adjusted spot price	= ₹ 356 - 2.8537 = ₹ 353.1463
[Spot price-Present value of dividend]	
Theoretical Future Price	= ₹ 353.1463 $\times e^{0.20 \times 0.25} = ₹ 353.1463 \times 1.05127$
	= ₹ 371.25211
3-month Futures Price	= ₹ 386

So, 3-month future price is greater than the theoretical Future price and it is overvalued. In this case, buy spot and sell futures.

(ii) Here arbitrage opportunity exists

The following steps to be followed.

- Borrow ₹356 for a period of 3 months at the rate of 20% p.a. continuously compounded.
- Buy one unit of share for ₹ 356 at T_0
- Receive the dividend at the end of 3 months [$₹ 10 \times 30\% = ₹ 3$]
- Sell the stock future at the rate of ₹ 386 for 3 months
- Repay of borrowing together with interest = $₹ 356 \times e^{0.20 \times 0.25} = ₹ 374.25$
- Net Cash inflow = $₹ [386 + 3 - 374.25] = ₹ 14.75$

QUESTION - 4(b) Solution:

(i) Portfolio Beta:

$$= 0.30 \times 0.50 + 0.50 \times 0.60 + 0.20 \times 1.20$$

$$= 0.15 + 0.3 + 0.24 = 0.69$$

(ii) Residual Variance:

To determine Residual Variance first of all we shall compute the Systematic Risk as follows:



$$\beta_A^2 \times \sigma_M^2 = (0.5)^2 (0.12)^2 = 0.0036$$

$$\beta_B^2 \times \sigma_M^2 = (0.6)^2 (0.12)^2 = 0.0052$$

$$\beta_C^2 \times \sigma_M^2 = (1.2)^2 (0.12)^2 = 0.0207$$

Residual Variance = Total Variance - Systematic Risk

$$A = 0.020 - 0.0036 = 0.0164$$

$$B = 0.010 - 0.0052 = 0.0048$$

$$C = 0.120 - 0.0207 = 0.0993$$

(iii) Portfolio variance using Sharpe Index Model:

$$\text{Systematic Variance of Portfolio} = (0.12)^2 \times (0.69)^2 = 0.006856$$

Unsystematic Variance of Portfolio

$$= 0.0164 \times (0.30)^2 + 0.0048 \times (0.50)^2 + 0.0993 \times (0.20)^2 = 0.006648$$

Total Portfolio Variance

= Systematic Risk of the Portfolio + Unsystematic Risk of the Portfolio

$$= 0.006856 + 0.006648 = 0.013504$$

QUESTION - 5(a) Solution:

Existing market price of equity share

= ₹106 (which is cum 10% bonus debenture of ₹6 each per share)

Ex-market price of equity share

$$= ₹106 - ₹6 = ₹100$$

Total return = Market price + Dividend per share

$$\text{Good} = ₹115 + ₹9 = ₹124$$

$$\text{Normal} = ₹107 + ₹5 = ₹112$$

$$\text{Bad} = ₹97 + ₹3 = ₹100$$

Calculation of expected Return:

Market condition	Probability	Total return	Cost	Net return
Good	0.25	124	100	24
Normal	0.50	112	100	12
Bad	0.25	100	100	0

$$\text{Expected Net Return} = (24 \times 0.25) + (12 \times 0.50) + (0 \times 0.25) = ₹12$$

$$\text{Expected Return (\%)} = \frac{\text{Net Return}}{\text{Cost}} \times 100$$

$$= \frac{12}{100} \times 100 = 12\%$$



Calculation of Variability of Return:

$$\text{Variance} = \sum_{k=0}^n (X - \bar{X})^2 \times \text{probability}$$

Where, Mean = 12

$$= 0.25 (24 - 12)^2 + 0.50 (12 - 12)^2 + 0.25 (0 - 12)^2$$

$$= 36 + 0 + 36 = 72$$

$$\text{Variability} = \text{Standard deviation} = \sqrt{\text{Variance}} \\ = \sqrt{72} = 8.485$$

QUESTION - 5(b) Solution:

For future contract:

Today

Nov.25

Nov.end

Today, purchased Nov.future @ ₹1150

On Nov.25 future (Nov) price is ₹1180

On 25 November investor can settled by square off.

