

**GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM**  
**CBCS SYLLABUS (Semester Wise ) 2022-23**  
**Descriptive Statistics**  
**MODEL QUESTION PAPER**

**Time: 2 1/2 hrs.**

**Max Marks: 50**

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**SECTION-A**

**Answer any FIVE questions.**

**5X4= 20M**

1. Distinguish between Questionnaire and Schedule?
2. Write short note on Diagrams and its types?
3. Explain types of classification?
4. Explain about Mean Deviation?
5. Explain Kurtosis?
6. Explain types of moments?
7. What are Partition values?
8. Find Mean, Median and Mode to the following data 6,6,7,8,8,8,2,5,6,9, and 5

**SECTION – B**

**Answer Any THREE questions.**

**3X10=30M**

**9A. Define various definitions of Statistics and its limitations**

**(OR)**

**9B. What do you understand by collection of data? What are its objectives?  
Discuss different methods**

**10A. Draw a Histogram ,Frequency polygon and Ogive curve to the given data**

Class Intervals	0-10	10-20	20-30	30-40	40-50
Students	12	24	15	7	11

**(OR)**

**10B. Describe the different measures of central tendency and discuss their merits and demerits.**

**11A. Explain the methods of measuring skewness and kurtosis of a frequency distribution.**

**(OR)**

**11B Describe the different measures of dispersion and discuss their merits and demerits.**

# Government College [A] Rajamahendravaram

CBCS SYLLABUS (Semester Wise) 2022-23

I B.Sc Statistics/Semester-II

(With Mathematics Combination)

Probability & Probability Distributions

Time: 2 ½ hrs

MODEL PAPER

Max Marks: 50

## SECTION-A

Answer any FIVE questions.

5 X4 =20M

1. Write short note on Probability?
2. Define Poisson Distribution and its properties
3. Explain Types of Random Variables?
4. Give the Applications of Normal distribution
5. Explain Boole's inequality
6. Explain Cauchy - Schwartz inequalities
7. Write about Uniform Distribution?
8. What is the Probability that a leap year contains 53 Sundays?

## SECTION-B

Answer any THREE questions

3X10=30M

9A. Explain Types of Probabilities

(OR)

9B. A random variable X has the following function

X	-2	-1	0	1	2	3
P(X)	0.1	K	0.2	2K	0.3	K

Find (i) Mean and variance

(ii) Construct distribution function and draw its graph

10A. Explain Chebyshev Inequality?

(OR)

10B. Explain theorem on Expectations?

11A. Write about Binomial distribution and its properties

(OR)

11B. Define Normal distribution. Mention its properties

# Government College [A] Rajamhendravaram

CBCS SYLLABUS (Semester Wise) 2022-23

II B.Sc Statistics/Semester-III

Paper-III-Inferential Statistics

MODEL QUESTION PAPER (THEORY)

Time: 2 1/2 hrs

Max Marks: 50

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**SECTION-A**

Answer any FIVE questions. All questions carry equal marks.

5 x 4 = 20M

1. What is MLE and write its properties
2. Explain Confidence Intervals.
3. Explain Null hypothesis and Alternative hypothesis.
4. Define one tailed and two tailed tests.
5. Explain paired t- test.
6. Explain about sign test for one sample .
7. Explain chi-square test for independence of attributes.
8. Write the assumptions of non parametric tests

**SECTION-B**

Answer any THREE questions. All questions carry equal marks.

3 x 10 = 30M

9A. Explain the criteria of a good estimator.

(OR)

9B. Explain different Methods of Estimation

10A. State and prove Neyman-Pearson's Lemma.

(OR)

10B. Explain the test procedure for

(i) Testing of Mean and (ii) Equality of two means

11A. The following data obtained from a survey conducted about 320 families who are having five children. Fit a Binomial distribution for the data with  $p = \frac{1}{2}$  and test the goodness of fit.

No. of boys	0	1	2	3	4	5
No. of families	14	56	110	88	40	12

(OR)

11B. What are the differences between parametric tests non-parametric tests?

**GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM**  
**II B.Sc. Statistics (Semester-IV) 2022-23**  
**(With Mathematics Combination)**

**Paper-IV- Sampling Techniques & Design of Experiments**  
**MODEL QUESTION PAPER (THEORY)**

Time: 2 1/2 hrs.

