Seat No.: _____   Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B.Pharm. – SEMESTER VIII EXAMINATION – WINTER-2022

Subject Code:BP801TT   **Date:09/01/2023**
Subject Name: Biostatistics and Research Methodology
Time: 02:30PM TO 05:30PM   **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)**	Explain correlation, type of correlation and its application in research.	**06**
	(b)	Explain the following terms:	**05**
		a) Biostatistics	
		b) Arithmetic mean	
		c) Dispersion	
		d) Frequency distribution	
		e) Range	
	(c)	The weight of 10 tablets is given below (in mg). Calculate the mean, median and mode. 520, 525, 530, 510, 525, 535, 540, 510, 515, 525	**05**
Q.2	**(a)**	Write a note on probability sampling techniques.	**06**
	(b)	What are probabilities? Explain normal distribution.	**05**
	(c)	Define Standard deviation. Calculate the standard deviation of following sample data: 10, 12, 14, 16, 20, 24, 28, 30	**05**
Q.3	**(a)**	What is regression analysis? Explain in detail least square method for regression analysis.	**06**
	(b)	Describe the following: a) Standard error of mean b) Quota sampling	**05**
	(c)	Define t-test and explain different type of t-tests.	**05**
Q.4	**(a)**	What are parametic tests? Explain in detail about the one way ANOVA.	**06**
	(b)	Explain Wilcoxon Rank sum test and Friedman test.	**05**
	(c)	Discuss Histogram and Pie chart.	**05**
Q.5	**(a)**	What is research? Explain in detail experimental design techniques.	**06**
	(b)	Write a short note on research report.	**05**
	(c)	Explain in detail cohorts and experimental studies.	**05**
Q. 6	**(a)**	Write a note on blocking and confounding for two level factorial design.	**06**
	(b)	Explain the central composite design.	**05**
	(c)	Write a note on hypothesis testing in simple regression model.	**05**
Q.7	**(a)**	Define factorial design. Write a note on 2^3 factorial design.	**06**
	(b)	Write the importance of SPSS and MIN ITAB software in clinical trials.	**05**
	(c)	Explain the following: a) Null hypothesis and alternative hypothesis b) Type – I error and Type - II error	**05**

****