Government College (Autonomous) Rajamahendravaram
NAAC Accredited at 'A+' Grade

DEPARTMENT OF STATISTICS

B.A.(I,II,III,IV,V&VI) SEMESTERS

SYLLABUS & MODEL PAPERS

2022-2023

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GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM

DEPARTMENT OF STATISTICS

Committee Constituted for Board of Studies Meeting for the year 2022-2023

Sl. No.	Name	Member
1	**Sri.G.Moses** **Head, Dept of Statistics** **DNR College(Autonomous)** **Bhimavaram**	**University Nominee**
2	**Dr. D.V. Ramana Murthy** **Head, Dept of Statistics** **SKVT College, Rajahmundry**	**Local Subject Expert**
3	**Sri M. Kodandaram** **LIC of India, Rajahmundry**	**Industrial Nominee**
4	**Sri K. Ashok** **Lecturer in Statistics** **SRR & CVR College(A),Vijayawada**	**Subject Expert**
5.	**Mr. J. Naga Sriram** **Guest faculty in Statistics** **Govt college(A)** **Rajamahendravaram**	**Member**
6.	**Mr. Ch. Naresh** **Guest faculty in Statistics** **Govt College(A)** **Rajamahendravaram**	**Member**
7.	**Ms.K.Suneetha** **Guest faculty in Statistics** **Govt College(A)** **Rajamahendravaram**	**Member**
8.	**Student Members** **(i) Sk. Hafeez** **(ii) K Pavan lokesh** **(iii)N Swarna latha** **(iv)K Lavanya**	

DEPARTMENT OF STATISTICS

Approved List of Examiners/ Paper Setters

Name of the Lecturer/Reader	College	Phone.NO	Mail.id
Sri A. Anand, Lecturer	M.R.College, Vizianagaram		
Dr.C.S.S.R.L.H.Rao, Lecturer	M.R.College, Vizianagaram	9394066306	chraomr@gmail.com
Dr, P. KondaBabu, Lecturer	M.R.College, Vizianagaram	9491571046	kondababupuli@gmail.com
Sri G. Moses, Lecturer	D.N R College, Bhimavaram	9440185103	
Sri N. Srinivasa Rao, Lecturer	AndhraLoyolaCollege, Vijayawada		nunnasr@gmail.com
Dr. V. RohiniKumari, Lecturer	Govt. College for Men, Ananthapur	9848236535	vrohinikumari@gmail.com
Dr.KousarJahaBegum,Lecturer	Govt. College, Chittoor	9985312244	begum.kousar123@gmail.com
Sri T. Gandhi, Lecturer	Mrs.A.V.N.College,Visakhapatnam		
Sri V. Praveen, Lecturer	A.B.N. College, Kovvur	8184853368	
Grandhi Prasad, Lecturer	AdityaDegreecollege,Rajahmundry		
Dr.D.V.RamanaMurthy ,Lecturer	SKVT College, Rajahmundry	9949135864	dr.dvvmurthy@gmail.com
Sri K. Ashok, Lecturer	**SRR&CVR College(A),Vijayawada**	9848505506	sairamya285@gmail.com
Dr.B.ChndraSekharReddy, Lecturer	S R DegreeCollege, Punganur	9492376446	csr.bhumireddy@gmail.com
Dr.B.Venkata Ram, Lecturer	SSBN Degree College,Ananthapur	9440410474	gsd.atp@gmail.com
Dr.V.Munnaih, Lecturer	PVKN.GOVT.College,Chitturu	924852594	drvmstats@gmail.com
Dr.N.Madhavi,Lecturer	GOVT.College(A),Rajahmundry	9951768491	madhavi.au@gmail.com
Dr.A.Kullaya swamy,Lecturer	S.G.College for Degree and PG	8019114632	swamy.anchal@gmial.com
Dr.R.V.S.Prasad,Lecturer	P.R.R.V.S GOVT college ,Vidava	9440493600	drrvsstatnlr@gmail.com
Dr.Devasena,Lecturer	S.S.B.N Degree college,Ananthpur	9441469927	gsd.atp@yahoo.com
Dr.D.V.L.N.Jogiraju,Lecturer	B.V.K.Degree College,Visakhaptanam	9440426883	Jogiraju76@gmail.com
Sri.CH.Naresh,Lecturer	GOVT.College(A),Rajahmundry	8297826683	nareshchitturi27@gmail.com
Sri.J.Naga Sriram,Lecturer	GOVT.College(A),Rajahmundry	7382499623	nagasriram.jonnala@gmail.com
K.Suneetha,lecturer	GOVT.College(A),Rajahmundry	7286038880	sunithakothuri7215@gmail.com
CH.Chinamambha,Lecturer	P.R.College(A),Kakinada	8328258107	
P.Annapurna,Lecturer	P.R.College(A),Kakinada	9885154367	
D.Madhulatha,Lecturer	S.K.V.T.College,Rajahmundry	7416179782	

Signatures

1.
2.
3.
4.

Chairman
Board of Studies

GOVERNMENT COLLEGE (A+) RAJAMAHENDRAVARAM
DEPARTMENT OF STATISTICS
Consolidated Report of Board of Studies for the Year 2022-2023

The Board of Studies meeting is held in the Department of Statistics conducted on
26-07-2022 from 11.00 to 12.00 for all the semesters under the Chairmanship of Dr.N.Madhavi Lecturer in – charge of Department of statistics with the following members.

The following members were present

Sl. No.	Name	Member	Signature
1	Sri.G.Moses Head, Dept of Statistics DNR College(Autonomous) Bhimavaram	University Nominee	
2	Dr. D.V. Ramana Murthy Head, Dept of Statistics SKVT College, Rajahmundry	Local Subject Expert	
3	Sri M. Kodandaram LIC of India, Rajahmundry	Industrial Nominee	
4	Sri K. Ashok Lecturer in Statistics SRR & CVR College(A),Vijayawada	Subject Expert	
5.	Mr. J. Naga Sriram Guest faculty in Statistics Govt college(A) Rajahmundry	Member	
6.	Mr. Ch. Naresh Guest faculty in Statistics Govt College(A) Rajahmundry	Member	
7.	Ms.K.Suneetha Guest faculty in Statistics Govt College(A) Rajahmundry	Member	
8.	Student Members (i) Sk. Hafeez (ii) K Pavan lokesh (iii)N Swarna latha (iv)K Lavanya		

The following documents are submitted to the Academic Coordinator and Controller of Examinations

1. **Syllabus of , III ,IV,V&VI Semesters.**
2. **Model Question Papers of all the Semesters.**
3. **List of Revised Examiners.**
4. **Any other item with the permission of the chair.**

Signatures

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Chairman
Board of Studies

DEPARTMENT OF STATISTICS

Minutes & Resolutions of BOS dated 26-07-2022

A meeting was conducted for Board of Studies on 26-07-2022 from 10..00 to 12.00 am for all the semesters for the UG programmes B.Sc & B.A under the chairmanship of Dr N.Madhavi (Lecturer-in-charge, Dept of Statistics) with the committee members through offline mode

Agenda Point 1: Program wise Curriculum design for all the semesters

Discussion : A discussion was being held among the members regarding the curriculum design for all the semesters and for all the programmes B.Sc & B.A. The curriculum design was changed from this year 2022-2023 especially for fifth semester and sixth semester apart from all the four semesters. The syllabus for the first four semesters were discussed and decided to continue the same syllabus given as earlier with some added additional inputs into the syllabus. Basing on the syllabus prescribed by APSCHE and following CBCS pattern, it is decided to frame the syllabus with new papers and titles for fifth semester. Electives are being prepared for and the students can choose any one elective from the given electives which consists of two papers in each elective. Also the discussion was held regarding the community service project and internships/ Aprenticeships in second and fourth and sixth semesters.

