

GUJARAT TECHNOLOGICAL UNIVERSITY
B.Pharm - SEMESTER-VIII • EXAMINATION – WINTER -2021

Subject Code: BP801TT

Date: 23/11/2021

Subject Name: Biostatistics and Research Methodology

Time: 10:30 am to 01:30 pm

Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Find the Mean, Mode and Median of following data. **06**
 2, 4, 7, 1, 6, 9, 5, 4, 4, 3, 4
- (b) Write a short note on central composite design. **05**
- (c) Explain in detail of Probability, Binomial distribution. **05**
- Q.2** (a) Find the Karl Pearson's coefficient of correlation from the following data. **06**
- | | | | | | |
|---|----|----|----|----|----|
| x | 5 | 9 | 13 | 17 | 21 |
| y | 12 | 20 | 25 | 33 | 35 |
- (b) What do you meant by Research? Explain experimental design techniques. **05**
- (c) What is SPSS? Write down their applications. **05**
- Q.3** (a) What is hypothesis? What are different types of hypothesis? Explain how you will formulate a hypothesis with a suitable example. **06**
- (b) What is meant by regression modeling? Explain hypothesis testing in simple and multiple regression models. **05**
- (c) Differentiate SD and SEM. **05**
- Q.4** (a) Describe the construction of any three types of graphical representation of statistical data with suitable examples. **06**
- (b) What do you meant by factorial design? Write some advantages of factorial design. **05**
- (c) Explain Blocking and Confounding the 2^k factorial design in two blocks. **05**
- Q.5** (a) Write a note on ANOVA (Analysis of Variance). **06**
- (b) Explain Wilcoxon signed rank test and Mann Whitney U test. **05**
- (c) Explain different observational study designs. **05**
- Q.6** (a) Explain the following. **06**
- (i) Cohorts studies
- (ii) Report writing and presentation of data
- (b) Discuss various phases in designing clinical trial with examples. **05**
- (c) Define Range and Standard deviation. Find the standard deviation of following data. **05**
 1.24, 5.19, 1.62, 9.54, 2.63, 4.25, 5.34
- Q.7** (a) Define the following. **06**
- (i) Null hypothesis and alternative hypothesis
- (ii) Error-I type and Error-II type
- (iii) Sampling and Essence of Sampling
- (b) Classify and explain different types of t tests. **05**
- (c) What is Plagiarism? What are the needs for research? **05**
