B.Sc. Degree (C.B.C.S.S.) Examination
B.Sc. Psychology (Model I) Programme
SECOND SEMESTER
Complementary Course-I–ST2CMT22-(Statistics)-PY2CMT06
STATISTICAL TOOLS

Time: 3 hrs   Max.Marks:80

Use of Non-Programmable calculator and Statistical Tables allowed.

Part A
(Answer any 10 questions. Each question carries 2 marks)

1. Define coefficient of variation.
2. Give any two merits of standard deviation.
3. Find the quartile deviation for the following values

   28, 32,25, 42,55, 82,10,25,40, 38, 39

4. Compare mean deviation and standard deviation as measures of dispersion.
5. Give the expression for the first 4 raw moments about the origin.
6. If the variance, β_1, β_2 of a data are 4, 1 and 2 then find the first four central moments.
7. Distinguish between Pearson's measure and Bowley's measure of skewness.
8. Find the quartile measure of skewness of the data 3, 5,1,2,5,6,8,3,7,4,1?
9. Define Scatter diagram. Mention its use.
10. Define Karl Pearson's correlation coefficient.
11. What are regression coefficients? Obtain the relationship between the correlation coefficient and regression coefficient.
12. Define rank correlation coefficient. 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 X 2 = 20)

Part B
(Answer any 6 questions. Each question carries 5 marks)
13. Compute the mean deviation about the median from the frequency distribution given below.

Size:	5	8	13	20	25	30	40
Freq:	2	10	20	35	18	7	5

14. Find the coefficient of variation of the data

X :	0	1	2	3	4	5	6
f :	14	28	65	90	65	4	1

15. What are the merits and demerits of standard deviation?
16. Explain the term skewness. Briefly explain various measures of skewness.

17. If the first four moments about 4 are -1, 17, -3, 40 then find the first four moments about 2.
18. Calculate the Coefficient of kurtosis of the following data

Value:	2	3	4	5	6
Frequency:	11	23	37	24	1

19. What is Spearman's rank correlation coefficient? What are the advantage of rank correlation over Karl Pearson correlation coefficient? Explain the method of calculating Spearman rank correlation coefficient in the case of tied rank ?
20. Given regression equations; 8x-10y+66=0 & 40x-18y=214, 1) Identify the two regression lines Calculate 2) $\bar{x}$ and $\bar{y}$ and 3) find correlation coefficient.

21. Compute the two regression lines if the following statistics on height(x) and age (y) of 20 people are known. Mean of x =55, mean of y =12, S.D(x) = 5, S.D (y)= 6.5 , r = 0.9.

(6X5 = 30)

PART C
(Answer any 2 questions. Each question carries 15 marks)
22. Calculate the mean deviation about median and compare the variability of the two series

X and Y:
X:	725	700	750	675	725	625	675	800	625	725	700	725	675
Y:	575	625	600	575	675	600	650	575	625	550	680	550	560

23. 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.
24. The first four moments of a distribution about the number 3 are-2, 10,-25 and 50. Determine the first four central moments and moments about 4?

25. School students are ranked in 3 characteristics namely general intelligence(x), school achievement(Y), and smartness(z) as follows:

Students:	1	2	3	4	5	6	7	8	9	10	11
X :	6	4	1	2	7	11	10	9	5	8	3
Y :	5	3	3	4	6	10	8	11	7	9	1
Z :	10	3	2	4	1	8	9	11	7	6	5

Using rank correlation coefficient find the nature of relationship between (a) General intelligence and school achievement (b) school achievement   and smartness
(2X15 = 30)