A new course Mathematics, Statistics and Data Science is being started from this academic year and the syllabus was shown for the first year

Resolution 1: It is resolved to adopt the prescribed syllabus shown for the four semesters for all courses and iIt is resolved to design the curriculum in such a way that the students must select one elective out of three elective sfor both B.sc and B.A Programme for fifth semester s and accordingly Curricular and Co-Curricular activities were to be followed

Resolution 2: It is resolved to send the students for Community service project at the end of second semester and mentors were allotted for the batch of students and the project is to be completed within 8 weeks and 100 marks were allotted for this project. Any student who have not undergone the CSP project will be failed.

Resolution 3 :It is resolved to send the students of fourth semester for internship/Apprenticeship for about two months and four months internship/ Apprenticeship after fifth semester

Resolution 4: It is also resolved to send the students for internship in fifth semester and some studnts in sixth semester basing on the guidelines give by college. The syllabus given for fifth semester will be followed accordingly.

Agenda Point 2: Designing of Course Outcomes and Course Objectives:

Discussion: The members thoroughly verified the prepared programme outcomes, course outcomes and course objectives for al the programmes and courses and satisfied.

Resolution !: It is resolved to incorporate the programme outcomes, course outcomes and course objectives for all the programmes and courses in an efficient manner.

Resolution 2: It is resolved to incorporate CO PO mapping for al the programmes and courses and to be given in the syllabus

Agenda Point 3: Identification of unitwise assignment questions and relevant model question paper

Discussion: The members pointed out some important questions for assignment purpose keeping in view of examinations and compulsory questions and model question papers were verified

Resolution1 : It is resolved to give assignment questions as suggested by the members

Resolution 2: It is resolved to prepare relevant model question papers for the syllabus framed.

Agenda Point 4: Identifying inclusion of components of Skill Development, Employability and Emterpreneurship in the course content and specific activity proposed

Discussion: Sri K. Ashok (Member of BOS) pointed out the components of skill development, Employability and Enterpreneurship in the course content and accordingly activities like, guest lectures, internships, project works, field works etc are to be prepared

Resolution 1: Basing on the discussion held, it is resolved to identify skill, employability and Enterpreneurship components by specifying with red, green and Yellow colours .

Resolution2 : It is resolved to specify the activity proposed for skill development, Employability and Enterpreneurship in the course content and to be sown in the syllabus

Agenda Point 5: Additional inputs into the curriculum:

Discussion: Sri K. Ashok (Subject Expert) of SRR and CVR college, Vijayawada discussed about the additional inputs into the curriculum wherever necessary to give clear understanding about the topic and these are not included for exam.

Resolution 1: **It is resolved to incorporate additional inputs into the curriculum.**

Agenda Point 6: Designing Model question Papers and identifying potential paper Setters

Discussion: **The members saw the designed model question papers for all the courses and identified the paper setters from various colleges.**

Resolution 1: **It is resolved to prepare model question papers for both programmes B.Sc and B.A and the model for all the courses is same**
Resolution 2: **It is resolved to identify efficient paper setters from various colleges and the list of the paper setters is given in the syllabus.**

Agenda Point 7: Innovative Teaching—Learning Methodology (Learner Centric)

Discussion:The various methods of Teaching Learning were discussed by all the members. ICT teaching methodology and Blended mode teaching is given more importance by all the members. Online teaching methodology is also preferred and essential way of teaching learning in the present scenario.Google classroom methodology is also preferred in making the students oline tests.

Resolution 1:It is resolved by ll members to follow latest methodologies and easy way of Teaching Learning in maintaining the students Standards.

Resolution 2:It is resolved to follow blended mode of teaching besides the lecture method, ICT based method etc.

Agenda Point 8: Academic activities of the Department such as Seminars, fieldworks etc.

Discussion: The department conducts National Statistics day, World population day every year and conducts guest lectures, competitions like elocution, Essay writing, quiz etc . Apart from this the department conducts seminars, webinars, extension lectures, fieldworks etc. Chart Exhibhition is also celebrated and outside school students were invited to see the chartexhibhition.

Resolution 1: It is resolved to conduct department activities, seminars, webinars, guest lectures, field works etc for the students

Resolution 2:It is resolved to conduct chart exhibhition to increase the knowledge among the students by way of showing the information in the form of charts.

Agenda Point 9: Assessment Component:

The assessment component is designed as follows:

For I ,II and III year students theory examinations: 100 Marks

External Exam: 50Marks
Internal Exam: 50Marks

The internal exam is based on
30 marks for internal exams (20 for internal tests and 10 for oline exam)
5 marks for assignment
5 marks for viva
5 marks for seminars
5 marks for attendance
Community service project is undertaken by second semester students for 100 marks
The 100 marks were allotted as follows
(i) Project Log Book   ------------------------------ -20 Marks
(ii) Project Implementation   ------------------------------ - -30 Marks
(iii) Project Report Writing   ------------------------------ -25 Marks
(iv) Project Viva   ------------------------------ -25 Marks

Practical Examinations would be conducted at the end of the each semesters for B.Sc & B.A for all the three year students and there will be internal evaluation at the end of 1,3,5semesters and external evaluation at the end of 2, 4, 6 semesters for each year.
Practical internal exam will be conducted for all semesters for 50 marks

Agenda Point 9: Any other proposal with the permission of the chair

Discussion: A Certificate course is being handled by the department at the end of fourth semester and the title is Statistical tools for Research Methodology

Resolution 1: It is resolved to run the certificate course this year also

Resolution 2:It is resolved to conduct an exam in the certificate course for 50 marks.

Signatures of the members Present

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Chairman
Board of Studies

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM

DEPARTMENT OF STATISTICS

B.A (E.S.C, E.S.CS)

PROGRAM CODE: E.S.Comm:1103 & E.S.Comp:1207

S.NO	SEMESTER	TITLE OF THE PAPER	COURSE CODE
1	I	**Quantitative Statistics**	**STT301**
2	II	**Descriptive Statistics**	**STT302**
3	III	**Probability Distributions & Statistical Methods**	**STT303**
4	IV	**Paper-IV-Basics of Statistical Inference**	**STT304**
5	IV	**Paper-V-Applied Statistics**	**STT305**
6	V	**A1-Operation Research**	**STT306**
7	V	**A2-Official Statistics and Design of Experiments**	**STT307**
8	V	**B1- Actuarial Statistics**	**STT308**
9	V	**B2-Demography**	**STT309**
10	V	**C1-Quality & Reliability**	**STT310**
11	V	**C2-Statistical Computer Applications**	**STT311**

Department of Statistics

B.A. (E.S.C & E.S.CS)

PROGRAM EDUCTAIONAL OBJECTIVES:

- ➤ To prepare students for lifelong learning and successful careers using their statistical skills
- ➤ To make the students to know about survey
- ➤ To teach basic concepts of mathematics based on statistics
- ➤ To create awareness on Opportunities in statistics
- ➤ To train students thoroughly in methods of analysis

PROGRAM OUTCOMES:

After completion of the course, the student would be able to
- ✓ Use Statistical knowledge to analyze solve the problems
- ✓ Analyze the data effectively in different areas
- ✓ Use tools and applications of Statistics in various s disciplines
- ✓ Know application of statistics based on day to day life
- ✓ Develop good skills in solving the problems

