24U278 (Pages: 2) Name : .....

Reg. No : .....

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2025

(FYUGP)

CC24UBCA2CJ102 - STATISTICAL FOUNDATION FOR COMPUTER APPLICATIONS

(BCA - Major Course)

(2024 Admission - Regular)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 3 marks.

1. List three examples of methods used to collect primary data. [Level:3] [CO1]

2. The average times (in hours) taken by students to complete an online course module are distributed as: [Level:3] [CO1]

Time (hours)	2.0	2.5	3.0	3.5
Frequency	4	3	2	1

Determine the harmonic mean time taken.

3. Explain correlation analysis with an example. [Level:2] [CO2]

4. Write down the relation between correlation coefficient and regression coefficients. [Level:2] [CO2]

5. Explain discrete and continuous sample space with suitable example [Level:2] [CO3]

6. A standard deck of 52 playing cards is shuffled and one card is drawn at random. What is the probability of drawing a red card? [Level:3] [CO3]

7. Explain pair wise independence. [Level:2] [CO3]

8. Write any three properties of distribution function. [Level:3] [CO4]

9. Comment on the statement " The mean of a binomial distribution is 3 and variance is 4". [Level:3] [CO4]

10. Define critical region. [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer ***all*** questions. Each question carries 6 marks.

11. The working hours (per week) of 10 employees in a company are: 38, 40, 42, 45, 39, 41, 43, 44, 40, 42. Calculate the mean deviation about the mean and its coefficient to analyze the variation in working hours. [Level:3] [CO1]

12. The following tables gives the marks obtained by 10 students in an examination. 43, 48, 50, 49, 51, 60, 55, 52, 49, 50. Calculate coefficient of variation. [Level:3] [CO1]

13. Fit a straight line to the following data [Level:3] [CO2]

x	1	2	3	4	6	8
y	2.4	3	3.6	4	5	6

14. Suppose that there is a chance for newly constructed house to collapse whether the design is faulty or not. The chance that the design is faulty is 10%. The chance that the house collapse if the design is faulty is 95% and otherwise it is 45%. It is seen that the house collapsed. What is the probability that it is due to faulty design? [Level:3] [CO3]

15. State and prove addition theorem for two events. [Level:2] [CO3]

16. Briefly describe the procedure followed in analysis of variance (ANOVA). [Level:3] [CO4]

17. Obtain the m.g.f of poisson distribution. [Level:3] [CO4]

18. Define normal distribution. Obtain the mean of the normal distribution [Level:3] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

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

19. Find the mean, median and mode for the following data and verify the empirical relation. [Level:3] [CO1]

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	12	18	24	17	15	9

20. The following table gives the marks obtained by a student in two subjects in ten tests. Find the Karl pearsons coefficient of correlation. [Level:3] [CO2]

Subject A	77	54	27	52	14	35	90	25	56	60
Subject B	35	58	60	40	50	40	35	56	34	42

(1 × 10 = 10 Marks)

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