



21103195

**QP CODE: 21103195**

**Reg No** : .....

**Name** : .....

**B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS,  
DECEMBER 2021  
Second Semester**

B.Sc Psychology Model I

**Complementary Course - ST2CMT22 - STATISTICAL TOOLS**

2017 ADMISSION ONWARDS

01100CC3

Time: 3 Hours

Max. Marks : 80

**Part A**

*Answer any **ten** questions.*

*Each question carries 2 marks.*

1. Explain Quartile deviation.
2. Give the merits and demerits of standard deviation.
3. Which is the best measure of dispersion? Why?
4. Find the coefficient of variation for the data 12,12,12,12,12.
5. Find the first 2 raw moments for the data 10,11,12,13,14,15.
6. Give any two formula to calculate skewness.
7. Explain Person's measure of skewness.
8. Comment the nature of the skewness for the data 10,11,10,12,13,14.
9. The coefficient of correlation between X and Y is 0.38. The covariance is 10.2. The variance of X is 16. Find the variance of Y?
10. What are the use of scatter diagram.
11. Give any two application of regression.
12. How we can identify the regression equations?

(10×2=20)

**Part B**

*Answer any **six** questions.*

*Each question carries 5 marks.*





13. Explain the term Dispersion? What are the various measures of dispersion and compare them.
14. Compute the Range and coefficient of range from the frequency distribution given below.
- |       |   |    |    |    |    |    |    |
|-------|---|----|----|----|----|----|----|
| Size: | 5 | 8  | 13 | 20 | 25 | 30 | 40 |
| Freq: | 2 | 10 | 20 | 35 | 18 | 7  | 5  |
15. Compare mean deviation and Quartile deviation with examples.
16. Define raw and central moments of a frequency distribution. Express four central moment in terms of first four raw moments.
17. Define Kurtosis. Explain different types of kurtosis with graph.
18. Calculate the moment measure of skewness and kurtosis of the following data
- |             |      |       |       |       |
|-------------|------|-------|-------|-------|
| Class :     | 0-10 | 10-20 | 20-30 | 30-40 |
| Frequency : | 1    | 3     | 4     | 2     |
19. Define correlation? Which are the different types of correlations. Explain with the help of scatter diagram.
20. How can you use scatter diagram to obtain an idea of the extend and nature of the correlation coefficient?
21. The coefficient of rank correlation of marks obtained by 10 students in English and Economics was found to be 0.5. It was later discovered that the difference in ranks in the two subjects obtained by one of the students was wrongly taken as 3 instead of 7. Find the correct coefficient of rank correlation.

(6×5=30)

### Part C

Answer any **two** questions.

Each question carries **15** marks.

22. (a) Calculate the standard deviation and mean deviation about mean of the following data.
- |             |   |    |    |    |    |    |    |    |
|-------------|---|----|----|----|----|----|----|----|
| X :         | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| Frequency : | 3 | 9  | 11 | 21 | 29 | 18 | 13 | 4  |
- (b) What are the merits of standard deviation over other measures of dispersion ?
23. (a) Define raw moments and central moments.  
(b) Establish the relationship between raw moments and central moments.  
(c) Explain how we can use moments to study the skewness and kurtosis.





24. Identify the type of skewness exhibited by the following data, relate to the annual sale of a product in 10 various years using.

(a) Bowley's measure and

(b) Karl Pearson's measure.

98,135,162,178,221,232,283,300,374,395.

25. From the data given below obtain the regression equation of  $X$  on  $Y$ .

$X$	2	3	7	8	10
$Y$	10	9	11	8	12

(2×15=30)

