BCM3A11 BASIC NUMERICAL METHODS

Module I

Numerical expressions and Equations: Simultaneous linear equations (up to three variables),
Quadratic equations in one variable-factorization and quadratic formula
(10 Hours, 10 marks)

Module II

Matrices: introduction - type of matrices – trace and transpose and determinants - matrix operations – ad joint and inverse –rank- solving equations by matrices: Cramer‘s Rule (not more than three variables). (15 Hours, 15marks)

Module III

Sequence, Series and Progression : Concepts and differences - Arithmetic progression- n th term and sum of n terms of an AP - Insertion of Arithmetic means in AP - Geometric progression- ‗n’th term and sum of n terms of an GP - Insertion of Geometric Mean in GP – Harmonic progression. (20 Hours, 15marks)

Module IV

Interest and Time value: Concept of interest-Types of interest: Simple interest and compound interest – nominal, real and effective rate of interest - Future value and Present Value; Annuity and Perpetuity - Computing future and present values of annuity (regular and immediate) - multi and growing period perpetuity - Compound annual growth rate - computation of Equated Monthly Installments (EMI). (15 Hours, 15marks)

Module V

Descriptive Statistics: Measures of Central Tendency – Mean: Arithmetic mean, Geometric mean and Harmonic Mean- Median, Mode and other position values
- Measures of Dispersion: mean deviation, quartile deviation, standard deviation and coefficient of variation
- Measures of Skewness and Kurtosis. (20 Hours, 25 marks)

(Theory and problems may be in the ratio of 20% and 80% respectively. An over view of the topics is expected and only simple problems shall be given)