

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
FIRST SEMESTER END EXAMINATION 2020-21
I BA – STATISTICS (SEMESTER-I)
PAPER I- QUANTITATIVE STATISTICS

Time: 2 ½ hrs.

Max Marks-50

MODEL PAPER

SECTION-A

Answer any SIX questions

6x3=18M

1. Obtain the roots of the quadratic equation $ax^2 + bx + c = 0$
2. Explain permutation and combination with examples.
3. Write short notes on Arithmetic progression
4. Define finite set, infinite set with their examples
5. $n_{c3} = n_{c5}$ find n
6. Define matrix and its properties
7. Explain Different types of functions
8. Explain Venn Diagram
9. Define Series and Sequence with Suitable Examples
10. Explain Binomial Theorem

SECTION-B

Answer any FOUR Questions

4x8=32M

- 11 If $A = \{1,2,3,4,5,6,7,8,9\}$ $B = \{3,5,7\}$ and $C = \{2,4,6\}$
Prove the following equation $A \cup (B \cap C) = (A \cup B) \cap C$
- 12 Find the sum and product of the roots of the equation $x^2 + 4x + 3 = 0$
- 13 Find sum of 'n' terms of the series $7 + 77 + 777 + \dots$
- 14 Explain types of Matrices
- 15 Solve the following equations by Cramer method
 $2x - y = 5, \quad 3x + 2y = -3$
- 16 If $A = \begin{pmatrix} 1 & -1 & 3 \\ 4 & 2 & -1 \\ 1 & 3 & 1 \end{pmatrix}$ then find A^{-1}
- 17 Define Set and Explain Different types of Sets

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II B.A. SEMESTER: III 2020-21
PAPERE III-Probability and Probability Distributions
(Without mathematical derivations)

Time: 2 ½ hrs

MODEL PAPER

Max Marks: 50

SECTION-A

Answer any FIVE questions.

5 x 4 = 20M

1. Write short note on Probability
2. Define P.G.F and C.F
3. Define (i) Mutually Exclusive events
(ii) Exhaustive events
(iii) Equally likely events
4. Write short note on Random variables
5. Define Poisson Distribution and its properties
6. Explain p.m.f and p.d.f
7. Give the applications of Normal distribution
8. What is the probability that 4 S's come consecutively in the word MISSISSIPPI

SECTION-B

Answer any THREE questions

3 x10=30M

9. Write about Binomial distribution and its properties
10. Define Normal distribution. Mention its properties
11. Define M.G.F and its Properties
12. Define (i) Classical definition of probability
(ii) Statistical definition of probability
(iii) Axiomatic definition of probability
(iv) Personalistic probability
13. A random variable X has the following probability function

X = x	0	1	2	3	4	5	6	7
P(X=x)	0	K	2k	2k	3k	K ²	2k ²	7k ² +k

Find K, P (X < 6), P (X ≥ 6), P (0 < X < 5)

14. Prove the following results
(i) $E(X + Y) = E(X) + E(Y)$

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III B.A. SEMESTER: V 2020-21
PAPER V- Basics of Statistical Inference
(Without mathematical derivations)

Time: 3hrs

MODEL PAPER

Max Marks: 60

SECTION-A

Answer any FIVE questions

5 x 4 = 20M

1. Explain Interval Estimation
2. Explain Null Hypothesis and Alternative Hypothesis
3. Explain Type I and Type II errors
4. Distinguish between large sample tests and small sample tests
5. Write short note on F-test
6. Write about Sign test for single sample
7. Write Short note on Chi-Square Goodness of fit
8. Discuss the advantages and disadvantages of Non parametric methods

SECTION-B

Answer any FOUR questions

4 X10=40M

9. Explain the criteria of a good estimator
 10. Define Statistic & Sampling distribution. Obtain the sampling distribution of mean
 11. What is Testing of Hypothesis? Write procedure for testing of Hypothesis?
 12. Explain the large sample test for equality of two means
 13. Explain chi-square test for independence of attributes.
 14. Explain the difference between parametric tests, Non-parametric tests?
 15. State and Prove NP-Lemma
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III B.A. SEMESTER: V 2020-21

Paper VI- Theory of Sampling

Time: 3hrs

MODEL PAPER

Max Marks: 60

SECTION-A

Answer any FIVE questions

5x4= 20M

- 1. Write short note on Sampling?**
- 2. Explain the limitations of Sampling**
- 3. Explain Questionnaire and Schedule**
- 4. Explain about Census method**
- 5. Define SRSWR and SRSWOR**
- 6. Explain Stratified sampling**
- 7. What are merits and demerits of Systematic sampling**
- 8. Stratified sampling vs. Systematic Sampling**

SECTION-B

Answer any FOUR questions

4 x10=40M

- 9. What is Sample Survey? What are the main steps involved in a sample survey?**
- 10. Explain about different types of sampling**
- 11. Discuss sampling and non-sampling errors**
- 12. Explain the methods of drawing Simple Random Sampling With Replacement**
- 13. Explain types of allocations in stratified sampling .Write Merits and demerits of it?**
- 14. Explain systematic sampling with suitable example and how do you compare Systematic sampling with SRSWOR?**
- 15. Define Simple Random Sampling. Show that sample mean is an unbiased estimator of Population mean in SRSWOR**