Max Marks: 50

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**SECTION-A**

Answer any FIVE questions.

5 X4 =20M

- 1 Distinguish between census survey and sample surveys.
- 2 Define SRSWR and SRSWOR.
- 3 Explain Systematic Sampling.
- 4 Explain the purpose of ANOVA.
- 5 Explain about CRD
- 6 What are different types of sampling
- 7 Explain types of allocation in stratified sampling.
- 8 Systematic Sampling VS Stratified Sampling

**SECTION-B**

Answer any THREE questions.

3 x 10 = 30 M

- 9A What are principal steps in a sample survey.  
(OR)
- 9B Derive the variance of the sample mean in SRSWOR.
- 10A What are simple random samples? Explain the methods of selecting simple random samples.  
(OR)
- 10B If the population consists of linear trend, then prove that  
 $V(Y_{st}) \leq V(Y_{sys}) \leq V(Y_n)_R$
- 11A Discuss about basic principles of experimentation  
(OR)
- 11B Explain LSD and merits, demerits of LSD

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**CBCS SYLLABUS (Semester Wise) 2022-23**

**II B.Sc Statistics/Semester-IV**

**PAPER V-APPLIED STATISTICS**

**MODEL QUESTION PAPER (THEORY)**

**Time: 2 1/2 hrs**

**Max Marks: 50**

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**SECTION-A**

**Answer any five questions. All questions carry equal marks.**

**5x 4= 20M**

1. Explain the method of Simple averages
2. Explain Cost of living Index numbers
3. Explain NSSO
4. What are the sources of vital statistics
5. Explain Abridged life tables.
6. Explain the use of National income
7. Explain Gross reproduction rate and Net reproduction rate.
8. Explain Methods population growth rates.

**SECTION-B**

**Answer any THREE questions. All questions carry equal marks.**

**3 x 10 = 30M**

**9A.Explain the components of Time series?**

**(OR)**

**9B.Explain the problems involved in the construction of index numbers**

**10A. Explain the criteria of a good index number?**

**(OR)**

**10 B. Explain the functions and organization of CSO?**

**11A.Explain about various death rates?**

**(OR)**

**11B.Explain life table and its Construction ?**

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CBCS SYLLABUS (Semester Wise) 2022-23

III B.Sc Statistics/Semester-V

OPTIMIZATION TECHNIQUES ((Cluster-1, Paper-1) Paper –VI-A1

MODEL QUESTION PAPER (THEORY)

Time: 2 1/2 hrs

MaxMarks: 50

**SECTION-A**

Answer any FIVE questions. All questions carry equal marks.

5 x 4=20M

1. Explain the formulation of LPP
2. Write advantages and disadvantages of O.R
3. Explain General LPP
4. How do you obtain a sequence?
  
5. Explain Concept of Two –Phase Method
6. Explain the slack and surplus Variables
7. Explain assignment problem as a special case of TP.
  
8. Explain the concept of Artificial Variable Technique

**SECTION-B**

Answer Any THREE questions. All questions carry equal marks.

3 x 10= 30M

9A. Describe the Nature and Scope of O.R

(OR)

9B. Solve the Following LPP by using Graphical Method

Maximize  $Z=45X_1+80X_2$

Subject to const:  $5X_1+20X_2\leq 400$   $10X_1+15X_2\leq 450$   $X_1, X_2\geq 0$

10A. Use simplex Method to solve the following LPP

Maximize  $Z=X_1-X_2+3X_3$

Subject to const:  $X_1+X_2+X_3\leq 10$   $2X_1-X_3\leq 2$   $2X_1-2X_2+3X_3\leq 0$ ,  $X_1, X_2, X_3\geq 0$

(OR)

10B. Explain North-West Corner Rule and Least Cost Entry Methods for a given TP

11A. Solve the following Transportation Problem by using VAM.

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply
O <sub>1</sub>	50	30	220	1
O <sub>2</sub>	90	45	170	3
O <sub>3</sub>	400	200	50	5
Demand	5	2	2	9

(OR)

11B. Give an algorithm for n job-2 machines problem.