Department of Statistics

B.A. (E.S.C & E.S.CS)

PROGRAM EDUCTAIONAL OBJECTIVES:

- ➢ To prepare students for lifelong learning and successful careers using their statistical skills
- ➢ To make the students to know about survey
- ➢ To teach basic concepts of mathematics based on statistics
- ➢ To create awareness on Opportunities in statistics
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PROGRAM OUTCOMES:

After completion of the course, the student would be able to
- ✓ Use Statistical knowledge to analyze solve the problems
- ✓ Analyze the data effectively in different areas
- ✓ Use tools and applications of Statistics in various s disciplines
- ✓ Know application of statistics based on day to day life
- ✓ Develop good skills in solving the problems

Government College (Autonomous) Rajahmundry		Program & Semester I BA. (I Sem)			
Course Code STT 301	**TITLE OF THE COURSE** **Quantitative Statistics**				
Teaching	Hours Allocated: 60 (**Theory**)	L	T	P	C
Pre-requisites:	Basic knowledge in mathematics	0	4	3	3

Course Objectives:

1. Quantitative Statistics main aim is to develop ability to perform the FOUR basic operators and also develop skills in measurement, approximation and estimation .
2. This paper will help the student can understand statistics easily based on performing some basic concepts of mathematics which are related to statistics

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	**After completion of the course, the student would be able toUse Statistical knowledge to analyze solve the problems**
CO2	**Analyze the data effectively in different areas**
CO3	**Use tools and applications of Statistics in various s disciplines**
CO4	**Know application of statistics based on day to day life**
CO5	**Develop good skills in solving the problems**

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	

Syllabus:

Unit-1

Set Theory: Basics of Set theory, types of sets, equal and equivalent sets, finite and infinite sets, Venn Diagrams, Operation on sets intersection of sets and differences of two sets

Unit-II

Sequences and Series: Sequence ,Series and functions, types of functions;   Solution of simultaneous linear equations, Quadratic equations.

Unit-III

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	2	2	2	3	2	2	3	2	3	2	2	2	2
CO2	2	1	3	2	2	2	2	3	2	1	2	2	2
CO3	1	3	2	3	3	3	3	2	2	3	2	2	1
CO4	2	2	3	2	2	2	2	2	3	2	2	1	2
CO5	2	2	1	2	1	2	2	1	1	1	1	1	2

Progressions- AP, GP, HP; Permutations, Combinations, Binomial theorem and their
Related problems.

Unit-IV

Elementary Matrices: Definition and types of matrices, Addition, Subtraction, Scalar Multiplication of matrices.

Unit-V

Determinant of matrix, Transpose of a Matrix, Inverse and Rank of 3 X 3 matrices only. Solution of simultaneous linear equations by matrix methods- Cramer's Rule and Matrix Inversion methods.

Textbooks:

1. Differential Calculus- SanthiNarayana.
2. Outlines of Matrices-Schaum.

Referencebooks:

1. S.P.Gupta: Statistical Methods. Sultan Chand
2. S.C.Gupta and V.K.Kapur: Fundamentals of Mathematical Statistics. Sultan Chand.
3. MoulikaGanithamuSambavyata – Telugu Academy.
4. Quantitative Techniques I- Sultan Chand Publication.

WebLinks:

1.
2.

CO-POMapping:

(1:Slight[Low]; 2:Moderate[Medium]; 3:Substantial[High], '-':No Correlation)

	Government College (Autonomous) Rajahmundry	Program & Semester I BA (I Sem)			
Course Code STT301	**TITLE OF THE COURSE** **Quantitative Statistics**				
Teaching	Hours Allocated: 60 (**Lab**)	L	T	P	C
Pre-requisites:	Basic knowledge in Mathematics	0	0	3	2

Objectives:

1. Quantitative Statistics main aim is to **develop ability to perform the FOUR basic operators and also develop skills in measurement, approximation and estimation .**

2. **This paper will help the student can understand statistics easily based on performing some basic concepts of mathematics which are related to statistics**

List of Experiments/Syllabus:
Practical's- Semester-I
Conduct any 6 Practical's.
1. Solution to Simultaneous Linear equations
2. Progressions- AP, GP, HP
3. Addition, Subtraction, Multiplication of Matrices.
4. Determinant of a Matrix
5. Solution of equations by Matrix methods.
6. Simple differentiation
7. Integrations

Referencebooks:

1. S.P.Gupta: Statistical Methods. Sultan Chand
2. S.C.Gupta and V.K.Kapur: Fundamentals of Mathematical Statistics. Sultan Chand.
3. MoulikaGanithamuSambavyata – Telugu Academy.
4. Quantitative Techniques I- Sultan Chand Publication.

Virtual LabLinks:

Time: 2 ½ hrs.   **Max Marks-50**

MODEL PAPER

SECTION-A

Answer any FIVE questions   **5x4=20M**

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

SECTION-B

Answer any THREE Questions   **3x10=30M**

9 If A= $\{1,2,3,4,5,6,7,8,9\}$ B=$\{3,5,7\}$ and C= $\{2,4,6\}$

Prove the following equation $AU(BUC) = (AUB)UC$

10 Find the sum and product of the roots of the equation $x^2 + 4x + 3 = 0$

11 Find sum of 'n' terms of the series 7+77+777+……….

12 Explain types of Matrices

13 Solve the following equations by Cramer method

$$2x - y = 5, \quad 3x + 2y = -3$$

	Government College (Autonomous) Rajahmundry	Program & Semester
Course Code STT302	**TITLE OF THE COURSE** **Descriptive Statistics**	I BA. (II Sem)

Teaching	Hours Allocated: 60 (**Theory**)	L	T	P	C
Pre-requisites:	Basic knowledge in Mathematics				

Course Objectives:

1. Descriptive statistics are used to describe the basic features of the data in a study.
2. They provide simple summaries about the sample and the measures.
3. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data.

Outcomes:

On Completion of the course, the students will be able to-

CO1	**Students would be able to learn about Statistics, function of statistics and their applications in daily life**
CO2	**Students would be able to learn about Data collection procedures, classification of data**
CO3	**Students would be able to learn about various methods of Central tendency**
CO4	**Students would be able to learn about different methods of dispersion**
CO5	**Students would be able to learn about different methods of dispersion**

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	

Syllabus:
Unit-I:

   Introduction to Statistics: Statistics, Definition, application, scope, limitation, primary and secondary data, methods of collecting Primary and Secondary data. Statistical enquiry, Questionnaire and Schedule, Raw data, Editing of data.

Unit-II:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	1	2	2	1	2	1	3	2	3	2	2	2	2
CO2	2	3	3	2	1	3	2	3	1	1	2	2	2
CO3	3	1	2	3	3	2	2	2	2	3	3	2	1
CO4	2	2	3	2	2	2	1	2	3	2	2	2	2
CO5	1	2	2	1	2	2	2	1	2	1	2	1	2

Classification and Tabulation: Classification of data, Frequency distribution, rules of tabulation, simple and complex tables, single, double and manifold tables.

Unit-III:

Diagrammatic Representation: Bar diagrams, square, rectangle, Pie-charts, Histogram, Frequency polygon, Ogives.

Unit-IV:

Measures of Central Tendency: Mean, Median, Mode, G.M & H.M, merits and demerits, finding median by graphic method, quartiles, deciles & percentiles.

