B. Sc. DEGREE END SEMESTER EXAMINATION – MARCH 2024

SEMESTER **2: STATISTICS FOR PSYCHOLOGY**

COURSE: **19U2CPSTP02 – STATISTICAL TOOLS**

(For Regular - 2023 Admission and Improvement / Supplementary 2022/2021/2020 Admissions)

Time: Three Hours   Max. Marks: 75

PART A

Answer all questions. Each question carries 1 mark

1. The difference between the largest and smallest observations in a data set is called ………..
2. Half of the difference between first and third quartiles is called ……………..
3. The mean deviation is a minimum when the deviations are taken from…………
4. The second central moment is also called …………………..
5. A distribution is said to be symmetric when ………….
6. A curve is said to be ……………..when the frequency curve is very flat
7. The correlation between rainfall and water level in dam in a region is ………………
8. The point of intersection of two regression lines give …………..of the variables.
9. The formula for calculating Spearman's rank correlation coefficient is ……………
10. The regression line of Yon X is 2 x + 3y = 15. The value of Y when X is 3 is ……….

(1 x 10 = 10)

PART B

Answer any eight of the following questions.

Each question carries 2 marks

11. What do you mean by relative measure of dispersion?.
12. Define standard deviation.
13. The first and third quartiles of a data set are 25 and 42. Find the coefficient of quartile deviation.
14. Define central moments. What is the value of first order central moment of a distribution?
15. Sketch the rough shape of positively skewed and negatively skewed curves.
16. If the first raw moments about zero is 4 and variance is 9, find the value of second raw moment about zero?
17. Define rank correlation.
18. What do you mean by regression analysis?
19. If the two regression lines are given by 3 x + 4 y = 35, find the value of Y when X is 4 and X when Y = 6
20. Find the correlation coefficient between two variables X and Y if the following details are collected from 10 pairs of observations.

    ΣXY = 3577, ΣX = 155, ΣY = 239, ΣX^2 = 2485, ΣY^2 = 5925

(2 x 8 = 16)

PART C

Answer any five of the following questions.

Each question carries 5 marks

21. What are the properties of standard deviation?

22. Calculate the Quartile coefficient of variation

56, 55, 45, 23, 45, 32, 45, 56, 36, 59, 89, 74, , 54, 82, 58, 31, 85, 90, 99

23. Calculate the mean deviation from mean from the following data

158   287   173   158   264   250   166   175

24. Briefly explain the concept of skewness and Kurtosis of a distribution.

25. The first four central moments of a distribution are 0, 40, 100 and 4600 respectively. Calculate the appropriate measures of skewness and Kurtosis.

26. Distinguish between direct and indirect correlation. Give examples of pairs of variables having the two types of correlation between them.

27. What are the uses of scatter diagram?

(5 x 5 = 25)

PART D

Answer any two of the following questions.

Each question carries 12 marks

28. Calculate the standard deviation from the following data

Class:	0 – 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency:	11	26	32	20	16	10

29. Calculate the quartile deviation from the following data

Class:	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 - 69
Frequency:	15	21	32	27	19	11

30. Calculate the correlation coefficient between X and Y.

X:	8	21	27	22	19	22	13	18	20	22
Y:	12	10	20	14	11	15	10	15	20	18

31. The two regression lines are $8x – 10y + 66 = 0$ and $40x – 18y -214 = 0$

Find (1) Mean value of X and Y   (2) Value of Y when X = 10   (3) Value of X when Y = 15

(12 x 2 = 24)