Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF PHARMACY

B. Pharm. Summer 2022 - 23 Examination

Semester : 8 **Date:10/04/2023**

Subject Code: BP801T **Time: 10:00am to 1:00pm**

Subject Name: Biostatistics and Research Methodology **Total Marks: 75**

Instructions:

1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

Q.1 Multiple Choice Questions (MCQs) (1 Mark Each) **(20)**

1. Find the median of given set of number 2,5,5,8,4,2,7,9
   a) 2 b) 4
   c) 5 d) 9
2. In the linear regression equation Y=mX+c
   a) Y is independent factor b) m is independent factor
   c) X is independent factor d) c is independent factor
3. Which of these can be obtained by using the experimental design?
   a) Reduced process capability b) Reduced distance from the nominal value
   c) Increased variability d) Increased cost
4. In percentage R-squared is always between
   a) 0 to 100% b) 1 to 100%
   c) 10 to 100% d) 50 to 100%
5. If the number of factors are 4 and levels are 2, then the numbers of trials as per full factorial design is
   a) 8 b) 16
   c) 20 d) 64
6. Type 1 error is the one in which
   a) Null hypothesis is true but rejected b) Null hypothesis is false but rejected
   c) Null hypothesis is true but accepted d) Null hypothesis is false but accepted
7. In a statistical test, when the size of samples is small(<30), and the standard deviation are unknown
   a) Z-test is used b) t-test is used
   c) F-test is used d) ANOVA is used
8. Type of excipient, is an _____factor in experimental design
   a) Qualitative b) Quantitative
   c) All d) None
9. Are used when you want to visually examine the relationship between two quantitative variables
   a) Bar graphs b) Line graphs
   c) Pie graphs d) Scatterplot
10. To read literature critically means
    a) Taking an opposing point of view to the ideas and opinions expressed
    b) Skimming through the material because most of it is just padding
    c) Being negative about something before you read it
    d) Evaluating what you read in terms of your own research Questions
11. Kruskal Wallis is based upon
    a) Mean b) Rank
    c) Deviation d) Categories
12. Post marketing surveillance is associated with
    a) Clinical trial Phase 1 b) Clinical trial Phase 2
    c) Clinical trial Phase 3 d) Clinical trial Phase 4

13. Why do you need to review the existing literature?

a) To make sure you have a long list of references
b) Because without it, you could never reach the required word-count
c) To help in your general studying
d) To find out what is already known about your area of interest

14. If a study is "reliable", this means that

a) It was conducted by a reputable researcher who can be trusted
b) The findings can be generalized to other social settings
c) The methods are stated clearly enough for the research to be replicated
d) The measures devised for concepts are stable on different occasions

15. A random sampling, chance of being selected is,

a) Not same & not known
b) Same & known
c) Same & not known
d) Not same but known

16. Which of the following is not a statistical Analysis Software

a) S
b) Excel
c) R
d) DOE

17. Analysis of Variance is a statistical method of comparing the several populations _____

a) Mean
b) Median
c) Standard Deviation
d) None of the above

18. What is the probability of getting an even number when a dice is tossed?

a) 1
b) 1/2
c) 1/3
d) 1/6

19. Skewness is positive when mean is _____

a) greater than median
b) less than median
c) equal to median
d) negative

20. What is the definition of 'mean square'?

a) A table of means with four cells
b) the square of the mean
c) The square root of the mean
d) A corresponding sum of squares divided by its degrees of freedom

Q.2 Long Answers (any 2 out of 3) (10 Mark Each) **(20)**

1. Define factorial design. Write a note on 3^2 factorial design.
2. Describe non-parametric tests.
3. Explain SPSS and MINITAB software.

Q.3 Short Answers (any 7 out of 9) (5 Mark Each) **(35)**

1. Discuss central composite design with suitable example.
2. Classify and explain different types of t tests.
3. Elaborate on Cohorts studies.
4. Explain correlation, type of correlation and its application in research.
5. Describe blocking and confounding for two level factorial design.
6. The weight of 15 tablets is given below (in mg). Calculate the mean, median and mode. 410, 420, 425, 430, 410, 425, 435, 440, 410, 415, 425, 415, 425, 420, 415.
7. What are probabilities? Explain normal distribution.
8. Give overview on plagiarism.
9. Discuss report writing and presentation of data.