Subject Code: BP801T

PAPER ID-420592

Roll No: | | | | | | | | | | | | | |

BPHARMA
(SEM VIII) THEORY EXAMINATION 2021-22
BIOSTATISTICS AND RESEARCH METHODOLOGY

Time: 3 Hours ***Total Marks: 75***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 10 x 2 = 20

a.	What is Wilcoxon Rank Sum test?
b.	What are the arithmetic mean and geometric mean?
c.	What will be the value of the median, if in a moderately skewed distribution, arithmetic mean is 35.6 and the mode is 38.9?
d.	How can you construct the pie chart?
e.	What do you mean by plagiarism?
f.	What are the Type I and Type II errors?
g.	What do you mean by blocking system for two-level factorials?
h.	How will you differentiate between one way ANOVA and two way ANOVA test?
i.	What are the merits and demerits of mode?
j.	How would you differentiate between coefficient of correlation and regression?

SECTION B

2. Attempt any *two* parts of the following: 2 x 10 = 20

a.	When do you use Binomial distribution? Explain various properties of Binomial distribution. What do you think whether Poisson distribution a limiting case of Binomial distribution or not? If yes then describe the limit conditions. If the mean of the Binomial distribution is 40 and standard deviation is 6 then calculate n, p and q.
b.	Can you distinguish between sample and population? What are the advantages and limitations of sampling? Write the name of the different types of sampling. Explain each type of probability sampling in detail.
c.	What are the two broad categories of research studies? Explain cohort study with example. Also write its advantages and disadvantages.

SECTION C

3. Attempt any *five* parts of the following: 7 x 5 = 35

a.	Illustrate various measures of dispersion. How will you calculate the standard deviation from the following data: 10, 12, 14, 18, 25, 30, 35, 40?
b.	What do you mean by report writing? Illustrate various steps of report writing.
c.	What is clinic trial? Explain various phases of clinic trials.
d.	Describe Central Composite Design and Box Behnken Design. What are the basic differences between these designs?
e.	How can you distinguish between small sample and large sample? Describe all the major steps involved in one sample t-test. A sample of 20 items has mean 42 units and standard deviation 5 units. Test the hypothesis that it is a random sample from a normal population with mean 45 units. Given: $t_{(19)}(0.05) = 2.093$(Test at 5% level of significance)
f.	Analyze the purpose of curve fitting. Fit a straight line to the following data by least square method. x: 0 1 2 3 4 y: 1 1.8 3.3 4.5 6.3
g.	What is factorial design? How would you demonstrate 2^2 and 2^3 factorial designs with example? What are the pros and cons of factorial design?