

22U242

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Name:

Reg.No:

SECOND SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2023

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U PSY2 C02 - REGRESSION ANALYSIS AND PROBABILITY THEORY

(Statistics - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Does Correlation always signify cause and effect relationship? Justify.
2. Define scatter diagram.
3. Explain the method of finding correlation using 2 way table.
4. How do you interpret correlation coefficient?
5. Define regression.
6. Define partial correlation
7. Define Multiple regression.
8. A card is drawn from a pack of cards. What is the probability that it is?
 - a) a king or a queen
 - b) a king or a spade
9. If $P(A) = P(B) = P(B/A) = 0.5$, examine whether A and B are independent.
10. State addition theorem for two events.
11. What are the properties of random variables?
12. Define distribution function. State any two properties of it.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. Explain about the methods for finding correlation.
14. Give the formula for Spearman's rank coefficient of correlation. What are the advantages of rank coefficient of correlation?

15. What are regression lines? Why there are two regression lines?
16. Calculate regression line of x on y for the following data of marks in two subjects X and Y, of 10 students.
- X : 90 82 82 82 81 71 63 63 49 38
- Y : 75 72 71 71 73 73 50 40 32 35
17. What do you mean by?
- 1) Complement of an event.
 - 2) Union of two events.
 - 3) Intersection of two events.
18. Prove that $P(\phi) = 0$
19. Define probability density function and state its properties.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

20. Show that there is a perfect correlation between the following x and y series.

x	10	12	14	16	18	20
y	20	25	30	35	40	45

21. The two regression lines are given by:

$$2x + 3y - 6 = 0$$

$$5x + 7y - 12 = 0$$

- a) Identify the equation of Y on X and X on Y.
- b) Find the mean values of X and Y

(1 × 10 = 10 Marks)