Unit-V:

Measures of Dispersion: Range, Q.D, S.D, M.D, Coefficient of variation, Lorenz curve. Moments, Skewness and Kurtosis

Textbooks:

1. **Fundamentals of Mathematical Statistics- SC Gupta and V.K.Kapoor**
2. **3.Moulika Ganithamu Sambavyata - Telugu Academy.**
3. **Quantitative Techniques I-Sultan Chand Publication**

Reference books:

1. S.P.Gupta: Statistical Methods. Sultan Chand
2. S.C.Gupta and V.K.Kapur: Fundamentals of Mathematical Statistics. Sultan Chand.
3. MoulikaGanithamuSambavyata - Telugu Academy.
4. Quantitative Techniques I- Sultan Chand Publication.

Web Links:

CO-PO Mapping:

(1:Slight[Low];   2:Moderate[Medium];   3:Substantial[High],   '-':No Correlation)

	Government College (Autonomous) Rajahmundry	**Program & Semester**			
Course Code STT302	**TITLE OF THE COURSE** **Descriptive Statistics**	I BA (II Sem)			
Teaching	Hours Allocated: (**Lab**)	L	T	P	C
Pre-requisites:	Basic Knowledge in Mathematics	0	0	3	2

Objectives:

1. Descriptive statistics are used to describe the basic features of the data in a study.

2. They provide simple summaries about the sample and the measures.

3. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data.

4. Descriptive statistics are typically distinguished from inferential statistics.

List of Experiments/Syllabus:

Practical's- Semester-II

Conduct any 6 Practical's.(MS-excel is compulsory)

1. **Raw data analysis methods, Questionnaire**
2. **Bar diagrams**
3. **Pie diagrams**
4. **Histogram**
5. **Frequency Polygon.**
6. **Measures of Central Tendency**
7. **Measures of Dispersion**
8. **Frequency Distribution**
9. **Skewness and Kurtosis**
10. **Moments**

Reference books:

5. S.P.Gupta: Statistical Methods. Sultan Chand
6. S.C.Gupta and V.K.Kapur: Fundamentals of Mathematical Statistics. Sultan Chand.
7. MoulikaGanithamuSambavyata - Telugu Academy.
8. Quantitative Techniques I- Sultan Chand Publication.

Virtual Lab Links:

Government College [A+] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2021-22
I B.A. Statistics/Semester-II
(Non-Mathematics Combination)
Descriptive Statistics Paper - II

Time: 2 1/2 hrs   **Model paper**   **Max Marls: 50**

SECTION_A

Answer any FIVE of the following Questions.   **5X4=20M**

1. Explain the Functions of Statistics?

2. Write about Classification of data?

3. Explain about Mean Deviation

4. Distinguish between a Questionnaire and a Schedule

5. Describe Pie charts

6. Write about Quartiles, Deciles, Percentiles,

7. Explain the concept of Kurtosis

8. Find Mean, Median, Mode to the data 6,6,7,8,8,8,2,5,6,9,5 and 17

SECTION-B

Answer any THREE of the following questions.   **3X10=30M**

9.   Define various definitions of Statistics and Limitations of Statistics

10 .Explain various measures of Central tendancy?

11. Define Classifications of data explain various types of classifications

12 Explain the Various methods of collecting data

13. Explain the importance of Diagrams. Construct Histogram and

Frequency Polygon for the Following Data

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	14	16	30	22	18	10	9

	Government College (Autonomous) Rajahmundry	Program & Semester II BA.(III Sem)			
Course Code STT303	**TITLE OF THE COURSE** **Probability Distributions and Statistical Methods**				
Teaching	Hours Allocated: 60 (**Theory**)	L	T	P	C
Pre-requisites:	Basic knowledge in Statistical functions	0	4	3	3

Course Objectives:

1. The aim of the paper is to Distinguish between discrete and continuous random variables, find
probabilities associated with a discrete probability distribution.
2. Compute the mean and variance of a discrete probability distribution.
3. Find probabilities associated with other distributions and also know various applications of
distributions and also to learn about statistical methods.

Outcomes:

On Completion of the course, the students will be able to-

CO1	**learn about Probability**
CO2	**learn about mathematical expectations**
CO3	Learn about Probability distributions
CO4	**Learn about Statistical methods**
Co5	**Learn about curve fitting**

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	

Syllabus:
Unit-I
Probability introduction:
Definitions of random experiment, outcome, sample space, event, mutually exclusive event, equally likely events, favorable events, classical, statistical and axiomatic definitions of probability. Addition and multiplication theorems for two events, Conditional probability. Bayes'theorem statement and problem based on it.

Unit-II
Random Variable:

Discrete-Probability mass function, Continuous random variable-Probability density function, distribution function of a random variable and properties.

Mathematical Expectation: M.G.F, C.G.F, P.G.F and C.F and their properties

Unit–III

Probability Distributions:

Binomial, Poisson, Geometric distributions-definitions, means, variances and applications of these distributions. Additive property if exists, Simple problems

Continuous Distributions**:** Rectangular, Normal, Exponential distributions-definitions and their properties, Simple problems.

Additional Inputs:Other continuous Distributions and their applications

Unit–IV

Correlation:

Definition, Scatter diagram its coefficient and its properties. Scatter diagram, computation of correlation coefficient for ungrouped data. Spearman's rank correlation coefficient, properties of spearman's correlation coefficients and problems.

Unit–V

Regression:

simple linear regression, properties of regression coefficients. Regression lines, Concept of Correlation ratio, partial and multiple correlation coefficients, correlation verses regression and their problems.

Curve fitting:

Method of least square-Fitting of linear, quadratic, Exponential and power curves and their problems.

Textbooks:

1. Sambavyata - Telugu Academy
2. V.K.Kapoor and S.C.Gupta: Fundamentals of Mathematical Statistics.

Referencebooks:

1. Goon, Gupta and Das Gupta: Fundamentals of Statistics. Volume I .World Press
2. K.V.S. Sarma: statistics Made Simple: do it yourself on PC.   PHI

Web Links

1. **https://youtu.be/7H3JFH3IjB0**
2. **https://youtu.be/BGE5Y6TXPUQ**
3. **https://youtu.be/jkfwVH0foMw**

CO-PO Mapping:

(1:Slight[Low];2:Moderate[Medium];3:Substantial[High],   '-':No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	2	3	2	3	2	2	2	2
CO2	2	3	3	2	2	2	2	3	2	3	2	2	2
CO3	3	3	2	3	3	1	2	2	2	3	1	2	1
CO4	2	2	3	2	2	2	3	2	1	2	2	2	2
CO5	3	2	2	2	2	2	2	2	3	1	1	2	2

	Government College (Autonomous) Rajahmundry	Program & Semester II BA (III Sem)			
Course Code STT303	**TITLE OF THE COURSE** Probability Distributions and Statistical Methods				
Teaching	Hours Allocated: (**Lab**)	L	T	P	C
Pre-requisites:	Basic knowledge in statistical concept	0	0	3	2

Objectives:

1. The aim of the paper is to Distinguish between discrete and continuous random variables, find

  probabilities associated with a discrete probability distribution.

2. Compute the mean and variance of a discrete probability distribution.

3. Find probabilities associated with other distributions and also know various applications of

  distributions and also to learn about statistical methods.

