

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

**CLASS: M. Pharm.  
BRANCH: PHARMACY**

**SEMESTER: 3rd  
SESSION: MO 2023**

**SUBJECT: MRM301T RESEARCH METHODOLOGY & 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.
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- 1a. Define Research and explain any two study designs with respect to their pros and cons. [7]  
1b. Explain the various strategies to eliminate bias in any research. [8]

- 2a. Suppose a set of 30 data is given to you, what are the different statistical parameters you are going to use on the data to generate a good statistical overview. [7]  
2b. In general, the mean height of women is 65" with a standard deviation of 3.5". What is the probability of finding a random sample of 50 women with a mean height of 70", assuming the heights are normally distributed. [8]

- 3a. Explain the significance of null hypothesis and normal distribution curve in statistical analysis. [7]  
3b. Let the distribution of body weights of 25 mice are given below: [8]

Weights	0-10	10-20	20-30	30-40	40-50
No. of mice	3	4	9	7	2

Compute mean, by i) Direct method and ii) Shortcut method or Step deviation method.

- 4a. What is Moral values? Explain importance and significance of ten different moral values in society. [7]  
4b. Define Medical Ethics? Explain four different principles of Medical Ethics with suitable examples. [8]

- 5a. What is Euthanasia? Describe different types of Euthanasia with suitable examples. [7]  
5b. Write notes on Confidentiality, Informed consent, Double effect and conflict of interest. [8]

- 6a. Explain different principles of CPCSEA for use of animals in scientific experiments. [7]  
6b. What is Medical Ethics Committee and IAEC? Explain composition, function, Role and responsibilities of Medical Ethics Committee and IAEC. [8]

- 7a. Students were given different drug treatments before revising for their exams. Some were given a memory drug, some a placebo drug and some no treatment. The exam scores (%) are shown below for the three different groups. Carry out a one-way ANOVA by hand to test the hypothesis that the treatments will have different effects. (Tabulated F Value (2,12) at 5% level of significance: 3.885) [7]

No. of Students	Memory Drug	Placebo	No Treatment
1	70	37	03
2	77	43	10
3	83	50	17
4	90	57	23
5	97	63	30

- 7b. Describe surveillance, diagnosis and treatment of animals in animal house [8]