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CBCS SYLLABUS (Semester Wise) 2022-23

III B.Sc Statistics/Semester-V

(With Mathematics Combination)

OPERATION RESEARCH Paper –VII-A2

MODEL QUESTION PAPER (THEORY)

Time: 2 1/2 hrs

Max Marks: 50

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## SECTION-A

Answer Any FIVE questions. All questions carry equal marks.

5x 4= 20M

1. Explain pure and mixed strategies.
2. Explain different types of inventories.
3. Explain the determination of EOQ with one price break.
4. Write about game theory.
5. Write basic steps in PERT technique
6. Write rules for drawing net work diagram.
7. Explain Errors in networking
8. Write short note on queuing theory.

## SECTION-B

Answer any THREE questions. All questions carry equal marks.

3x10=30

9A. Find optimal strategies for the games for which for the pay off matrices are given below also find the value of the game.(PROBLEM)

(OR)

9B. Write procedure of graphical method to solve  $2 \times n$  games

10A. a) Explain the cost associate with inventories

b) Explain probabilistic inventory models without setup cost

(OR)

10B . Find the optimum time of completion of project ,when the time of completion of each task is as follows :A < D ,E ; B,D < F ; C<G ; B ,G< H ; F,G < I.

Task	A	B	C	D	E	F	G	H	I
Time	23	8	20	16	24	18	19	4	10

11A.Explain the differences between CPM and PERT

(OR)

11B.Explain any two models in Poisson queuing system.

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**CBCS SYLLABUS (Semester Wise) 2022-23**

**III B.Sc Statistics/Semester-V**

**DEMOGRAPHY & VITAL STATISTICS-VI-B1**

**MODEL QUESTION PAPER (THEORY)**

**Time: 2 1/2 hrs**

**Max Marks: 50**

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**SECTION-A**

**Answer Any FIVE questions. All questions carry equal marks.**

**5x 4 = 20M**

1. What are the errors that occur in the census and registration data
2. Explain about population composition
3. Distinguish between Stationary and Stable population
4. Mention the uses of life tables
5. Explain abridged life tables
6. Explain Crude rate of natural increase
7. What are the uses of vital statistics
8. What are the assumptions of life table

**SECTION-B**

**Answer Any THREE questions. All questions carry equal marks.**

**3x 10= 30M**

- 9A. Derive the Chandra Sekharan-Deming Formula  
(OR)  
9B.Explain the sources of collecting data in Vital Statistics
- 10A.Explain the Various Mortality Rates  
(OR)  
10B.Explain the Uses of Myer and UN indices
- 11A.Explain about the measurement of population growth  
(OR)  
11B.Explain types of migration

**GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM**  
**CBCS SYLLABUS (Semester Wise)2022-23**  
**III B.Sc. Statistics (SemesterV)**  
**(With Mathematics Combination)**  
**Quality & Reliability paper-VI -B2**  
**MODEL QUESTION PAPER (THEORY)**

**Time: 2 1/2hrs.**

**Max Marks: 50**

**SECTION-A**

**Answer any FIVE questions.**

**5 x 4=20M**

- 1. What are 3 sigma limits? Give their importance in S.Q.C**
- 2. Discuss about Process control and Product control**
- 3. Explain the construction of C chart**
- 4. Explain about Acceptance Sampling.**
- 5 Explain Producer's Risk and Consumer's Risk.**
- 6 Explain Bath Tub Curve**
- 7 Explain Hazard function.**
- 8 Explain Reliability function**

**SECTION-B**

**Answer THREE questions**

**3 x 10=30M**

**9A. Define SQC? Explain its usage in industry.**

**(OR)**

**9B. Explain Six-Sigma and their importance in industry**

**10A. Explain the construction of X and R charts.**

**(OR)**

**10B. What are SSP and DSP? Write their merits demerits**

**11A. Define O.C. and A.S.N functions with respect to  
single sampling plan for Attributes.**

**(OR)**

**11B. Explain the method of system reliability in series configuration**

# Government College [A] Rajamahendravaram

CBCS SYLLABUS (Semester Wise) 2022-23

III B.Sc. Statistics/Semester-V

(With Mathematics Combination)

REGRESSION ANALYSIS Paper –VI –C1

MODEL QUESTION PAPER THEORY

Time: 2 1/2 hrs.

Max Marks: 50

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## SECTION-A

Answer Any FIVE of the following questions.