List of Experiments/Syllabus:

Practical's-Semester-III

1. Calculating Probabilities for simple Problems
2. Mathematical expectations & Random variables
3. Discrete probability distributions
4. Continuous probability distributions
5. Correlation
6. Regression computation
7. Fitting of curves

Reference books:

1. Goon, Gupta and Das Gupta: Fundamentals of Statistics. Volume I .World Press
2. K.V.S. Sarma: statistics Made Simple: do it yourself on PC.   PHI

Virtual Lab Links:

1. **https://youtu.be/7H3JFH3IjB0**
2. **https://youtu.be/BGE5Y6TXPUQ**
3. **https://youtu.be/jkfwVH0foMw**

GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM
II B.A.   SEMESTER: III -2022-23
PAPERE III-Probability Distributions and Statistical Methods
(Without mathematical derivations)

Time: 2 ½ hrs	MODEL PAPER	Max Marks: 50

Section-A

Answer any FIVE questions.   **5x 4 = 20M**

1. **Write short note on Probability**

2. **Define Poisson Distribution and its properties**

3. **Correlation vs Regression**

4. **Give the applications of Normal distribution**

5. **What are types of correlation**

6. **What are method of least Squares**

7. **What are types of Random variables**

8. **Explain tied ranks**

SECTION-B

Answer any THREE questions   **3 x10=30M**

9. **Explain types of Probabilities**

10. **Write about Binomial distribution and its properties**

11. **Derive the equation of regression lines of X on Y and Y on X.**

12. **Explain Additional and multiplication theorem by using Expectation**

13. **Problem on Curve Fitting**

	Government College (Autonomous) Rajahmundry	Program & Semester		
Course Code STT304	**TITLE OF THE COURSE** **Statistical Inference**	II BA.(IV Sem) **Paper**-IV			
Teaching	Hours Allocated: 60 (**Theory**)	L	T	P	C
Pre-requisites:	Basic knowledge in Statistical methods	0	4	3	3

Course Objectives:

1. The course aims at providing an introduction to statistical inference and its application to predictive statistical models.

2. The first part of the course will focus on basic probability.

3. Subsequently, the course will deal with the theory of statistical inference

Outcomes:

On Completion of the course, the students will be able to-

CO1	**Learn about estimation**
CO2	**Learn about statistical hypothesis**
CO3	**Learn about large sample tests**
CO4	**Learn about small sample tests**
C05	**Learn about non-parametric tests**

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	

Syllabus:

Unit-I
Theory of Estimation:
Definitions of population, sample, parameter, statistic, sampling distribution of a statistic, standard error. Estimation-Criteria of a good estimator, meaning of interval estimation

Unit-II
Statistical Hypothesis
- Null and alternative hypothesis, level of significance, Type I and Type II errors, Tailed tests in Hypothesis, Power of the test.Neyman-Pearson-Lemma
Additional Inputs:Np lemma problems

Unit-III

Large Sample test

Large sample tests for proportion (single & double), means (single & double), and standard deviations. Simple Problems

Unit-IV

Small Sample tests: Tests of significance based on chi-square, t and F, chi-square test for independence of attributes, t-test for single, double and paired tests, Variance Ratio test (F-test) , ANOVA Test ,Simple Problems

Additional Inputs:Exact Sampling distributions

Unit-V

Non-Parametric tests: Advantages, Disadvantages, Sign test, Median test and Run test for two sample cases only.

Textbooks:

1 Statistical methods-S.P.Gupta

2 Fundamentals of statistics-Goon Gupta and Das Gupta Vol I and Vol II

Reference books:

1. AnuvarthithaSankyakaSastramu – Telugu Academy book.

2. Applied Statistics-V.K.Kapoor&S.C.Gupta
3. Applied Statistics-ParimalMukhopadhyay

Web Links

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2. **https://youtu.be/BGE5Y6TXPUQ**
3. **https://youtu.be/jkfwVH0foMw**

CO-PO Mapping:

(1:Slight[Low];　　　2:Moderate[Medium];3:Substantial[High],　'-':No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	3	3	2	3	2	3	2	2
CO2	3	2	3	2	2	2	2	3	2	2	2	2	2
CO3	2	2	2	3	3	3	3	2	2	3	3	2	3
CO4	2	2	3	2	2	2	2	2	1	2	2	2	2
CO5	3	2	2	2	2	2	2	2	2	3	3	1	2

	Government College (Autonomous) Rajahmundry	Program & Semester II BA (IV Sem) Paper-IV			
Course Code STT304	**TITLE OF THE COURSE** **Statistical Inference**				
Teaching	Hours Allocated: (**Lab**)	L	T	P	C
Pre-requisites:	Basic knowledge in Statistical methods	0	0	3	2

Objectives:

1. The course aims at providing an introduction to statistical inference and its application to predictive statistical models.

2. The first part of the course will focus on basic probability.

3. Subsequently, the course will deal with the theory of statistical inference

List of Experiments/Syllabus:
Practical's-Semester-IV
Conduct any 6 Practical's
1. Large sample tests-Mean(s)
2. Large sample tests-Proportion(s)
3. Small sample tests-t for Mean(s)
4. F-test for variance ratio
5. Chi square test for independence of attributes
6. N.P.tests-Run test, Median test, Sign test.
7. N.P Tests

Reference books:
1. AnuvarthithaSankyakaSastramu – Telugu Academy book.

2. Applied Statistics-V.K.Kapoor&S.C.Gupta
3. Applied Statistics-ParimalMukhopadhyay

Virtual Lab Links:

1. **https://youtu.be/7H3JFH3IjB0**
2. **https://youtu.be/BGE5Y6TXPUQ**
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GOVERNMENT COLLEGE (A), RAJAMAHENDRAVARAM
III B.A. SEMESTER: IV 2022-23
PAPER IV- Statistical Inference
(Without mathematical derivations)

Time: 2 ½ Hrs	MODEL PAPER	Max Marks: 50

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 THREE questions   **3 X10=30M**

9. Explain the criteria of a good estimator

10. State and Prove NP-Lemma

11. Explain the large sample test for equality of two means

12. Explain chi-square test for independence of attributes.

13. Explain the difference between parametric tests, Non-parametric tests?

	Government College (Autonomous) Rajahmundry	**Program & Semester** II BA.(IV Sem) **Paper**-V			
Course Code STT305	**TITLE OF THE COURSE** **Applied Statistics**				
Teaching	Hours Allocated: 60 (**Theory**)	L	T	P	C
Pre-requisites:	Basic knowledge in Statistical inference	0	4	3	3

Course Objectives:

After completion of this students would be able to learn different applications statistics.

Outcomes:

On Completion of the course, the students will be able to-	
CO1	**Learn about basics of sampling**
CO2	**Learn about Systematic and stratified sampling**
CO3	Learn about Time series
CO4	**Learn about index numbers**
CO5	**Learn about Vital statistics**

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	

Syllabus:

Unit-I

   Basics of Sampling: Population, sample, sampling versus census, sample survey meaning, Sampling and Non-sampling errors, Limitations of sampling Principle steps in a sample survey. Types of samplings

Unit-II

   Types of Sampling :Simple Random Sampling method: SRSWR, SRSWOR, Random number table method and lottery system method. Sample mean is an unbiased estimate of population mean, sample mean of variance.
Stratified Random Sampling: Meaning of Stratified random sampling, merits and demerits. Definitions of Proportional and Optimum allocations**.**
Systematic Random Sampling: Definition of systematic random sampling. Comparison of SRSWOR (problem), stratified and systematic samplings.

Unit-III

Time series: Meaning components, trend- graphical, semi-averages, straight line, parabola, moving average methods. Seasonal indices methods- simple averages –ration to trend, ratio to moving average, link relatives methods and simple problems.

