B.A/B.Sc. 5th Semester (Honours) Examination, 2019 (CBCS)

Subject : Mathematics

Paper : BMH5DSE22

(Portfolio Optimization)

Time: 3 Hours **Full Marks: 60**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any ten* questions: 2×10=20

   (a) Why return is an important consideration for investment?

   (b) Discuss the role of mutual funds.

   (c) What is the usefulness of a round investment plan?

   (d) What is meant by portfolio diversification?

   (e) Discuss the Dividend policy.

   (f) Explain non-systematic risk.

   (g) What is active portfolio management?

   (h) Define tracking error of a portfolio.

   (i) What is Benchmark portfolio risk?

   (j) Distinguish between investment and gambling.

   (k) What is random walk theory?

   (l) What are the limitations of portfolio risk estimation?

   (m) What do you mean by beta of a portfolio?

   (n) What does Markowitz portfolio theory suggest?

   (o) What is portfolio optimization model?

2. Answer *any four* questions from the following: 5×4=20

   (a) Explain the basics of Investment.

   (b) What major factors must be considered when constructing a market index?

   (c) Examine Arbitrage pricing model.

   (d) Explain Markowitz theory of portfolio construction.

   (e) What is an efficient market and distinguish the three levels of market efficiency?

(f) An investor wants to buy stock from the pharma sector and he has collected the following information:

Probability	Cipla Return (%)	Ran baxy Return (%)
0·2	7·5	8
0·3	6·5	5
0·1	8	6·4
0·4	10	4

In your opinion, which stock can the investor choose with respect to risk and return? Justify your answer.

3. Answer *any two* questions from the following: 10×2=20

(a) What is efficient market Hypothesis? Explain in brief.

(b) Explain the construction of the optimal portfolio.

(c) What are the basic assumptions of Arbitrage pricing theory? State its merits and demerits.

(d) Suppose that there is an economy with just two assets, A and B, with details as described below. Now asset C is added. Will this change the optimal portfolio according to modern portfolio theory (MPT)? Justify your answer.

	A	B	C
Mean return	7·5%	4·3%	5·2%
Correlation with A	1	0·4	0·7
Correlation with B	0·4	1	0·3
Correlation with C	0·7	0·3	1