5 x 4=

20M

1. Explain Regression
2. Explain Simple Regression model
3. Explain Deletion of data points
4. Explain the Transformation of variables
5. Explain Least squares method
6. Give the assumptions for Regression
7. Explain about Multiple regression model
8. Explain Auto correlation

## SECTION-B

Answer Any THREE following questions

3X10=30M

9A. Explain reasons for introducing error term in the model

(OR)

9B. Explain Least Squares method

10A. Describe general linear model

(OR)

10B. Define Selection of variables Forward selection procedure Backward

Elimination procedure Stepwise method

11A. Describe Ridge method

(OR)

11B. Explain Multi co-Linearity

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**CBCS SYLLABUS (Semester Wise)-2022-23**

**III B.Sc. Statistics/Semester-V**

**(With Mathematics Combination)**

**Forecasting Methods Paper –VII-C2**

**MODEL QUESTION PAPER (THEORY)**

**Time: 2 1/2 hrs.**

**50**

**Max Marks:**

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**SECTION-A**

**Answer any FIVE questions.**

**5 x 4= 20M**

- 1. Explain Simulation Method**
- 2. Explain Time series**
- 3. Explain Stationary and non-Stationary methods**
- 4. What are the sources of Smoothing methods**
- 5. Explain White Noise process**
- 6. Explain different types of moving averages method**
- 7. Explain Decomposition Method**
- 8. Explain AR & ARMA**

**SECTION-B**

**Answer any THREE questions.**  
**30M**

**3 x 10 =**

**9A. Explain Exponential Methods**  
**(OR)**

**9B. Explain ARIMA**

**10A Explain ratio to trend Moving averages method.**  
**(OR)**

**10B. Explain BOX-Jenkins model**

**11A. Explain Auto correlation and Auto Covariance process**  
**(OR)**

**11B. Explain the procedure of Non-stationary in a time series.**

**GOVERNMENT COLLEGE (A) RAJAHMUNDRY**  
**DEPARTMENT OF STATISTICS**  
**CRTIFICATE COURSE-2022-23**  
**STATISTICAL TOOLS FOR RESEARCH METHODOLOGY**  
**MODEL PAPER**

**Time : 2 ½ hrs**

**Max Marks : 50**

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**Answer ALL the following questions given below :  
M**

**5 x 10 = 50**

- 1 (a) Briefly describe the different steps involved in a Research process ?  
(OR)**  
**(b) What do you mean by research ? Explain its significance in modern times?**
- 2 (a) Describe fully the techniques of defining a research problem ?  
(OR)**  
**(b) How do you define a research problem ? Give three examples to illustrate your answer?**
- 3 (a) Define simple random Sample and explain the procedure of selecting a random sample ?  
(OR)**  
**(b) Explain Data collection?**
- 4 (a) Explain Measures of Central tendency?  
(OR)**  
**(b) Explain Measures of Dispersion?**
- 5 (a) Explain Chi-square and t tests of significance?  
(OR)**  
**(b) Discuss about Correlation and Regression?**

GOVERNMENT COLLEGE (AUTONOMOUS) RAJAHMUNDRY

DEPARTMENT OF STATISTICS

UG- SKILL DEVELOPMENT COURSE-2022-23

SEMESTER-II

Common for all B.A, B.Sc, B.Com,

**ELEMENTARY STATISTICS**

**(Model Paper)**

**Time- 2 Hours**

**Marks-50M**

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**SECTION-A**

Answer any **FOUR** questions. Each question carries 5 marks.  
20Marks

4 x 5 =

1. Explain Classification of the data
2. Explain Tabulation of the data.
3. Explain Pie chart for a frequency distribution,
4. Explain Arithmetic Mean? Write its merits and demerits,
5. Explain Mode with merits and demerits
6. Explain Standard deviation

**SECTION-B**

Answer any **THREE** questions. Each question carries 10 marks.  
30Marks

3x 10 =

7A)What is Data Collection and Discuss its methods

(OR)

7B) Explain Graphical representation

8A) Explain Measures of Central tendency

(OR)

8B) Explain concept of AM, Median, Mode and also find relationship between them ?

9A) Explain Measures of Dispersion?

(OR)

9B) Explain the concept of correlation and Regression?