Unit-IV

Index Numbers: Meaning and Definition of index Numbers Problems involved in Index Numbers ,types of Index Numbers, Criteria of Good index numbers, Cost of living and wholesale Index numbers and simple problems

Unit –V

Vital Statistics: Meaning, definition, uses, source of vital statistics – registration method, Census method Death rates-, Crude Death Rates – Age Specific Death Rate, Standardized Death rates Birth rates Crude Birth Rate, Age Specific Fertility Rate, General Fertility Rate, Total Fertility Rate

Additional Inputs:Population Growth rates

Textbooks:
1 Statistical methods-S.P.Gupta
2 Fundamentals of statistics-Goon Gupta and Das Gupta Vol I and Vol II

Reference books:

1. Statistical methods-S.P.Gupta
2 Fundamentals of statistics-Goon Gupta and Das Gupta Vol I and Vol II
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(1:Slight[Low];   2:Moderate[Medium];   3:Substantial[High],   '-':No Correlation)

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CO1	2	2	2	3	2	2	3	2	3	2	2	2	2
CO2	2	3	3	2	2	2	2	3	2	3	2	2	2
CO3	2	2	2	2	3	2	2	2	2	3	1	2	2
CO4	2	2	3	2	2	2	2	2	3	2	2	1	2
CO5	3	2	2	3	2	2	2	2	2	3	2	2	2

	Government College (Autonomous) Rajahmundry	Program & Semester II BA (IV Sem) Paper-V			
Course Code STT305	TITLE OF THE COURSE Applied Statistics				
Teaching	Hours Allocated: (Lab)	L	T	P	C
Pre-requisites:	Basic knowledge in Statistical inference	0	0	3	2

Objectives

List of Experiments/Syllabus:
Practical's-Semester-IV

Conduct any 6 Practical's

1. Birth rates
2. Death rates
3. Trend-Straight line
4. Seasonal indices-Simple Average
5. Sampling SRSWR-SRSWOR
6. Stratified Sampling
7. Systematic Sampling

Reference books:

1. Statistical methods-S.P.Gupta
2. Fundamentals of statistics-Goon Gupta and Das Gupta Vol I and Vol II
3. Anuvarthitha Sankyaka Sastramu – Telugu Academy book.
4. Applied Statistics–V.K.Kapoor & S.C.Gupta
5. Applied Statistics-Parimal Mukhopadhyay.

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Government College [A+] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2022-23
II B.A Statistics/Semester-IV
Applied Statistics
Paper –V
MODEL QUESTION PAPER (THEORY)

Time: 2 1/2hrs   Max Marks: 50

SECTION-A

Answer any <u>FIVE</u> questions.   5 x 4= 20M

1 Explain Total Fertility Rate and Age Specific Fertility Rate

2 Explain Abridged life tables

3 Explain the determination of trend by Semi averages method

4. Explain types of sampling

5 Explain CENSUS vs SAMPLING

6 Explain Cost of living Index Numbers

7 Explain Life Table

8 Types of Allocations in Sampling

SECTION-B

Answer any <u>THREE</u> questions   3x10=30M

9. Explain Principle steps of sample Survey

10. Explain SRSWR with SRSWOR

11. Explain the various components of time series.

12. Explain the Problems involved of construction of Index numbers

13. Explain Types of Mortality rates

Government College [A] Rajamhendravaram

CBCS SYLLABUS (Semester Wise) 2022-23
III B.A. Statistics/Semester-V
Operations Research Paper –VI-A1

Total hrs per week: 04   **Total credits: 03**

Unit-I:

Operations Research: Definition and scope of operations research, phases and models in OR, Linear programming problems, formulation of LPP, solving the LPP by graphical method.
Additional Inputs:Simplex method

Unit-II:

Game theory: Two person games, pure and mixed strategies, zero sum games finding solutions in 2x2 and 2xM games.

Unit-III:

Transportation problem: Definition of transportation problem, TPP as a special case of LPP, feasible solutions by North-West, Matrix minimum and VAM methods.

Unit-IV:

Assignment problem: formulation and description of assignment problem and its variations, Assignment problem, traveling salesman problem, Electively solution using Hungarian method.

Unit-V:

Sequencing Problem : elements of sequencing problem with jobs on two and three machines and their solution.

Reference Books:

1. Operations Research, S. Kalavathi, Vikas publishing house Pvt Ltd.
2. Hamdy A. Taha (1987): Operations Research – An Introduction, 4/e, Prentice Hall of India,Private Ltd, New Delhi.
3. Hillier F S and Libermann G J(2002): Introduction to Operations Research, 7th Edition, McGraw Hill
4. Kanti Swarup, P.K. Gupta and Man Mohan(2004): Operations Research, Sultan Chand and Sons, New Delhi.

Practicals:
1. Solving LPP by graphical method
2. Solving the TP by NWCR, matrix minimum and VAM methods
3. Game theory – obtaining saddle point and pure mixed strategies
4. Finding solution for 2x2 and 2xm games
5. Optimal solution for assignment problem
6. Solving sequencing problem for jobs on two machines.

Government College [A+] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) *2022-23*
III B.A Statistics/Semester-VI
Operations Research Paper –VI-A1

MODEL QUESTION PAPER (THEORY)

Time: 2 1/2 hrs   Max Marks: 50

SECTION-A

Answer any <u>FIVE</u> questions.   5 x 4= 20M

1. Explain the formulation of LPP
2. Explain general LPP
3. Explain the standard form of LPP?
4. Define feasible solution in a Transportation problem
5. Define unbalanced Assignment problem
6. How do you obtain a sequence?
7. Explain Assignment problem as a special case of TP
8. Explain Travelling salesman problem

SECTION-B

Answer any <u>THREE</u> questions.   3 x 10 = 30M

9. Describe the definition and scope of Operation Research
10. Solve the following LPP by using Graphical method

$$\text{Maximize Z} = 45X_1 + 80X_2$$
$$\text{Subject to const:} \quad 5X_1 + 20X_2 \leq 400$$
$$8X_1 + 15X_2 \leq 432$$
$$X_1, X_2 \geq 0$$

11. Explain Two person games and zero sum games with example
12. Solve the following Transportation Problem by using LCM.

	D_1	D_2	D_3	Supply
O_1	32	30	220	1
O_2	90	45	170	3
O_3	400	200	32	5
Demand	5	2	2	9

13. Give an algorithm for n job-2 machines problem

CBCS SYLLABUS (Semester Wise) 2022-23
III B.A. Statistics/Semester-V
Official Statistics and Design of Experiments
Paper –VII-A2

Total hrs per week: 04   Total credits: 03

Unit-I:

Official Statistics: National income, methods to estimate national income, problems involved in estimating national income, agricultural statistics.

Additional Inputs: Demand Analysis

Unit-II

Area, yield of statistics, Functions and organization of CSO, NSSO

Unit-III

Analysis of variance: Meaning, definition, assumptions, one way and two way classifications.

Unit-IV

Principles of design of experiments: Principles of experiment, Completely Randomized design, Randomized block design and Latin square design.

Unit-V

Missing plot techniques: RBD, LSD, Concepts of Factorial experiments 2^2 & 2^3

Text Books:
1. Fundamentals of Statistics: Goon Gupta, Das Gupta
2. Applied Statistics-Parimal Mukhopadhyaya

Reference Books
1. Design of Experiments by Gupta Kapoor:
2. Applied Statistics-V.K.Kapoor & S.C.Gupta
3. Anuvarthitha Sankyaka Sastramu – Telugu Academy book.

