**Code No: MA313BS Set No. 1**

**BVRIT HYDERABAD College of Engineering for Women**

**II B.Tech. - I Sem., II Mid-Term Examinations, MAY - 2023**

**(Mathematical and Statistical Foundations)**

**Objective Exam**

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**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hall Ticket No.**

**Time: 20 Min. Marks: 10**

**Answer All Questions. All Questions Carry Equal Marks.**

1. **Choose the correct alternative:**
2. Which of the following is stochastic process [ B ]
3. (b) (c) (d)

1. If P= then the value of =A | =B)=\_\_\_\_\_\_\_\_\_\_\_\_ [ D ] (a) 1 (b)0 (c) 3/4 (d) ¼
2. Example of a countable index set is [ B ]

(a) {1, 2, 3} (b){1,2,3….} (c) [0, ∞) (d) R

1. Which of the following is wrong about the transition matrix [ D ]

(a) All elements are non-negative (b) All elements are probabilities

(c) sum of elements in each row is 1 (d) sum of elements in each column is 1

1. If *n*  is the sample size then degrees of freedom in *t*-distribution is [ c ]
2. *n* (b) *n* +1 (c) *n*-1

1. F-distribution curve lies in \_\_\_\_\_\_\_\_\_\_\_\_\_quadrant [ a ]
2. 1st (b) 2nd (c) both 1st and 2nd (d) neither 1st nor 2nd
3. Which of the following distributions is symmetric about origin [ a ]
4. *t* (b) F (c)χ2 (d) None
5. If is more efficient estimator of than then . [ c ]
6. > (b) ≥ (c) < (d)≤
7. The statistical constants of the population are called [a ]

(a) parameters (b) statistics (c) sample statistics None

1. If then the confidence interval is taken for [ a ]

(a) 99% (b)95% (c)98% (d) None

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**II Fill in the Blanks:**

1. Transition probabilities that do not change over time are called \_\_\_\_\_\_\_\_\_\_\_\_\_( stationary)

1. A markov chain in which it is possible to move from one state to another state is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Ergodic)
2. If R(0)=[ ½ ½] and P= then the value of R(1)= \_\_\_\_\_\_\_\_\_\_\_\_[1/2 ½]
3. The transition matrix of the diagram (see the diagram) is \_\_\_\_\_\_\_\_\_\_\_\_\_
4. If then the statistic is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ estimator of the parameter. (unbiased)
5. If the maximum error with probability 0.95 is 1.2 and standard deviation of population is 10 them sample size is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (267)
6. A random sample of size of 100 has a standard deviation 5 then maximum error with 95% confidence is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (0.98)
7. The standard error of sample proportion *p* is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. An estimator of a parameter θ is consistent if \_\_\_\_\_\_\_\_\_\_\_\_\_\_ → θ.

\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In a sampling distribution of sample mean for the data the value of Z= \_\_\_\_\_\_\_\_\_\_\_\_\_\_0.8

1/2

1/2 2222

1 2222

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