लक्ष्यं विद्यमानम्

# WEST BENGAL STATE UNIVERSITY

B.A./B.Sc. Honours 2nd Semester Examination, 2023

## PSYACOR04T-PSYCHOLOGY (CC4)

Time Allotted: 2 Hours | Full Marks: 40

*The figures in the margin indicate full marks.*
*Candidates should answer in their own words and adhere to the word limit as practicable.*
*All symbols are of usual significance.*

1. Answer any ***five*** from the following: 2×5 = 10

(a) State the uses of standard deviation.

(b) In one state, voters register as Republican, Democrat or Independent and records of total registration are kept. Which scale of measurement is used?

(c) Find the median and mean for the given distribution.

9, 7, 10, 2, 9, 6.

(d) Delineate the concept of degrees of freedom.

(e) Does a low value of '*r*' between two variables necessarily indicate that there is very little association between them? Explain.

(f) Differentiate between Type I and Type II errors.

(g) A student's grade in a very difficult English exam is 85. What can we say about the merits of the student's performance? Explain.

(h) What is the most stable measure of central tendency and why?

2. Write any ***four*** from the following: 5×4 = 20

(a) Using a 10 point scale, two managers independently rate the performance of the same 5 sales people.

| Salesperson | A | B | C | D | E |
|---|---|---|---|---|---|
| Rating by first manager ($x$) | 9 | 4 | 5 | 3 | 5 |
| Rating by second manager ($y$) | 4 | 8 | 4 | 8 | 7 |

Construct a scatter diagram and determine the direction of the relationship.

(b) The subject of statistics is often divided into two parts: descriptive and inferential. Briefly describe each with examples.

(c) A sample of $n = 10$ scores has a mean of $\bar{x} = 23$. One score is removed from the sample and the mean for the remaining score is $\bar{x} = 25$. Find the value of the score that was removed.

(d) What is tetrachoric correlation? Differentiate between biserial '*r*' and tetrachoric '*r*'.

(e) Identify the variables from the following list that can form discrete series and continuous series.

(i) Temperature, (ii) Time, (iii) Gender, (iv) Brands of orange juice, (v) Size of family, (vi) Achievement score in mathematics, (vii) Merit ratings of employees, (viii) Score on an introversion-extraversion scale, (ix) Family income, (x) Price of various mobile phones.

(f) What are the factors that determine the shape of a distribution?

(g) Differentiate between

(i) Population and Sample, (ii) Parametric statistic and Nonparametric statistic

3. Answer any ***one*** from the following: $10 \times 1 = 10$

(a) Calculate the product-moment correlation coefficient between the following scores of two variables. Interpret the results based on magnitude and direction of correlation.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X : | 65 | 66 | 67 | 67 | 68 | 69 | 70 | 72 |
| Y : | 67 | 68 | 65 | 68 | 72 | 72 | 69 | 71 |

(b) Calculate the quartile deviation and standard deviation of the following frequency distribution.

| **Scores** | **Frequency** |
|---|---|
| 90-94 | 1 |
| 85-89 | 4 |
| 80-84 | 2 |
| 75-79 | 8 |
| 70-74 | 9 |
| 65-69 | 14 |
| 60-64 | 6 |
| 55-59 | 6 |
| 50-54 | 4 |
| 45-49 | 3 |
| 40-44 | 3 |
| | N = 60 |

(c) What do you mean by measurement? Discuss the scales or levels of measurements with examples. 3+7

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