

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: M.PHARM
BRANCH: PHARMACY**

**SEMESTER: IIIrd
SESSION: MO/25**

SUBJECT: MRM301T RESEARCH METHODOLOGY AND BIOSTATISTICS

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
5. Answer any five questions.

- 1a. Describe repeated measure analysis. Difference between standard ANOVA and Repeated Measures ANOVA. [7]
- 1b. Classification of sampling types. Describes probability and non-probability sampling with examples. [8]
- 2a. Perform a T-Test on the following problems. [7]
- The mean systolic blood pressure in the early morning is 140 mmHg.
Significance Level (α): 0.01.
 $X = 180$.
 $\mu_0 = 190$.
 $S = 11$.
 $N = 14$.
 $df = n-1$.
- Identify the Critical t Value.
Identify test statistic t and H_0 .
- 2b. Describe the dependent and independent t-test with its equation. [8]
- 3a. What are moral values? Explain their significance in human society. [7]
- 3b. What is medical ethics? Explain four principles of medical ethics with suitable examples. [8]
- 4a. Explain medical malpractice & Medical negligence with suitable examples [7]
- 4b. What is Euthanasia? Describe the different types of Euthanasia [8]
- 5a. Illustrate the composition & function of IAEC . [7]
- 5b. What is CCSEA? Explain different ethical principles and function of CCSEA. [8]
- 6a. Define research and explain research objectives and their significance with respect to modern era. [7]
- 6b. Compare and contrast between the different research types and highlight their approaches [8]
- 7a. Illustrate the steps involved in a research process with the help of a labelled flow Chart and elaborate on sample design. [7]
- 7b. Enumerate the criteria to be followed for conducting a good research protocol and mention some problems encountered in the process of research methodology [8]

:::22/11/2025:::M