TB252317E

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2025

2017, 2018, 2019, 2020, 2021, 2022 ADMISSIONS SUPPLEMENTARY

SEMESTER II - COMPLEMENTARY COURSE 2 (STATISTICS)

PY2CMT06 - Statistical Tools

Time : 3 Hours **Maximum Marks : 80**

Part A

I. Answer any Ten questions. Each question carries 2 marks **(10x2=20)**

1. Define dispersion.
2. Write down the uses of mean deviation.
3. Calculate quartile deviation of the values given below. 250, 116, 200, 120, 150, 100, 110, 82, 170.
4. Compare the series using quartile deviation.

Series 1	8	11	13	20	23	27
Series 2	9	12	17	21	25	

5. Define skewness.
6. Define platy kurtic distribution.
7. The first four moments about 20 of a distribution are -1, 24, 18, 509 then find its mean and standard deviation.
8. Find median if Bowley's coefficient of skewness and quartiles are respectively -0.048, 17 and 38.
9. Define regression analysis.
10. Write the formula to calculate the regression coefficient of Y on X.
11. From the following regression equations find means of X and Y. $2Y - X - 50 = 0$ and $3Y - 2X - 10 = 0$.
12. Karl Pearson's coefficient of correlation between x and y is 0.28, their covariance is 7.6, variance of x is 9, then find variance of y.

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Explain relative measures of dispersion.
14. Explain the method of calculating the mean deviation in discrete series.
15. Find mean deviation about mean and its coefficient of the data given below.

No. of calls	0	1	2	3	4	5	6	7
Frequency	14	21	25	43	51	40	39	12

16. Explain a symmetric distribution.
17. Distingulsh between skewness and kurtosis.
18. Compute the first four moments about mean directly.

Mark	0-10	10-20	20-30	30-40	40-50
No. of students	2	4	6	5	3

19. Compute the first four moments about the value 25.

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	5	7	15	25	8

20. Explain scatter diagram and state its merits and demerits.
21. Identify the regression lines $4x - 5y + 33 = 0$ and $20x - 9y - 107 = 0$.

Part C

III. Answer any Two questions. Each question carries 15 marks **(2x15=30)**

22. Compute the coefficient of variation of the data given below.

Wages	700-900	900-1100	1100-1300	1300-1500
No. of workers	10	16	26	8

23. Compute $\beta_1, \gamma_1, \beta_2$ and γ_2. Comment on skewness and kurtosis.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	16	33	38	50	31	22	10

24. Ten competitors in a beauty contest are ranked by three judges in the following order. Use the rank correlation coefficient to discuss which pair of judges have the nearest approach to common tastes in beauty.

Judge 1	1	5	4	8	9	6	10	7	3	2
Judge 2	4	8	7	6	5	9	10	3	2	1
Judge 3	6	7	8	1	5	10	9	2	3	4

25. Obtain the regression equations x on y and y on x. Hence find

(i) y when x = 12.

(ii) x when y = 40.

Max. temperature (y)	29	23	25	15	27	29	24	31	32	35
Min. temperature (x)	8	3	7	5	8	19	10	7	5	8