QP CODE: 24803030

24803030

Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, MAY 2024

Seventh Semester

INTEGRATED MSC COMPUTER SCIENCE-ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

CORE - ICSA7CR2 - APPLIED STATISTICS FOR DATA ANALYTICS

2020 Admission Onwards

8D7A87E4

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. For the following list, n = 19. Find the median. 24, 25, 28, 31, 33, 33, 36, 42, 42, 48, 51, 57, 57, 68, 75, 79, 79, 79, 85
2. What is distribution function of a discrete random variable X?
3. How do you calculate probabilities from a PDF?
4. How is conditional probability calculated?
5. Define Bernoulli trials.
6. Define the probability density function (PDF) of the Beta distribution.
7. Explain statistical model.
8. Explain interval estimation.
9. Explain parametric testing.
10. Explain Type1 error.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Suppose a coin is flipped 3 times. What is the probability of getting two tails and one head?
12. How to compute descriptive statistics for the dataset using R?

13. Explain how the moments of the logistic distribution change with variations in the location and scale parameters.

14. Find 8 random values from a sample of 150 with probability of 0.4 usind R

15. Compare and contrast point estimation and interval estimation, providing examples of each.

16. Explain Confidence Interval for Mean:

17. What are the types of sample tests?

18. How to calculate Yates Correction?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. In shooting test, the probability of hitting the target is 1/2, for A, 2/3 for B and 3⁄4 for C. If all of them fire at the target, find the probability that (i) none of them hits the target and (ii) at least one of them hits the target.

20. The amount of time that it takes a student to complete a chemistry test is uniformly distributed between 20 and 45 minutes a) Determine the probability density function. b) Draw a graph of f(x). c) What is the probability that a student will take more than 36 minutes to complete the exam? d) What is the probability that student will take between 26 and 35 minutes to complete the test? e)Determine median, variance and Standard deviation

21. Compute a 99% confidence interval for the population variance given a sample variance and sample size. Show the formula and the calculation steps.

22. Explain the concept of a paired test and when it is appropriate to use in statistical analysis.

(2×5=10 weightage)