# OUTLINES OF TESTS,
# SYLLABI AND COURSES OF READING

for

## B.Com. (Honours) Part I
## (Semester I)

Academic Sessions
**2025–26 and 2026–27**

NEP-TEMPLATE FOR MULTIDISCIPLINARY UG PROGRAMME



**POST GRADUATE DEPARTMENT OF MATHEMATICS**
**GURU NANAK COLLEGE BUDHLADA**
**AN AUTONOMOUS COLLEGE**
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## SCHEME OF THE COURSE

## B.Com. I (Honours) SEMESTER I

| Semester I | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type of Course** | **Course Code** | **Course Title** | **Internal** | **External** | **Practical** | **Total** | **Credit** |
| IDC/MDC | BC106A | Business Mathematics | 30 | 70 | - | 100 | 03 |
| **Semester II** | | | | | | | |
| IDC/MDC | BC206A | Business Statistics | 30 | 70 | - | 100 | 03 |

Rakesh Kumar

Sntisn.

Bharat Goyal

## SEMESTER I
## BC106A: Business Mathematics
## (IDC/MDC)

Credits: 03(L)                                          External Exam Marks: 70
Time Allowed: 3 Hrs.                                    Internal Assessment: 30
Pass percentage: 35%                                    Total Marks: 100

**COURSE OBJECTIVES:**
- To equip students with the fundamental concepts of matrices, determinants, and calculus.
- To develop problem-solving skills by applying these tools to practical problems in economics, business, and related fields.

**COURSE OUTCOMES:**

1. Understand the concepts of matrices, determinants, and their properties.
2. Apply methods such as adjoint, inverse, and elementary operations to solve systems of linear equations.
3. Explain limits, continuity, and rules of differentiation for different types of functions.
4. Apply differentiation to solve problems of elasticity, cost, revenue, and profit including maxima and minima.

## INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 12 marks for each question. Section C will consist of 11 short answer type questions and each question will carry 2 marks.

## INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.
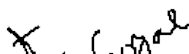
## SECTION-A

Matrices and Determinants: Definition of a matrix, Types of matrices, algebra of matrices, properties of determinants, calculation of values of determinants up to third order, adjoint of a matrix, elementary row or column operations, finding inverse of a matrix through adjoint and elementary row or column operations, solution of a system of linear equations having unique solution and involving not more than three values.

## SECTION-B

Differential calculus: Mathematical functions and their types- linear, quadratic, polynomial. Concepts of limit and continuity of a function. Concept of differentiation. Rules of differentiation- simple standard forms. Application of differentiation-elasticity of demand and supply. Maximum and minimum of functions (involving second or third order derivatives) relating to cost, revenue and profit.

## RECOMMENDED BOOKS
1. N.D. Vohra: Business Mathematics and Statistics
2. J.K. Thukral: Mathematics for Business Studies.
3. J.K. Singh: Business Mathematics
4. Budnick, P.: Applied Mathematics

## SEMESTER II
### BC206A: Business Mathematics
### (IDC/MDC)

Credits: 03(L)                                           External Exam Marks: 70
Time Allowed: 3 Hrs.                                     Internal Assessment: 30
Pass percentage: 35%                                     Total Marks: 100

### COURSE OBJECTIVES:
- To provide students with a foundational understanding of statistical concepts, methods, and their applications.
- To develop analytical skills for interpreting data, measuring relationships, and solving real-world problems using statistics.

### COURSE OUTCOMES:
1. Understand the definition, scope, importance, and limitations of statistics.
2. Compute and interpret measures of central tendency, dispersion, and analyze time series trends.
3. Construct and evaluate index numbers, and measure correlation using Pearson's and Spearman's methods.
4. Develop and interpret regression equations for studying relationships between variables.

### INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 12 marks for each question. Section C will consist of 11 short answer type questions and each question will carry 2 marks.

### INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt five questions in all, selecting two questions each from section A and B and compulsory question of section C.

### SECTION-A
Introduction to Statistics- Definition, Importance and Limitations, Functions and scope
Measures of Central Tendency: Mean, Median, Mode. Measures of dispersion: Range, Quartile deviation, Mean deviation and Standard deviation.
Analysis of Time Series: Causes of variations in time series multiplicative models; Determination of trends, Moving averages method and method of least squares (including linear, second degree, parabolic and exponential trends).

### SECTION-B
Index numbers: Need, definition and limitations of Index numbers - simple and weighted index numbers - Laspyer's, Paasche's and Fisher Index numbers, Criterion of ideal index numbers, problems involved in the construction of index numbers.
Correlation: Meaning, types and measurement of correlation (Karl Pearson's methods and Spearman's rank correlation).
Regression: Meaning, Regression Equation of X on Y and Y on X.

### RECOMMENDED BOOKS
1. R.P. Hooda : Statistics for Business and Economics
2. S.P. Gupta Statistical Methods
3. S.C. Gupta and V.K. Kapoor Fundamentals of Applied Statistic