

B.Sc. DEGREE END SEMESTER EXAMINATION – MARCH 2023
SEMESTER – 2: STATISTICS (COMPLEMENTARY FOR PSYCHOLOGY)
COURSE: 19U2CPSTP02 – STATISTICAL TOOLS

(For Regular – 2022 Admission and Improvement / Supplementary – 2021/2020 Admission)

Time: Three Hours

Max. Marks: 75

PART A

Answer all questions. Each question carries 1 mark

1. Range is the
2. is an example of a relative measure of dispersion.
3. The mean deviation from median is the
4. The first raw moment about zero is
5. When more observations are towards the right of mode, the skewness is said to be
6. Kurtosis deals withof the distribution.
7. When both the variables are moving in the same direction, correlation is said to be.....
8. The regression lines passes through the point
9. The formula for calculating Spearman's rank correlation coefficient is
10. The regression line of Y on X is $2x + 3y = 15$. The regression coefficient of y on x is

(1 x 10 = 10)

PART B

Answer any eight of the following questions. Each question carries 2 marks

11. Define the term dispersion.
12. Define mean deviation.
13. If the arithmetic mean and standard deviation of mark of students in college A is 480 and 120 respectively and that of college B is 750 and 150 respectively, compare the stability of mark of students in the two colleges.
14. Define raw moments and central moments.
15. Sketch the rough shape of leptokurtic, platykurtic and mesokurtic curves.
16. If the first and second raw moments about zero are 25 and 4 respectively, find value of variance.
17. Define correlation.
18. Calculate the correlation coefficient if the regression coefficients are 1.6 and .4 respectively.
19. If the regression line of Y on X is given by $3x + 4y = 36$, find the value of Y when X is 4
20. Find the correlation coefficient between two variables X and Y if the following details are collected from 10 pairs of observations.

$$\Sigma XY = 8000, \quad \Sigma X = 300, \quad \Sigma Y = 250, \quad \Sigma X^2 = 9600, \quad \Sigma Y^2 = 7100$$

(2 x 8 = 16)

PART C

Answer any five of the following questions. Each question carries 5 marks

21. Distinguish between absolute and relative measures of dispersion.
22. Calculate the Quartile coefficient of variation
23, 45, 54, 82, 58, 31, 56, 55, 45, 32, 45, 56, 36, 59, 89, 74, 85, 90, 99
23. Calculate the standard deviation from the following data
58 87 73 58 64 50 66 75
24. Briefly explain the Karl Pearson's coefficient of skewness and Bowley's coefficient of skewness.
25. The first four raw moments of a distribution are 1,4,10 and 46 respectively. Calculate the first four central moments.
26. Distinguish between positive and negative correlation. Give examples of pairs of variables having the two types of correlation between them.
27. What is scatter diagram? What conclusions can be drawn from it?

(5 x 5 = 25)

PART D

Answer any two of the following questions. Each question carries 12 marks

28. Calculate the Quartile deviation from the following data

Class:	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency:	21	36	42	30	26	14
29. The following data is available on a data sheet. Comment on the Skewness of the distribution.
 $n = 100$, $\Sigma f x = - 50$, $\Sigma f x^2 = 200$, $\Sigma f x^3 = - 150$, $\Sigma f x^4 = 1200$.
30. Calculate the correlation coefficient between X and Y.

X:	28	25	27	32	29	42	43	48	50	52
Y:	42	30	30	54	41	25	50	25	50	48
31. The two regression lines are $12x - 2y + 30 = 0$ and $8x - 10y + 21 = 0$
 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)