B. Com (Hons.) (Accounting and Taxation)

CORE COURSE (CC)

SEMESTER II

(BCB31203T): BUSINESS MATHEMATICS AND STATISTICS

MAX. MARKS: 100
EXTERNAL: 70
INTERNAL: 30
PASS: 40%
Credits: 6

Objective:

The objective of this course is to familiarize students with the applications of mathematicsand statistical techniques in business decision-making.

Notes:

1. Use of simple calculator is allowed.
2. Proofs of theorems / formulae are not required.
3. Trigonometric functions are not to be covered.

Course Outcomes:

CO 1:	Learners will understand business mathematics concepts that are necessary in the real world and will be able to communicate the underlying business concepts and mathematics.
CO 2:	Learners will apply correct mathematical terminology, notation and symbolic processes to be prepared for future coursework in business and mathematics.
CO 3:	Learners will solve sums related to simple and compound interest, payroll preparation, pricing, invoice preparation, trade discounts, taxes, etc. in various situations.
CO 4:	Learners will be able to implement the applications of mathematics and statistical techniques in business decision-making.

SECTION A

Block 1- Matrices and Determinants

Matrices: Definition of a matrix. Types of matrices; Algebra of matrices. Calculation of values of determinants up to third order; Adjoint of a matrix; Finding inverse of a matrix through ad joint; Applications of matrices to solution of simple business and economic problems.

Block-2 Basic Mathematics of Finance

Basic Mathematics of Finance : Simple and compound interest Rates of interest - nominal, effective and continuous – their interrelationships; Compounding and discounting of a sum using different types of rates

Block-3 Uni-variate Analysis and Measures of Variation Uni-variate Analysis : Measures of Central Tendency including arithmetic mean, geometric mean and harmonic mean : properties and applications; mode and median. Partition values - quartiles, deciles, and percentiles.

Measures of Variation: absolute and relative. Range, quartile deviation and mean deviation; Variance and Standard deviation: calculation and properties.

SECTION-B

Block-4 Bi-variate Analysis

Bi-variate Analysis : Simple Linear Correlation Analysis: Meaning, and measurement. Karl Pearson's co-efficient and Spearman's rank correlation. Simple Linear Regression Analysis: Regression equations and estimation. Relationship between correlation and regression coefficients

Block -5 Index Numbers Analysis

Index Numbers Analysis : Meaning and uses of index numbers; Construction of index numbers: Aggregative and average of relatives – simple and weighted, Tests of adequacy of index numbers, Construction of consumer price indices.

Block-6 Time series analysis

Time series analysis: Components of time series; additive and multiplicative models; Trend analysis: Finding trend by moving average method and Fitting of linear trend line using principle of least squares.

Suggested Readings:

1. Budnick, P.(2000) *Applied Mathematics.* McGraw Hill Publishing Co.
2. J. K. Singh, (2017)*Business Mathematics,* Himalaya Publishing House.
3. J. K. Sharma, (2019)*Business Statistics,* Pearson Education.
4. S.C. Gupta, (2017)*Fundamentals of Statistics,* Himalaya Publishing House.
5. S.P. Gupta and Archana Gupta, (2020) *Elementary Statistics,* Sultan Chand and Sons, New Delhi.

Note: Latest edition of text books may be used.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER:

1. The syllabus prescribed should be strictly adhered to.
2. The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. The candidates will attempt two questions from each section.
3. Section C will have fifteen short answer questions covering the entire syllabus. Each question will carry 3 marks. Candidates will attempt any ten questions from this section.
4. The examiner shall give a clear instruction to the candidates to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.
5. The duration of each paper will be three hours.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C.They have to attempt

questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

24/2/25