CA-Final AFM Test 4
Topics Covered: Portfolio Management
Max Marks: 40 **Time: 1 Hour**

Question 1(10 Marks):
Following are the details of a portfolio consisting of three shares:

Share	Portfolio weight	Beta	Expected return in %	Total variance
D	0.20	0.40	14	0.015
E	0.50	0.50	15	0.025
F	0.30	1.10	21	0.100

Standard Deviation of Market Portfolio Returns = 10% You are given the following additional data:
Covariance (D, E) = 0.030
Covariance (D, F) = 0.020
Covariance (E, F) = 0.040
Calculate the Portfolio variance considering:
(i) Correlation between each pair of securities.
(ii) Co-movement between securities due to change in the market index.

Question 2(8 Marks): M is interested to construct a Portfolio of Securities A and B. He has collected the following information:

	A	B
Expected Return (ER)	19%	23%
Risk (%)	14%	18%

M has 4 Portfolio options of A and B as follows:
(i) 50% of funds in each A and B
(ii) 75% of funds in A and 25% in B
(iii) 25% of funds in A and 75% in B
(iv) 60% of funds in A and 40% in B
Co-efficient of correlation (r) between A and B is 0.16. You are required to calculate:
(i) Expected Return under different Portfolio Options.
(ii) Risk Factor associated with these Portfolio Options.
(iii) Which Portfolio is best from the point of view of Risk?
(iv) Which Portfolio is best from the point of view of Return?

Question 3(8 Marks): Equity of ABC Ltd. (ABCL) is ` 500 Crores, its debt, is worth ` 290 Crores. Printer Division segments value is attributable to 64%, which has an Asset Beta (βp) of 1.55, balance value is applied on Spares and Consumables Division, which has an Asset Beta (β sc) of 1.40 ABCL Debt beta (βD) is 0.28.
You are required to calculate:
(i) Equity Beta (βE),
(ii) Ascertain Equity Beta (βE), if ABC Ltd. decides to change its Debt Equity position by raising further debt and buying back of equity to have its Debt to Equity Ratio at 1.50.
Assume that the present Debt Beta (βD1) is 0.45 and any further funds raised by way of Debt will have a Beta (βD2) of 0.50.
(iii)Whether the new Equity Beta (βE) justifies increase in the value of equity on account of leverage?

Question 4(6 Marks): Ankit has a fund of ` 10 lacs which he wants to invest in share market with rebalancing target after every 15 days to start with for a period of one month from now. The present

NIFTY is 19679. The minimum NIFTY within a month can at most be 18104.68. He wants to know as to how he should rebalance his portfolio under the following situations, according to the theory of Constant Proportion Portfolio Insurance Policy, using "2" as the multiplier:
(i) Immediately to start with.
(ii) 15 days later-being the 1st day of rebalancing if NIFTY falls to 19088.63.
15 days further from the above date if the NIFTY touches 20997.493.
Note: Assume that the value of his equity component will change in tandem with that of the NIFTY.

Question 5(8 Marks): The returns and market portfolio for a period of four years are as under:

Year	**% Return of Stock**	**% Return on Market**
1	10	8
2	12	10
3	9	9
4	3	-1

For stock B, you are required to determine:
(a) characteristic line; and
(b) The Systematic and Unsystematic Risk