

B. Pharm. (CBCS Pattern) Semester-VIII  
**BP801T - Biostatistics and Research Methodology**

P. Pages : 3

Time : Three Hours



**GUG/S/25/14147**

Max. Marks : 75

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- Notes : 1. Diagrams and Chemical equation should be given wherever necessary.  
2. All questions are compulsory.

**1. Multiple Choice Questions (20x1 = 20 Marks) 10**

- 1) The first page of research report is
  - a) Appendix
  - b) Abstract
  - c) Index
  - d) Title page
- 2) The measures of central tendency are -----
  - a) Mean, mode, median
  - b) Mean, mode, standard deviation
  - c) Mean, standard deviation, variance
  - d) Mean, variance, median
- 3) The class frequency is divided by number of observations in the frequency distribution to convert it into -----
  - a) Relative margin distribution
  - b) Relative variable distribution
  - c) Relative frequency distribution
  - d) Relative width distribution
- 4) What is the major attribute of correlation analysis?
  - a) Association among variables
  - b) Difference among variables
  - c) Variations among variables
  - d) Regression among variables
- 5) If the two lines of regression are perpendicular to each other, the correlation coefficient is -----
  - a) 0
  - b) -1
  - c) 1
  - d) 2
- 6) In regression, the equation that describes how the response variable (y) is related to the explanatory variable (x) is -----.
  - a) Correlation model
  - b) Regression model
  - c) Probability model
  - d) Dispersion model
- 7) In binomial distribution, successive trials are -----
  - a) Mutually exclusive
  - b) Dependent
  - c) Independent
  - d) Dependent or independent
- 8) To test null hypothesis, a researcher uses -----
  - a) Karl Pearson Coefficient Test
  - b) T test
  - c) ANOVA
  - d) Factorial analysis

- 9) Sample value is called -----
- Parameter
  - Statistic
  - Variable
  - Data
- 10) Parametric test, unlike the non-parametric tests, make certain assumptions about-----
- The population size
  - The underlying distribution
  - Sample size
  - Sampling method
- 11) In one-way ANOVA, the calculated F value is less than the table F value then -----
- Accept the hypothesis that the population means are equal
  - Reject the hypothesis that the population means are equal
  - Sometimes accept the and sometimes reject the null hypothesis
  - Accept the hypothesis that the population means are not equal
- 12) Coefficient of determination is commonly known as
- Goodness of fit
  - R squared
  - Both a & b
  - None
- 13) Research is -----
- Searching again and again
  - Finding solution to any problem
  - Working in a scientific way to search for truth of any problem
  - Searching known things
- 14) Which of the following is not a "Graphic representation"?
- Pie chart
  - Bar chart
  - Table
  - Histogram
- 15) Bibliography means -----
- Foot note
  - References of research paper
  - List of books referred
  - Biography
- 16) Number of people selected for phase III trial is -----
- The whole market will be under surveillance
  - 300-3000 people
  - 20-300 people
  - 20-50 people
- 17) The characteristics or quantity that may vary from one individual to another is called -----
- Static group
  - Variable
  - Dynamic group
  - Dynamism
- 18) Which one of the following is the last step of a clinical trial process?
- Investigator selection
  - Patient recruitment
  - Statistical analysis
  - Data filling and registration
- 19) The variable which impacts the relationship between an independent variable and a dependent variable is known as -----
- Control variable
  - Predictor variable
  - Precedent variable
  - Antecedent variable

- 20) The studies are to determine a pharmacology profile, safe dose and assess potential toxicity of the product on laboratory animal is known as
- a) Observation study
  - b) Clinical study
  - c) Preclinical study
  - d) Statistical study

2. Solve any two (10x2=20 Marks)

- a) Write a short note on following.
  - 1) Box- Behnken design
  - 2) Kruskal Wallis Test
- b) Explain in detail different types of experimental research studies
- c) Explain the confounding system for two level factorial and hypothesis testing

3. Solve any seven (7x5=35 Marks)

- a) Explain the method of Karl Persons to find the coefficient of correlation for the following data.

Birth rate	10	16	20	24	30
Death rate	9	12	17	20	32

- b) What is probability? Explain probability distribution.
- c) Define statistics and biostatistics. Classify measures of central tendency.
- d) What is sampling? Write advantages and disadvantages of sampling.
- e) Write application of least significant difference test.
- f) What is plagiarism? Write its importance in research.
- g) Write the importance of R software in clinical trials.
- h) What are various measures of dispersion? Discuss about standard deviation.
- i) What is variance and range? Explain.

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