

Roll No.

U03C15

Y-2222

B. Sc. (Part III) EXAMINATION, 2015

MATHEMATICS

(Optional)

Paper Third (C)

(Application of Mathematics in Finance and Insurance)

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt any *two* parts from each question. Each part carries equal marks.

Unit—I

1. (a) Write down the prominent areas of financial decision making.
- (b) Calculate the present value of the following cash flows assuming a discount rate of 8% :

Year	Cash Flows
1	₹ 10,000
2	₹ 20,000
3	₹ 10,000
4	₹ 5,000

- (c) Explain present and future value calculation for continuous compound case.

[2]

Unit—II

2. (a) Explain the Sharpe's single index model.
- (b) Explain Newton-Raphson method to calculate IRR.
- (c) Discuss the benefits of diversification to a portfolio manager.

Unit—III

3. (a) What do you mean by Swap ? Illustrate by example use of swap to transfer an Asset.
- (b) State and prove Arbitrage theorem.
- (c) Explain utility of Taylor series in bond valuation.

Unit—IV

4. (a) Explain various types of general insurance.
- (b) Define Insurance and write the meaning of loss in insurance.
- (c) What do you mean by loss ? Write chances of loss, peril and hazard.

Unit—V

5. (a) Write a note on significance of Poisson and Binomial distribution in determination of claims for General Insurance.
- (b) Explain Compound Aggregate Claim model for General Insurance.
- (c) Write F-recursive and approximate formulae for F. Explain its uses in claims of General Insurance.