

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. Ph. - SEMESTER- VIII EXAMINATION – SUMMER -2022**

**Subject Code: BP801TT****Date: 31/05/2022****Subject Name: Biostatistics and Research Methodology****Time: 10:30am to 01:30pm****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) What are parametric and non-parametric tests? Write a detailed note on Correlation 06  
 (b) Write short note on cohort study. 05  
 (c) Enlist and Explain types of Significance tests in Statistics 05
- Q.2** (a) Define following terms: 1) Variables 2) Graph 3) Sample Size 4) Statistics 5) Population 6) Hypothesis 06  
 (b) What do you mean by design of experiments? Write need of design of experiment. 05  
 (c) Discuss Writing of report and presentation of data. 05
- Q.3** (a) What is hypothesis? What are the different types of hypothesis? Explain how to formulate hypothesis with suitable example. 06  
 (b) Explain different phases of clinical Trials. 05  
 (c) Explain one way ANOVA and the assumptions in one way ANOVA. 05
- Q.4** (a) Define “t” test. Explain the different situation where paired and unpaired “t” test is applied. 06  
 (b) Explain Probability and its significance in statistics. 05  
 (c) Explain null hypothesis. Discuss error type-I and type-II 05
- Q.5** (a) Explain the concept of Factorial design. 06  
 (b) Discuss histogram, Bar chart and pie chart. 05  
 (c) Discuss application of excel and SPSS programme in statistical analysis. 05
- Q.6** (a) The ages of the 112 people who live on a tropical island are given below. 06
- |           |     |       |       |       |       |       |       |       |       |
|-----------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| Age       | 0-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | 80-89 |
| Frequency | 20  | 21    | 23    | 16    | 11    | 10    | 7     | 3     | 1     |
- Calculate the mean, median and mode.
- (b) Classify different types of regression analysis. Discuss the least square method in regression analysis 05  
 (c) What is sampling? Explain in detail different methods of sampling 05
- Q.7** (a) Find the value of the correlation coefficient from the following table: 06
- |               |    |    |    |    |    |    |
|---------------|----|----|----|----|----|----|
| Age           | 43 | 21 | 25 | 42 | 57 | 59 |
| Glucose level | 99 | 65 | 79 | 75 | 87 | 81 |
- (b) Define research. Write objective of research. Enlist types of research. 05  
 (c) Discuss the problems faced by researchers while attempting Empirical research. 05