Calculation of gain/loss on future contract:

	(Rs.)
(a) Sales value of 600 future @ 1180	7,08,000.0
Less: Brokerage (0.045% of 7,08,000)	318.6
	7,07,681.4
(b) Purchase cost of 600 future @1150	6,90,000.0
Add: Brokerage (0.045% of 690000)	310.5
	6,90,310.5
Net gain (a-b) = 707681.4 - 690310.5	17,370.9

For option contract:

Investor can offset his position by buying call option for same underlying Assets, same expiry date and same exercise price.

Calculation of gain/loss on option contract:

	(Rs.)
(a) Sale value (i.e. premium received) for 600 option at premium Rs.10	6000.00
Less: Brokerage [0.045% of (1190-10) × 600]	318.60
	5,681.14
(b) Purchase of 600 option @ Rs. 16 premium	9600.00
Add: Brokerage [0.045% of (1190-16)] × 600	316.98
	9,916.98
Net gain (a - b) [9916.98 - 5681.14]	= - 4,235.58

Hence, Overall gain = Gain of future - Loss on option

$$= 17,370.9 - 4,235.58 = 13,135.32$$



Question 6(a) Solution:

(i) Equilibrium price of Equity using CAPM

$$= 8\% + 1.5(12\% - 8\%)$$

$$= 8\% + 6\% = 14\%$$

$$P = \frac{D_1}{k_e - g} = \frac{5(1.06)}{0.14 - 0.06} = ₹ 66.25$$

(ii) New Equilibrium price of Equity using CAPM

$$= 8.16\% + 1.8(12\% - 8.16\%)$$

$$= 8.16\% + 6.91\% = 15.07\%$$

$$P = \frac{D_1}{k_e - g} = \frac{5(1.08)}{0.1507 - 0.08} = ₹ 76.38$$

Thus, the equilibrium price is increased by ₹ 10.13 per share.

QUESTION - 6(b) Solution:

Particulars	A	B
Floating Rate	LIBOR+2%	LIBOR+2%
Fixed Rate	9.5%	13.5%
Max Affordable	LIBOR	12%

(i) Schematic Diagram:



⇒ Deal between Citi Bank and A:

- A Ltd. Has to borrow fund at 9.5% (Fixed Rate) and enter Swap agreement with Citi Bank to recover fixed (i.e. 9.5%) and pay floating (LIBOR).
- In this case net effective cost of A Ltd. Should be LIBOR (i.e. Max affordable cost).

⇒ Deal between Citi Bank and B:

- B Ltd has to fund at LIBOR+2% and enter IRS agreement with Citi Bank to receive LIBOR+2% and pay 12%.
- In this case net effective cost of B Ltd. Should be 12% (i.e. Max affordable cost)



(ii) Saving to A Ltd. = $(\text{LIBOR} + 2\%) - \text{LIBOR} = 2\%$ Ans.

Saving to B Ltd. = $13.5\% - 12\% = 1.5\%$ Ans.

(i.e. own choice cost - effective cost)

(iii) Saving to Citi Bank. = Total Receipt - Total Payment

= $(\text{LIBOR} + 12\%) - (\text{LIBOR} + 2\% + 9.5\%) = 0.50\%$

QUESTION - 7(a):

Solution:

Interpretation: (Not for exam):

It is not clear whether dividend plan is Dividend payout plan or, Dividend re-investment plan.

As this question is modified version of old question, it is better to take same assumption as old question (if you remember).

Going to assume dividend re-investment plan.

(A) Issue price of Dividend plan:

→ Assume it is Dividend re-investment plan.

→ Annual profit = ₹ 27748.60

Life = 5 years.

