SEMESTER I
BSMDMAT1229T: QUANTITATIVE ABILITY-II
(IDC/MDC)

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

COURSE OBJECTIVES: To develop problem-solving skills using concepts from arithmetic, geometry, algebra, and graphical methods for quantitative reasoning.

COURSE OUTCOMES:

1. Students will be able to develop logical reasoning that are necessary for building a stable career foundation
2. Able to solve real world problems
3. Able to solve complex problems involving speed, distance and time.
4. Able to understand the various ways of selection and arrangement of items from a given set
5. Students will be able to learn Cognitive skills such as problem solving, decision making, critical thinking.

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 sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all, selecting two questions from each of Section A and B and compulsory question of Section C.

SECTION-A

Time and Work, Time Speed Distance-Relationship between time speed distance, Average Speed, Relative speed, Problems of Trains, Boats and stream, Circular motion. Area of two-dimensional geometric figures: triangles, quadrilaterals, circle. Volume and surface area: Cuboid, cylinder, cone, sphere. Heights and Distances.

SECTION-B

Algebra- Polynomials, Elementary curves, Remainder Theorem, System of Linear equations, Quadratic equations, Graphical interpretations of Discriminant, Vieta's formula, Finding roots by intersection of graphs. Permutation and Combination.

RECOMMENDED BOOKS

1. Quantitative Aptitude by R.S. Aggarwal, S. Chand publications
2. Quantitative Aptitude by Arun Sharma, McGraw Hill Education, India
3. Maths in Moments Quantitative Aptitude, Arihant Publications limited

Rakesh Kumar Bharat Gupta

OUTLINES OF TESTS, SYLLABI AND COURSES OF READING

for

M.C.A. 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
Email: gncbudhlada@yahoo.co.in
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SCHEME OF THE COURSE

M.C.A. I SEMESTER I

Semester I							
Type of Course	**Course Code**	**Course Title**	**Internal**	**External**	**Practical**	**Total**	**Credit**
Major	MCA1104T	Statistics and Probability	30	70	-	100	04

SEMESTER I
MCA1104T: Statistics and Probability
(Major)

Credits: 04(L) External Exam Marks: 70
Time Allowed: 3 Hrs. Internal Assessment: 30
Pass percentage: 35% Total Marks: 100

COURSE OBJECTIVES: The objective of this course is to provide a solid foundation in the fundamental concepts of statistics and probability. It aims to equip students with skills in data analysis through measures of central tendency, dispersion, correlation, and regression. The course also develops the ability to apply probability theory, conditional probability, and mathematical expectation in solving practical and theoretical problems.

COURSE OUTCOMES: On completion of this course, the students will be able to

1. Understand the scope of statistics and apply measures of central tendency and dispersion for data analysis.
2. Analyze relationships between variables using correlation and regression techniques.
3. Apply probability concepts including conditional probability, independence, and Bayes' theorem to real-life problems.
4. Compute and interpret expectation, variance, covariance, and related properties of random 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 10 marks for each question. Section C will consist of 10 short answer type questions and each question will carry 3 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

Statistics: Introduction, importance and scope of statistics.
Measures of Central Tendency: Mean, Median, Mode and Quartile.
Measures of Dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation.
Correlation Analysis: Karl Pearson's coefficient of correlation, Spearman's rank correlation.
Regression Analysis: Introduction, utility, Methods of least squares, Coefficient of Regression, Standard
error of estimate, Coefficient of Determination.

Rakesh Kumar Satish. Bharat Gupta

SECTION-B

Introduction to Probability: Random experiment, Sample space, Events, Axiomatic Probability, Algebra of events

Conditional Probability: Conditional Probability, Multiplication theorem of Probability, Independent events, Baye's Theorem

Mathematical Expectation: Expected value of a random variable, Expected value of a function of a random variable,Properties of Expectation and Variance, Covariance

RECOMMENDED BOOKS

1. Probability & Statistics for Engineers: Dr J Ravichandran, Wiley
2. Probability and Statistics with Reliability, Queuing, And Computer Science Applications (English) 1st Edition: Kishore Trivedi, PHI
3. Schaum's Outlines Probability, Random Variables & Random Process 3rd Edition Tata McGraw Hill
4. Statistical Methods, S.P. Gupta, Sultan Chand and Sons.