BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(PA)-2021/B.Sc.(PA)-2022
Course Name – Principles of Biostatistics and Research Methodology
Course Code - BPAC601
(Semester VI)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Choose the type of data can only take specific, distinct values with no values in between the variables.

a) Ordinal data b) Discrete data
c) Nominal data d) Continuous data

(ii) Choose what type of data can have an infinite number of possible values within a given range.

a) Ordinal data b) Discrete data
c) Nominal data d) Continuous data

(iii) If data can be categorized but has no specific order or ranking, identify type of data is it.

a) Nominal data b) Ordinal data
c) Continuous data d) Discrete data

(iv) Identify which type of diagram is most suitable for representing categorical data.

a) Bar diagram b) Histogram
c) Pie diagram d) Scatter plot

(v) List the measures of central tendency:

a) Standard deviation, variance, range b) Interquartile range, percentile, skewness
c) Mean, median, mode d) Correlation coefficient, coefficient of determination, regression coefficient

(vi) Name the measure of central tendency that represents the most frequently occurring value in a dataset:

a) Mean b) Median
c) Mode d) Standard deviation

(vii) Interpret the implications of a smaller standard error in a sample:

a) The sample mean is closer to the population mean b) The sample size is smaller

c) The variability within the sample is higher
d) The confidence in the sample mean is reduced

(viii) Recognize the correct interpretation of standard deviation:

a) It represents the spread of individual data points around the sample mean
b) It measures the precision of the sample mean estimate
c) It indicates the variability of the sample mean from the population mean
d) It determines the confidence interval of the sample mean

(ix) Identify the types of data in research.

a) Primary data
b) Secondary data
c) Tertiary data
d) Options 1 and 2

(x) Select the correct option: In survey method, a researcher can collect information by

a) Asking random questions
b) Observation
c) Interview
d) All of these

(xi) Select the option which should be considered unethical in research.

a) Honest work
b) Malhandling of subjects
c) Asking for written consent to perform research
d) Citing a copied sentence

(xii) Identify the option which may not be followed for conducting a research.

a) Respecting the laws
b) Respecting the culture
c) Respecting the elders
d) Respecting the economic status of the participants

(xiii) Select the correct option to fill in the blank: Response rate in research project is _____.

a) A record of the speed at which respondents respond in a data gathering exercise
b) A count of the number of responses received in a data gathering exercise
c) A record of the speed at which a research supervisor responds to a request for help during the research project
d) A count of the number of valid responses received in a data gathering exercise

(xiv) You are engaged with a research. Identify the outcome of your experiments.

a) Review of literature
b) Methods
c) Results
d) Conflict of Interest

(xv) Name the method which is not used in statistical analysis.

a) Student's t test
b) Professor's t test
c) One-way analysis of variance
d) Two-way analysis of variance

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the statement: Sampling reduces the task of research. (3)
3. Compute the mode of the given data: 2, 6, 4, 8, 10, 2,10, 4, 2, 8 (3)
4. Define Arithmetic Mean. (3)
5. Summarize the objectives of research. (3)
6. Analyze the ethical implications of using AI-generated content in academic work. (3)

OR

Differentiate between Qualitative and Quantitative data (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Calculate the standard error, if the variance of a given data set is 2.75. [sample size = 9] (5)
8. The hospitalization period for COVID19 in 6 patients were 3, 10, 21, 11, 11 and 10 days. Calculate the standard deviation of hospitalization period of COVID19 disease. (5)
9. Describe the methods for collection of Qualitative and Quantitative data (5)

10. Restate the steps involved in defining a research problem. (5)

11. Estimate a and b in simple linear regression model $Y = a + bX$ from the following bivariate dataset on (X, Y): (5)

X	1	5	3	4	6	7	2
Y	3	2	4	8	6	5	7

12. Estimate the standard deviation for the following frequency distribution: (5)

Class interval	20-32	33-45	46-58	59-71	72-84	85-97
Frequency	13	14	22	11	15	17

OR

Estimate the missing frequency f in the following frequency distribution which has standard deviation 9.46 (approx.). (5)

Class interval	0-5	6-11	12-17	18-23	24-29	30-35
Frequency	9	8	f	7	5	4

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