Total profit in 5 years = (27748.60×5)
= ₹ 1,38,743

Total investment value at end of 5 year (31.3.20)
= $920,000 + 1,38,743$
= 10,58,743

Total no. of units as on 31.3.20

= $\left[\frac{10,58,743}{49 \text{ (NAV)}} \right] = 21,607$

Date	Opening units	Div Per unit	Total Div	NAV	Addition/units issued	Closing units
01.04.2015	—	—	—	—	—	1
31.03.2017	1	1.2	1.2	48	0.025	1.025
31.03.2018	1.025	1	1.025	50	0.0205	1.0455
31.03.2019	1.0455	1.5	1.5683	45	0.03485	1.08035



AS No dividend declared after 31.3.2019

No. of units on 31.3.2020 = 1.08035

1.08035 unit on 31.3.2020 $\Rightarrow$ 1 unit on 1.4.15

21607 " " " $\Rightarrow \left(\frac{1}{1.08035} \times 21607 \right)$ " "

= **20,000 units**

Hence, unit bought on 1.4.2015 = 20,000

Amount invested = 920,000

Hence, NAV (1.4.2015) = $\left[\frac{920,000}{20,000} \right] = \text{₹ } 46$

Note: If we assume it is dividend payout plan then our solution will differ.

(B) Issue price of Bonus plan:

5 year yield = $6.4 \times 5 = 32\%$

Total value of investment on 31.3.2020

= 10,00,000 + 32% = 13,20,000

No. of units on 31.3.2020 = $\frac{13,20,000}{44} = 30,000$ units

closing units if someone bought 1 unit on 1.4.15.

closing units if someone bought 1 unit on 1.4.15.

Date	opening units	Bonus ratio	Bonus units	closing units
31.12.16	1	$\left(\frac{1}{4} \right)$	0.25	1.25
31.12.18	1.25	$\left(\frac{1}{5} \right)$	0.25	1.50

1.50 units on 31.3.2020 $\Rightarrow$ 1 unit on 1.4.2015

30,000 " " " $\Rightarrow \left(\frac{1}{1.5} \times 30,000 \right)$ units " "

= 20,000 units.

Hence Issue price (NAV) on 1.4.2015 = $\frac{10,00,000}{20,000}$
= **₹ 50 Ans**

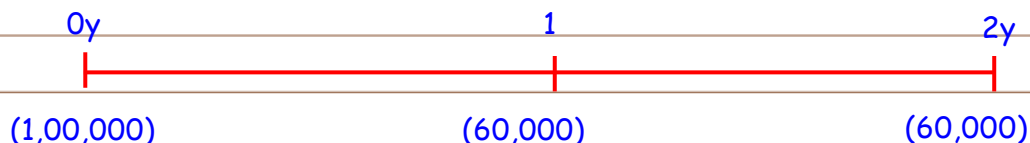
QUESTION- 7(b)

Machine-A:

0y	1	2	3y
(1,50,000)	(40,000)	(40,000)	(40,000)



Machine-B:



Calculation of equivalent annual equal outflow:

(i) Machine-A:

$$\begin{aligned} \text{PV of outflow} &= 1,50,000 + 40,000 \times \text{PVIFA}(10\%, 3) \\ &= 1,50,000 + (40,000 \times 2.487) = 2,49,480 \end{aligned}$$

Assume, annual equal cash inflows = x

$$x \times \text{PVIFA}(10\%, 3) = 2,49,480$$

$$\text{or, } x \times 2.487 = 2,49,480$$

$$\therefore x = \frac{2,49,480}{2.487} = 1,00,313.6$$

(ii) Machine-B:

$$\begin{aligned} \text{PV of outflow} &= 1,00,000 + 60,000 \times \text{PVIFA}(10\%, 2) \\ &= 1,00,000 + (60,000 \times 1.736) = 2,04,160 \end{aligned}$$

