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: a) Biostatistics b) Arithmetic mean c) Dispersion d) Frequency distribution e) Range	**05**
	(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**

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