PRACTICALS:
1. ANOVA-equal one way classifications
2. ANOVA-unequal one way classifications
3. ANOVA-Two way classifications
4. CRD
5. RBD
6. LSD

GOVERNMENT COLLEGE (A+) , RAJAHMAHENDRAVARM
IIIB.A.   SEMESTER:V CBCS-2022-23
Official Statistics and Design of Experiments
Paper-VII-A2

Time; 2 1/2hrs   MODEL PAPER   Max Marks: 50

SECTION-A

Answer any <u>FIVE</u> of the following questions.   5 x 4 = 20M

1. Explain Uses of National Income

2. Explain Agricultural statistics

3. Explain Yield statistics

4. Write about Design of Experiments.

5. Write Short note On ANOVA

6. Write short note on Missing Plot Technique

7. Explain 2^2 experiments

8. Define Treatment and experiment with Examples

SECTION-B

Answer Any <u>THREE</u> questions: 3x10=30M

9. Discuss the problems involved in measuring National Income.

10. Explain the functions of C.S.O

11. Explain principle of Design of Experiments

12. Explain ANOVA Two way classification

13. Explain LSD

Actuarial Statistics Paper –VI-B1

Total hrs per week: 04   **Total credits: 03**

Unit-I:
Rates and Ratio's in Mortality- Exposed to Risk Aggregate Rates- Life Year and other rate Intervals

Unit-II
Select Rates – Multiple Decrement Tables – Its role in Actuarial Statistics

Unit-III
Principles and Purposes of Graduation – The Graphic Method - Graduation by reference to a Standard table.

Unit-IV
Compression of Rates of Selection – Social and Economic factors in Mortality – Population Structures and Projections – Age Sex Pyramid

Unit-V
U.K. Assured lives and Annuitants Mortality.- The English life Tables – Individual Policy Sickness Experience – Indian Assured Lives Mortality.

Recommended Books:
1. Benjamin, B and Pollard: Analysis of Mortality and other Actuarial Sciences Published by Heinemann8,11,12,15,19.
2. Special Note: Exposed to Risk using the Direct and Census methods including mortablity rates by age and Multiple Decrements.
3. Special Note: Population Structures and Projections -1990 Edition
4. English Life Tables No. 14-1980/82 HMSC: Chapters 1,

Practicals:
1. Rates and Ratios in Mortality
2. Multiple Decrement Tables
3. Graphic Method
4. Age Sex Pyramid
5. Annuitants Mortality

Government College [A] Rajahmahendravaram
CBCS SYLLABUS (Semester Wise) 2022-23
III B.A. Statistics/Semester-VI
(Non-Mathematics Combination
Actuarial Statistics Paper –VI-B1

Time; 2 1/2hrs   **MODEL PAPER**   **Max Marks: 50**

SECTION-A

Answer any FIVE questions: **5 x4 = 20M**

1. **Explain about life year and other rate intervals?**

2. **Explain about Select Rates?**

3. **Explain the Graphic Method?**

4. **Explain Age Sex Pyramid?**

5. **Describe about English Life tables?**

6. **Explain about Mortality?**

7. **Explain the need of Actuarial Statistics?**

8. **Explain about Risk Aggregate Rates?**

SECTION-B

Answer any THREE questions: **3x10=30M**

9. **Explain about Rates and Ratio's in Mortality?**

10. **Explain about life year and other rate intervals?**

11. **Explain Multiple Decrement Tables**

12. **What is the role of Multiple Decrement Tables in Actuarial Statistics?**

13. **Explain the Principles and Purposes of Graduation?**

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise) 2022-23
III B.Sc Statistics/Semester-VI
PAPER -VII DEMOGRAPHY

Total no. of hrs per week: 03   **Total credits:03**

Objective: After completion of this paper the student able to learn the concept related population studies and also know the applications of demography in different fields

Unit-I
Population Theories:
Introduction to Population Studies and Theories related Demography and Vital statistics and Sources of Vital Statistics.

Unit-II
Measurement of Mortality:
Crude Death Rate (CDR), Specific death rate (SDR), Infant mortality, Rate(IMR) and Standardised death rates .Under five death rates and their importance. Stationary and Stable population, Central Mortality Rates and Force of Mortality, Life (Mortality) tables, Assumption, Description, Construction of life tables and use of life tables.

Unit –III
Measurement of Fertility:
Abridged life tables: Concept and construction of abridged life tables by Reed-Merrell method, Gereville's method and King's method, Measurement of Fertility, Crude Birth Rate (CBR), General Fertility Rate (GFR), Specific Fertility Rate(SFR) and Total Fertility Rate(TFR)

Unit-IV
Reproduction Rates:
Measurement of population growth, crude rate of natural increase, Pearl's Vital index, Gross reproductive rate(GRR) and Net reproductive rate(NRR).

Unit-V
Migration and Urbanization
Migration definition, causes and Concepts and numerous types of Migration.
Concepts, definitions of urban, trends and patterns of urbanization in India.

Text Books:
1. **Mukhopadhyaya. P (1999) Applied Statistics, Books and Allied(P) Ltd**
2. **Goon, A.M, Gupta M.K and Dasgupta, B.(2008) : Fundamentals of Statistics, Vol11, 9th edition, World Press.**
3. **Biswas. S(1998), Stochastic Process in Demography & Application, Wiley Eastern Ltd.**
4. **K.Srinivas Basic demographic techniques & application**

Government College [A] Rajamhendravaram
CBCS SYLLABUS (Semester Wise)2022-23
III B.A Statistics/Semester-VI
Paper - VII - DEMOGRAPHY
MODEL QUESTION PAPER (THEORY)

Time: 2 1/2 hrs   **Max Marks: 50**

SECTION-A

Answer Any FIVE questions.   **5 x 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 Crude rate of natural increase**

6. **What are the uses of vital statistics**

7. **What are the assumptions of life table**

8. **Explain Demography**

SECTION-B

Answer Any THREE question   **3x 10= 30M**

9. **Explain the sources of collecting data in Vital Statistics**

10. **Explain the Various Mortality Rates**

11. **Explain measures of population growth**

12. **Describe the Description and Construction of life tables**

13. **Describe any types of Migration**

	Government College (Autonomous) Rajahmundry		**Program & Semester**
Course Code **STT**	**TITLE OF THE COURSE** **QUALITY AND RELIABITY**		**III B.A. (V Sem) Paper-VI**

Theory	**Hours Allocated: 30 hrs**	**L**	**T**	**P**	**C**
Pre-requisites:	**Basic knowledge in Statistics and its functions**	**0**	**4**	**3**	**3**

Objectives:

The aim of this paper is to understand the purpose and function of statistical quality control and also learn methods of statistical process control and learn the importance of Reliability in Quality Control.

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	**Students would be able to learn about SQC**
CO2	**Students would be able to know Control charts**
CO3	**Students would be able to know about Single sampling plans and double sampling plans**
CO4	**Students must be able to know about Reliability terms**
CO5	**Students would be able to learn reliability functions**

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development		Employability		Entrepreneurship	

Syllabus:

Unit-I
SQC: Importance of SQC in industry. Statistical basis of Stewart control charts, uses of control charts, Interpretation of control charts, control limits, Natural tolerance limits and specification limits.

Unit-II
Variable control chart: Construction of control charts for variables (mean, range and standard deviation) and attribute control charts p , np, and c- charts (with

fixed and varying sample sizes). Process capability index. Concept ofFIVEsigma and its importance

Unit-III
Acceptance sampling plans: Producers risk and consumer's risk. Concept of AQL and LTPD.

