25U273 (Pages: 2) Name : .....

Reg. No : .....

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2026

(FYUGP)

(Regular/Supplementary/Improvement)

CC24UBCA2CJ102 - STATISTICAL FOUNDATION FOR COMPUTER APPLICATIONS

(Computer Application - Major Course)

(2024 Admission onwards)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

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

1. The growth rates of bacteria (as a multiplier) in 10 experiments are: [Level:3] [CO1]
   1.8, 2.0, 1.9, 2.1, 1.7, 2.2, 1.6, 1.9, 2.0, 1.8.
   Compute the geometric mean to assess the average bacterial growth.

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

3. If a student's shoe size has no effect on their test scores, how would you describe the correlation between shoe size and test scores?. Explain it. [Level:3] [CO2]

4. Define simple linear regression. Write down any two properties of regression coefficients. [Level:2] [CO2]

5. If A and B are two events such that $P(A) = \frac{1}{3}$, $P(B) = \frac{1}{4}$ and $P(A \cap B) = \frac{1}{8}$. Find $P(A|B)$ [Level:2] [CO3]

6. What is a sample space? What are events? [Level:2] [CO3]

7. Give classical definition of probability. [Level:2] [CO3]

8. Explain type I and type II errors. [Level:2] [CO4]

9. Explain probability mass functio. [Level:2] [CO4]

10. Obtain the m.g.f of binomial distribution. [Level:3] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

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

11. Obtain the standard deviation for the following data: [Level:3] [CO1]
    34, 23, 23, 34, 36, 35, 38, 28, 19, 27.

12. The weights (in grams) of 10 items produced on a factory line are: [Level:3] [CO1]

48, 52, 50, 53, 49, 51, 54, 55, 50, 52.

Compute the mean deviation about the mean and its coefficient to evaluate the consistency in product weights.

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

x	1	2	3	4	5	6	7
y	87	97	113	129	202	195	193

14. A hospital tests 500 patients for a disease. The test correctly identifies 95% of people who have the disease and 90% of people who do not have the disease. If 1% of the population has the disease, what is the probability that a patient who tested positive actually has the disease? [Level:3] [CO3]

15. State addition theorem of probability.You roll a fair die. What is the probability of rolling a number greater than 4 or an even number? [Level:3] [CO3]

16. Define normal distribution and standard normal distribution. [Level:2] [CO4]

17. Distinguish between large sample and small sample tests illustrating with suitable examples. [Level:3] [CO4]

18. Obtain the variance of poisson distribution. [Level:3] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

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

19. Calculate mean, median and mode for the following data. [Level:3] [CO1]

x	16	22	23	24	30	31	44
f	4	8	9	15	10	5	4

20. Calculate karl pearsons correlation coefficient for the following heights (in inches) of fathers and their sons. [Level:3] [CO2]

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

(1 × 10 = 10 Marks)

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