



BRAINWARE UNIVERSITY

Term End Examination 2023 Programme - B.Tech.(CSE)-AIML-2022 Course Name – Probability and Statistics Course Code - BSCM202 (Semester II)

Brainware University ... Kolketa -700125

Full Marks: 60

Time: 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

- Choose the correct alternative from the following:
- (i) Examine if A and B are mutually exclusive events, then
 - a) $P(A \cap B) = P(A).P(B)$

b) $P(A \cap B) = P(A) + P(B)$

c) $P(A \cap B) = 0$

- d) None of these
- (ii) Let $E(T1) = \theta = E(T2)$, where T1,T2 are linear functions of the sample observations. Recognize, if $Var(T1) \le Var(T2)$ then:
 - a) T1 is an unbiased linear estimator
- b) T1 is BLUE
- c) T1 is a consistent linear unbiased estimator
- d) T1 is consistent best linear unbiased estimator.
- (iii) Binomial distribution deals with
- Choose the correct option.
- a) Continuous random variable
- b) Discrete random variable
- c) Continuous & Discrete random variable
- d) None of the mentioned
- (iv) The probability of success in a Bernoulli trial is 0.3. Calculate the variance of the probability distribution.
 - a) 0.09

b) 0.21

c) 0.9

- d) 0.021
- (v) Three companies A, B and C supply 25%, 35% and 40% of the notebooks to a school. Past experience shows that 5%, 4% and 2% of the notebooks produced by these companies are defective. If a notebook was found to be defective, compute the probability that the notebook was supplied by A.
 - a) 44/69

b) 25/69

c) 31/69

d) 67/69



| | 2. Compute the value of mean for poisson (λ) distribution. | | | (3) |
|--------------------------|--|---|---|----------|
| | Group-B (Short Answer Type Questions) | | | 3 x 5=15 |
| | c |) Continuous & Discrete random variable | d) None of the mentioned | |
| | а |) Continuous random variable | b) Discrete random variable | |
| | C | Range Mean deviation Binomial distribution deals with | b) Standard deviationd) Quartile deviation Choose the correct option. | |
| | c) 15 d) None of these (xiv) Identify which of the following formula is used to find dispersion when we have an open classes for grouped data. | | | |
| | (xiii) | c) p(1-p)/q ² Suppose 5 observations from a Normal populat maximum likelihood estimator of the population a) 18 | d) q(1-q)/p ² ion is taken: 18,12,16,14,15. Estimate the mean? b) 12 | |
| | | a) q/p ² | b) q²/p | |
| Berasat, Kolkete -700125 | (xii) | a) $\sqrt{2n}$ c) \sqrt{n} Identify the variance of Geometric Distributes | | |
| | | T1 is a consistent unbiased estimator. The standard deviation of a chi square distrioption | d) T1 is consistent best linear unbiase estimator. bution with n df is, choose the correct | a |
| | | a) T1 is minimum variance unbiased estimator. | b) T1 is BLUE | |
| rsity cong | Unive | a) 0 to 1 c) 1 to 0 Let $E(T1)=\theta$ where θ being an unknown par any other unbiased estimator, then choose the | b) -1 to 1 d) -∞ to ∞ ameter. if Var(T1)≤ Var(T2) for T2 to be be correct ontion | |
| | (ix) | a) Positivec) zeroThe value of Rank correlation coefficient lie | b) Negatived) none of theses between, select the correct option | |
| | (viii) | a) Type I error c) Power of the test The correlation coefficient between numbe number of accidents in a road is ,select the | | |
| | | a) $=\alpha\%$ c) $\leq \alpha\%$ If β is the probability of Type II error, then name | b) $<\alpha\%$ d) $>\alpha$ ne (1- β) | |
| | (vi) | Recall The maximum value of Probability of | of Type I Error will be always | |

Critical value for t-distribution for 9 d.f. is 2.262.