

Roll No.

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D-47/2110

**RESEARCH METHODOLOGY AND
STATISTICAL TECHNIQUES**

Paper-104

Semester-I

Time allowed : 3 Hours] [Maximum Marks : 70

Note : Attempt **two** questions each from Section A and B carrying **10** marks each. Attempt any **ten** questions from Section C carrying **3** marks each.

SECTION-A

1. Define Research. Discuss its objectives and types. 10
2. Explain the concept of hypothesis. Discuss its types. Illustrate the criteria for construction of hypothesis. 10
3. What is the significance of sample selection in research? Discuss various probability sampling techniques. 10

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4. What is the observation method? Discuss various observation methods used in research giving appropriate examples.

SECTION-B

5. Two sets of the students selected at random from a college were taken; one was given memory tests as they were, and the other set was given a memory test after two weeks' training, and scores were given below :

Is there any significant difference in scores of two tests?

Set A	10	8	7	9	8	10	9	6	7	8
Set B	12	8	8	10	8	11	9	8	9	9

6. In a village 'A' out of random sample of 1000 persons 100 were found to be vegetarians while in another village 'B' out of 1500 persons 180 were found to be vegetarians. Do you find a significant difference in the food habits of the people of the two villages?
7. Three machines are used in packaging of 16 kg. of flour. Samples of six bags were selected from each

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machine and the amount of wheat packaged in each bag is shown below:

Machine I	15.8	15.9	16.2	15.7	16.3	15.8
Machine II	16.5	16	15.4	15.9	16.2	16.1
Machine III	15.7	16.4	16.2	15.9	15.7	16.3

Use 5% level of significance to test the hypothesis that the amount of wheat packaged by three machines is the same.

8. Discuss in detail the steps that a researcher needs to follow to formulate a good research report. Do the criteria become different for different kinds of reports? Illustrate.

SECTION-C

9. Attempt any ten question : $3 \times 10 = 30$
- (i) Differentiate Null and Alternate hypothesis
 - (ii) Differentiate primary and secondary data
 - (iii) How size of a sample is determined?
 - (iv) Differentiate Quota and stratified sampling
 - (v) Define interview method

- (vi) Differentiate basic and applied research
- (vii) Explain properties of normal distribution
- (viii) Define power of the test
- (ix) Define appendices
- (x) Discuss the application of F-test
- (xi) Write conditions of binomial distribution
- (xii) Explain the sources of deriving Hypothesis.