

2023

M. E. (Information Technology)

First Semester

MEIT-1101: Research Methodology

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) What do you understand by working hypothesis? Discuss in brief.
- b) Briefly discuss the necessity of defining a research problem.
- c) What do you understand by Principle of Randomization? Discuss in brief.
- d) List two precautions that a researcher should take while interpreting his findings.
- e) What is the purpose of ANOVA test? (5x2)

### UNIT - I

- II. a) Describe the different types of research highlighting the characteristics of each.  
b) Differentiate between research methods and research methodology. (7,3)
- III. a) "The task of defining the research problem often follows a sequential pattern".  
Comment.  
b) The following are the number of departmental stores in 15 cities: 35, 17, 10, 32, 70, 28, 26, 19, 26, 66, 37, 44, 33, 29 and 28. If we want to select a sample of 10 stores, using cities as clusters and selecting within clusters proportional to size, how many stores from each city should be chosen? (Use a starting point of 10). (2x5)
- IV. a) What are the Characteristics of Experimental Research? Discuss the data collection methods used in experimental research.  
b) Explain the meaning of the following in context of Research design: Experimental and Control groups, Treatments, Experimental unit. (2x5)

P.T.O.

**UNIT - II**

- V. a) What do you understand by nominal, ordinal, interval and ratio data? What are their characteristics? Discuss with suitable examples.  
b) Are you in agreement with the statement: Validity is more critical to measurement than reliability? Discuss. (6,4)
- VI. a) Describe, in brief, the layout of a general research proposal, covering all relevant points.  
b) Write a short note on ANOVA technique and its utility. (2x5)
- VII. What is Chi-square test? Explain its significance in statistical analysis. Also discuss the conditions that should be satisfied before  $\chi^2$  test can be applied. (10)