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M.Tech. (Bio Tech) (2018 Batch) (Sem.–2)

RESEARCH METHODOLOGY / STATISTICAL TECHNIQUES (Open Elective-I)

Subject Code : MTBT-207-18

M.Code : 76052

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1.Attempt any FIVE questions out of EIGHT questions.

2.Each question carries TWELVE marks.

1. a) Compare snow ball sampling and quota sampling techniques.

   b) Differentiate between questionnaire and checklist. Describe steps to create an effective questionnaire.

2. Write notes on following :

   a) Types of hypotheses

   b) Format of research report

3. Describe purpose and various steps of writing a research proposal.

4. a) Distinguish between basic and applied research.

   b) Describe criteria for selecting research instruments and a statistical test.

5. a) Describe procedure and methods of data collection.

   b) Explain journal strategies for evaluating research.

6. a) Contrast correlational and experimental research with suitable examples.

   b) Write down purpose and scope of review.

7. a) Write a detailed note on One way ANOVA.

b) A vaccine was developed which was supposed to protect mice against a particularly virulent bacterium. A group of 55 mice was given the vaccine and then challenged with a heavy dose of the bacterium. Another group of 55 mice, which had not vaccinated, was challenged with the same dose. Twenty nine mice in the vaccine group contracted the disease, and thirty five in the control group became ill. Test for effectiveness of the vaccine. (Chi square at 5% level of significance is 3.841)

8. a) Differentiate between :

i) Paired and independent student's t test.

ii) Range and standard deviation

iii) Rank difference and Product moment correlation

b) A drug is believed to hasten blood clotting time was tested by comparing a drug group with a placebo group. Analyse the following data in order to determine whether the mean clotting time of the drug group is significantly lower than the mean clotting time of the placebo group. The clotting time is given in minutes.

(t value at 5% level of significance is 2.02)

	Drug	**Placebo**
Mean	4.90	7.45
Variance	10.244	12.96
Sum of the squared deviations	194.56	246.24
Number of observations	20	20

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.