Assume, annual equal cash inflows = x

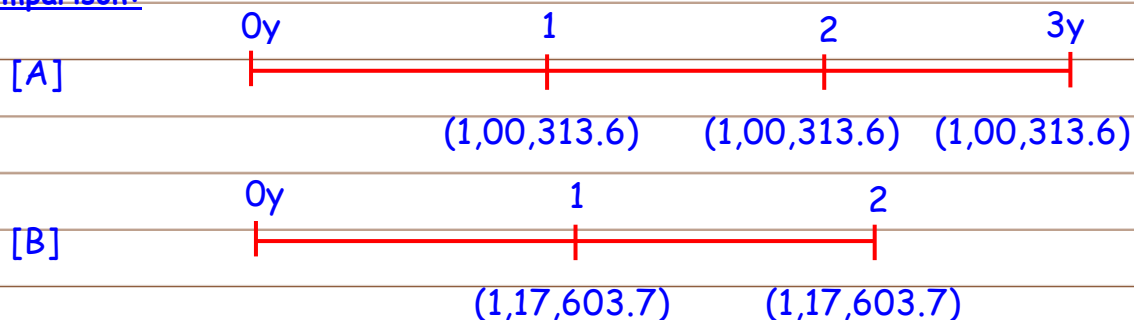
$$\text{PV of } x = 2,04,160$$

$$\text{or, } x \times \text{PVIFA}(10\%, 2) = 2,04,160$$

$$\text{or, } x \times 1.736 = 2,04,160$$

$$\therefore x = \frac{2,04,160}{1.736} = 1,17,603.7$$

Comparison:



As equivalent annual equal cash outflow of Machine-A is lower than B, accept Machine-A.



Question 8(a):

Non-Fungible Tokens (NFTs)

- Non-fungible tokens (NFTs) are unique cryptographic assets on a blockchain, each with distinct identification codes and metadata.
- Unlike cryptocurrencies, NFTs are non-fungible, meaning each token is unique and cannot be exchanged on a one-to-one basis.
- NFTs can represent various assets, including digital artwork, real estate, and collectibles, with much of the current market focusing on collectibles like digital art and sports cards.
- NBA Top Shot is a prominent example, offering tokenized NBA moments in digital card form, with some selling for millions of dollars.
- Jack Dorsey, Twitter's Co-Founder, sold a tokenized version of his first tweet for over \$2.9 million as an NFT.
- Asset tokenization is the process of creating digital tokens on a blockchain to represent assets, offering benefits like increased liquidity, fair prices, and reduced management costs.
- NFTs can be bought and sold on marketplaces like Rarible, OpenSea, and Foundation, typically requiring funding through cryptocurrency wallets, with Ethereum being the most widely accepted.
- Despite being around since 2014, NFTs are gaining popularity now, particularly for buying and selling digital artwork, with \$174 million spent on NFTs since November 2017.

Question 8(b):

Concept	Description
ADR (American Depositary Receipts)	An American Depositary Receipt (ADR) is a certificate that represent shares of a foreign stock owned and issued by a U.S. bank. The foreign shares are usually held in custody overseas, but the certificates trade in the U.S. Through this system, a large number of foreign-based companies are actively traded on one of the three major U.S. equity markets (the NYSE, AMEX or NASDAQ).
Advantages of ADR	• Access to capital • Access to foreign exchange • No change in shareholding/voting pattern. • Increased global recognition. • No Exchange Rate risk since the Company pays interest and dividends in Indian Rupees
Limitations of ADR	• High cost of issue • Requirement as to a large size of the issue • Stringent compliance requirements



Question 8(c)

RISK MANAGEMENT PROCESS	
1. Setting the Objectives	Define the objectives, considering the company's risk tolerance and financial health.
2. Identification of Risk	Identify various risks based on organizational structure, business nature, economic conditions, etc.
3. Measurement and Prioritization of Risk	Evaluate the significance of risks based on expected severity and probability of occurrence.
4. Development of Strategy	Develop a strategy for managing risks, including risk avoidance, reduction, sharing, or acceptance. Responses to risk generally fall into the following categories: <u>Risk avoidance:</u> action is taken to halt the activities giving rise to risk, such as a product line, a geographical market or a whole business unit. <u>Risk reduction:</u> action is taken to mitigate the risk of likelihood or impact or both, generally via internal controls. <u>Risk sharing or transfer:</u> action is taken to transfer a portion of the risk through insurance, outsourcing or hedging. <u>Risk acceptance:</u> no action is taken to affect likelihood or impact.
5. Implementation of Strategy	Execute policies and strategies for risk management, including risk transfer, risk control, and compliance.
6. Monitoring Risk	Continuously review and monitor the effectiveness of risk management decisions and adapt to changing risk factors.