Unit-IV
Sampling Plans: Single and Double sampling plans, OC and ASN functions. Design of Single and double sampling plans for attributes using Binomial.

Unit-V
Reliability: Introduction failure rates, Hazard function, estimation of reliability, exponential distribution as life model, its memory less property. System reliability - series, parallel and k out of N systems and their reliabilities.

Textbooks:

1. **B.A/B.Sc III Year Paper-III Statistics- Applied Statistics- Telugu Academy by Prof. K. Srinivasa Rao, Dr. D. Giri, Dr. A. Anand, and Dr. V. Papaiah Sastry.**
2. **K.V.S. Sarma: Statistics made simple: do it yourself on PC. PHI**

3. **B.A/B.Sc Statistics Applied Statistics, Kalyani Publishers by D.V.L.N. Jogiraju, C. Srikala and L.P. Raj Kumar.**

Referencebooks:

1. **V.K.Kapoor and S.C.Gupta: Fundamentals of Applied Statistics. Sultan Chand**
2. **Parimal Mukhopadhyay: Applied Statistics. New Central Book agency.**
3. **S.P.Gupta: Statistical Methods. Sultan Chand and Sons.**

WebLinks:

1. **https://conjointly.com/kb/descriptive-statistics/**
2. **https://en.wikipedia.org/wiki/Descriptive_statistics**
3. **https://www.scribbr.com/statistics/descriptive-statistics/**
4. **https://byjus.com/maths/probability-and-statistics/**

CO-POMapping:

(1:Slight[Low];   2:Moderate[Medium];   3:Substantial[High]   '-':No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	1	2	2	1	2	1	3	2	3	2	1	2	1
CO2	2	1	2	2	1	1	2	3	1	2	2	2	2
CO3	2	1	2	3	3	1	2	2	2	3	1	1	2
CO4	2	2	3	2	2	2	1	2	1	2	2	1	2
CO5	1	2	1	1	1	2	2	1	1	1	1	1	2

	Government College (Autonomous) Rajahmundry	Program & Semester III B.A.(V Sem) Paper-VII			
Course Code STT	TITLE OF THE COURSE QUALITY AND RELIABITY				
Practical	Hours Allocated: 30 hrs	L	T	P	C
Pre-requisites:	Basic knowledge in Statistical functions	0	0	3	3

Objectives:

1. After completion of this paper the students would be able to learn the applied part of statistics in various disciplines and also learn the opportunities of statistician in different fields.

Practical's Semester-V(Paper-V)
1. **Construction of X, R Charts**
2. **Construction of p chart- fixed sample size**
3. **Construction of np-chart**
4. **Construction of C-chart**
5. **MS-Excel methods for the serial numbers1**
6. **MS-Excel methods for the serial numbers 2 to 4.**

Reference books:

1. **Indian Official Statistics- MR Saluja**
2. **Anuvartita Sankhyaka sastram – Telugu Academy**

Virtual Lab Links:

1. **https://conjointly.com/kb/descriptive-statistics/**
2. **https://en.wikipedia.org/wiki/Descriptive_statistics**
3. **https://www.scribbr.com/statistics/descriptive-statistics/**
4. **https://byjus.com/maths/probability-and-statistics/**

GOVERNMENT COLLEGE (A) RAJAMAHENDRAVARAM
CBCS SYLLABUS (Semester Wise) 2021-22
III B.A. Statistics(SemesterV)
Quality & Reliability
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   **3x 10=30M**

9. Define SQC? Explain its usage in industry.

10. Explain the construction of X and R charts.

11. Explain the construction of p and np charts.

12. What are SSP and DSP? Write their merits demerits

13. Explain the method of system reliability in series configuration

Government College [A+] Rajamhendravaram

Total hrs per week: 04   Total credits: 03

Unit-I:

Introduction to Operating System: Computer Generations, Structure of an Operating system The purpose of Operating systems –Features of an Operating systems-Types of an Operating Systems –Proving a User interface-Running Programs-managing Hardware-Enhancing an OS utility software.

Unit-II:

MS Word: Starting word, Creating new documents when Word is running, Standard tool bar, Formatting tool bar, File menu, Edit and manipulating text, Page setup, tab keys ,undo and redo commands, bullets and numbered list, Exiting word, Inserting page breaks, Inserting headers and footers, Inserting page numbers.

Unit-III:

MS EXCEL: Save and print workbooks, Enter and edit data. Modify a worksheet and workbook. Learn to use functions and formulas. Create and edit charts and graphics, Filter and sort table data and charts. Import and Export data. Excel Basics Work with Cells and Worksheets

Unit-IV:

MS POWER POINT: Basics, Creating presentations-auto content wizard, design template. Working with menus-file menu, edit menu, view menu, insert menu, format menu, tools menu, slide show menu, windows, help Cut, Copy, Paste slides, saving a presentation, closing a presentation, slide numbering, printing presentation. Applying a design to presentation, Slide transition.

UNIT-V:

INTERNET AND ITS APPLICATIONS:
History of Internet, Basics of Internet and its applications, Search Engines definition and its types and their history create Webpage on internet and usage and access of Internet

Prescribed Books:
1. Working in Microsoft Office by Ron Mansfield, Tata McGraw Hill.
2. Advanced Microsoft office 2000 by Meredith Flynn & Nita rutkosky, BPB publications.
3. Fundamentals of computers by V.Rajaraman,PHI
4. Computer System Architecture by M.Morris Mano
5. Operating System by Dhumdhere

PRACTICALS:

1. Design a visiting card for a managing director of a company as per the following specification. Size of the visiting card should be 31/2 "X2"
2. Name of the company with a big font using word art. Phone number, Fax number and Email address with appropriate left and right margins and page number in the footer and name on top right side.
3. Prepare a resume of an MCA graduate with proper headings, appropriate left and right margins and page number in the footer and name on top right side.
4. Create an interview call letter as the main document and create 8 records for 8 persons. Use mail merge to create letters for 6 selected persons among the 8.
5. Write a macro to format a document as below.
   i)   Line spacing is two
   ii)   Paragraph indent of 0.8
   iii)   Justification formatting style.
   iv)   Arial font of 8 point size.
6. Filter and sort table data and charts.
7. Work with Cells and Worksheets Calculation
8. Make a Presentation of a slide for a given DATA
9. Make a Power Point presentation about our college with statistical DATA

Government College [A+] Rajamhendravaram

CBCS SYLLABUS (Semester Wise) 2022-23
III B.A. Statistics/Semester-V
Statistical Computer Applications Paper –VII-c2
MODEL QUESTION PAPER (THEORY)

Time: 2 1/2 hrs   Max Marks: 50

SECTION-A

Answer any <u>FIVE</u> of the following questions. :   5 x4=20M

1. Define Operating System and its types?

2. What are the generations of Computer?

3. Write about Headers and Footers?

4. Explain following terms

   URL,WWW,HTML,HTTP

5. Write Mathematical tools in MS-Excel?

6. Write tools in MS-PowerPoint?

7. Write about commands in MS-Word?

8. Write about UNDO and REDO

SECTION-B

Answer any <u>THREE</u> of the following questions.   3 x 10 = 30M

9. Write any 10 short cut keys in MS Word?
10. Write about Search Engines?
11. Write about the internet its basics?
12. Write briefly about concept of MACRO
13. Explain the concept of Operating system through Diagram.