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BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – B.Sc.(PSY)-Hons-2024

Course Name – Statistics in Psychology

Course Code - BPY40110

(Semester IV)

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) Select the measure of variability that indicates the spread or dispersion of scores around the mean.
 - a) Median
 - b) Mode
 - c) Range
 - d) Standard Deviation
- (ii) Identify the level of measurement where variables are categorized into distinct, non-ordered categories in psychology:
 - a) Ordinal scale
 - b) Interval scale
 - c) Nominal scale
 - d) Ratio scale
- (iii) Identify the following as an example of an ordinal scale in psychology:
 - a) Temperature measured in Fahrenheit
 - b) Ranking of students based on their GPA
 - c) Number of hours slept per night
 - d) Reaction time in milliseconds
- (iv) Identify the term that represents the point below which a certain percentage of scores fall in a frequency distribution, indicating the relative standing of an individual within a group:
 - a) Mean
 - b) Median
 - c) Percentile
 - d) Mode
- (v) Select the error that occurs when a null hypothesis is incorrectly rejected when it is actually true:
 - a) Type I error
 - b) Type II error
 - c) None of these
 - d) Both Type I & Type II error
- (vi) Select the error that occurs when a null hypothesis is incorrectly retained when it is actually false:
 - a) Type I error
 - b) Type II error
 - c) None of these
 - d) Both Type I & Type II error
- (vii) Select the correct method for calculating the median in psychology:

- a) Adding all the scores and dividing by the number of scores b) Arranging the scores from lowest to highest and selecting the middle score
- c) Taking the average of the highest and lowest scores d) Counting the number of scores upper and below the mean and selecting the middle value
- (viii) Select the accurate description of raw scores in psychology statistics:
- a) Raw scores are always standardized using mean and standard deviation b) Raw scores are used exclusively in qualitative research studies
- c) Raw scores are synonymous with inferential statistics d) Raw scores represent the actual values obtained in a measurement or observation
- (ix) Identify the purpose of using grouped scores in statistics in Psychology:
- a) To simplify complex data sets for easier interpretation and analysis. b) To obscure individual data points and make generalizations about the population.
- c) To increase the variability of the data for more accurate statistical tests. d) To reduce the need for statistical analysis altogether.
- (x) Select the correct statement about quartile deviation calculation in statistics in Psychology:
- a) It is calculated as the difference between the first and third quartiles. b) It is calculated as the sum of the first and third quartiles.
- c) It is calculated as the product of the first and third quartiles. d) It is calculated as the ratio of the first and third quartiles.
- (xi) Select the measure that indicates the degree of dispersion around the mean in a set of data.
- a) Mean b) Mode
- c) Variance d) Median
- (xii) Choose the correct statement regarding z-scores:
- a) Higher z-scores indicate a raw score is below the mean. b) A z-score of 0 indicates that the raw score is at the mean.
- c) Negative z-scores indicate that a raw score is greater than the mean. d) Z-scores are not related to raw scores.
- (xiii) Choose the option that correctly explains the purpose of z-scores in statistics:
- a) To compare raw scores across different distributions. b) To calculate the mean of a dataset.
- c) To measure the range of scores in a dataset. d) To identify outliers in a dataset.
- (xiv) Choose the characteristic of skewness in a statistical curve where the tail extends towards the left side of the distribution, indicating a majority of data points on the right side of the mean?
- a) Negative skewness b) Positive skewness
- c) Symmetrical distribution d) Normal distribution
- (xv) Choose the term that describes a leptokurtic distribution in statistics in psychology:
- a) High kurtosis b) Low kurtosis
- c) Negative kurtosis d) Symmetrical kurtosis

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain briefly inferential statistics with example. (3)
3. Calculate the Percentile Rank of the score 64 of the following data: CI= 51-53, 54-56, 57-59, 60-62, 63-65, 66-68, 69-71. Frequency= 5, 7, 14, 28, 15, 8, 3 respectively. (3)

4. Calculate SD for the following set of scores: 52, 50, 56, 68, 65, 62, 57, 70. (3)
5. Describe the ratio scale of measurement. (3)
6. Draw diagrams to show the following: Negative skewness, Positive skewness, Normal curve. (3)

OR

Explain skewness & kurtosis. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Compute the quartile deviation of the following achievement test scores in a group of students. CI= 81-90, 91-100, 101-110, 111-120, 121-130, 131-140. Frequency= 7, 12, 19, 24, 14, 4 respectively. (5)
8. Find to express whether or not there is a significant correlation between oxygen consumption (ml per minute) and pulmonary minute ventilation (litres per minute) using the following data- Oxygen consumption: 281, 246, 369, 330, 258, 315, 246, 330, 298. Ventilation: 6.55, 7.10, 9.00, 8.50, 6.00, 7.00, 6.50, 9.00, 7.50 respectively. (5)
9. Compute rho between heights (cm) and weights (kg) of 12 college students using the following data. Height: 165, 182, 170, 162, 160, 165, 170, 170, 165, 176, 167, 180. Weight: 58.5, 60.0, 52.0, 48.5, 49.5, 59.0, 49.0, 56.0, 58.0, 60.0, 59.5, 66.5 respectively. (5)
10. 120 class X students of a school were asked to opt for different work experiences. The details of these options are given as follows- Area of work experience: Photography, Clay modelling, Kitchen gardening, Doll making, Book binding. No. of students: 6, 30, 48, 12, 24 respectively. Represent the above data through a pie diagram. (5)
11. Summarize the type I & type II errors with example. (5)
12. Illustrate characteristics and properties of a normal curve. (5)

OR

Explain applications of the normal curve. (5)
