

## BCA-7-01T: Research Methodology & Statistical Analysis

Total Marks: 100  
External Marks: 70  
Internal Marks: 30  
Credits: 6  
Pass Percentage: 40%

### 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.

<b>Course: Research Methodology &amp; Statistical Analysis</b>	
<b>Course Code: BCA-7-01T</b>	
<b>Course Outcomes (COs)</b> After the completion of this course, the students will be able to:	
CO1	Identify and differentiate between various research methodologies, including qualitative, quantitative, and mixed methods.
CO2	Understand the principles underlying each research approach and their suitability for different types of research questions and objectives..
CO3	Develop skills in designing research studies, including formulating research questions, hypotheses, and objectives.
CO4	Demonstrate an understanding of ethical considerations in research design and implementation.
CO5	Gain proficiency in basic statistical concepts, including descriptive statistics, inferential statistics, and hypothesis testing.

## Detailed Contents:

Module	Module Name	Module Contents
<b>Section-A</b>		
<b>Module I</b>	<b>Foundations of Research</b>	Foundations of Research: Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method– Understanding the language of research – Concept, Construct, Definition, Variable. Research Process
<b>Module II</b>	<b>Problem Identification &amp; Formulation</b>	Problem Identification & Formulation: Research Question – Investigation Question – Measurement Issues – Hypothesis – Qualities of a good Hypothesis –Null Hypothesis & Alternative Hypothesis. Hypothesis Testing – Logic & Importance
<b>Module III</b>	<b>Research Design</b>	Research Design: Concept and Importance in Research – Features of a good research design – Exploratory Research Design – concept, types and uses, Descriptive Research Designs – concept, types and uses. Experimental Design: Concept of Independent & Dependent variables.
<b>Section-B</b>		
<b>Module IV</b>	<b>Qualitative and Quantitative Research</b>	Qualitative and Quantitative Research: Qualitative research – Quantitative research – Concept of measurement, causality, generalization, replication. Merging the two approaches.
<b>Module V</b>	<b>Sampling</b>	Sampling: Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample – Practical considerations in sampling and sample size.
<b>Module VI</b>	<b>Data Analysis</b>	Data Analysis: Data Preparation – Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bivariate analysis – Cross tabulations and Chi-square test including testing hypothesis of association.

## **Books**

1. Cooper, D. R. and Schindler, P.S., “Business Research Methods”, Tata McGraw Hill, New Delhi.
2. Kothari, C. R., “Research Methodology”, New Age International.
3. Zikmund, Millian G., “Business Research Methods”, Thomson Learning, Bombay.
4. Geode, Millian J. & Paul K. Hatl, “Methods in Research Methods”, Tata Mc Graw Hills, New Delhi
5. Gupta S. P., “Statistical Methods”, Sultan Chand, Delhi