Reg. No…….. Name…… **21U254**

B.Sc. DEGREE END SEMESTER EXAMINATION – JULY 2021

SEMESTER – 2: STATISTICS (COMPLEMENTARY FOR PSYCHOLOGY)

COURSE: 20U2CPSTP02 – STATISTICAL TOOLS

(For Regular - 2020 Admission)

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 is called the ……
2. The Square of standard deviation is called ……
3. Coefficient of variation is a …….measure of dispersion.
4. Moments measured from ……are called central moments
5. Skewnesss deals with ……..
6. A flat curve is called ……curve
7. Correlation deals with ……..between variables
8. If two variables are uncorrelated, then covariance between them is …….
9. The two regression lines coincide when ……
10. The point of intersection of the two regression lines give ……..of the variables

(1 x 10 = 10)

PART B

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

11. Define the first quartile.
12. Define mean deviation.
13. Define relative measure of dispersion
14. Define Karl Pearson's coefficient of skewness
15. Sketch the rough shape of symmetric, positively skewed and negatively skewed curves.
16. How will you distinguish the Kurtosis of frequency distribution using beta values?
17. Define scatter diagram.
18. Define rank correlation.
19. Define regression coefficient.
20. Find the correlation coefficient if $\Sigma(X - \overline{X})(Y - \overline{Y}) = 2704$, $\Sigma(X - \bar{X})^2 = 5398$, $\Sigma(Y - \bar{Y})^2 = 2224$

(2 x 8 = 16)

PART C

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

21. What are the desirable properties of a good measure of dispersion?
22. Calculate the Quartile deviation from the following data

    13, 15, 23, 32, 18, 11, 56, 45, 67, 32, 43, 76, 56, 89, 99, 34, 45, 50, 60
23. Calculate the mean deviation from Mean for the following data

    18 27 23 28 34 20

24. Differentiate between absolute and relative measures of skewness? Give example for each.
25. The first three raw moments of a distribution about zero are 3, 24 and 76 respectively. Comment on skewness of the distribution.
26. Distinguish between direct and indirect correlation. Give examples of pairs of variables having the two types of correlation between them.
27. Explain what is meant by rank correlation. How is it calculated for a set of data?

(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:	2	6	12	10	6	4

29. The following data is available on a data sheet. Comment on the Kurtosis of the distribution.
    N = 100, $\Sigma f x = 45$, $\Sigma f x^2 = 873$, $\Sigma f x^3 = 891$, $\Sigma f x^4 = 20493$.
    Comment on the Kurtosis of the distribution.
30. Calculate the correlation coefficient between mark in Mathematics and English.

Mark in Mathematics:	18	15	27	32	22	32	43	48	40
Mark in English:	32	30	40	30	30	25	50	25	50

31. The two regression lines are $8x - 3y + 30 = 0$ and $10x - 3y - 50 = 0$
    Find (1) Mean value of X and Y (2) Value of Y when X = 6 (3) Value of X when Y = 10

(12 x 2 = 24)

****