

# Sonopant Dandekar Shikshan Mandali's Sonopant Dandekar Arts, V.S. Apte Commerce & M.H. Mehta Science College, Palghar

# Department of Mathematics Presents Certificate Course in Statistical Methods using R-Software

**Academic Year: 2022-23** 

# Certificate Course in Statistical Methods using R-Software

Programme	Statistical Methods Using R-tool
Objectives	The main objective of this course is to introduce the students with the programming language R and its applications in Statistics using R-tool
	Some important objectives of this course are:  1) To familiarize the students with basic concepts of Statistics including different sampling methods.  2) To develop the ability to analyse Statistical data through R software.  3) To learn computational skills to implement various statistical inferential approaches.  4) To develop knowledge and understanding of applications of Statistics to Science, Commerce, Business and Economics using R tool.  5) To be able to use and apply R software in their field and industry to solve the real life problems.  6) Be life-long learners who are able to expand Independently their statistical expertise when needed.
Duration of Training	40 sessions (Each session of 1 hour)
Syllabus Committee	<ul> <li>Prof. Dipali Mali (Course coordinator)</li> <li>Prof. Swetha Iyer (Guest lecturer, Annasaheb Vartak College, Computer Science Dept., Vasai.)</li> <li>Prof. Shirin Memon (Assistant professor, Mathematics Dept.)</li> <li>Prof. Nidhi Mali (Assistant professor, Mathematics Dept.)</li> <li>Prof. Ishrat Gawandi (Assistant professor, Mathematics Dept.)</li> <li>Prof. Husnawaz Contractor (Assistant professor, Mathematics Dept.)</li> </ul>
<b>Course Fees</b>	Rs. 200/-
Eligibility	<ul> <li>Minimum HSC passed from any stream.</li> <li>Degree students of Commerce/ Science/ IT/ CS/ BMS/ BAF/ BBI.</li> </ul>

Testing	<ul> <li>Assignments will be given topic wise and assessed time to time.</li> <li>Total evaluation will be out of 100 marks.         Written Test: 40 marks         Practical Exam: 40 marks         Assignments: 20 marks     </li> </ul>
Certificate	After successful completion of the course, participants will get certificate from college.
Advisory	1) Dr. Kiran Save (Principal)
Committee	2) Prof. Mahesh Deshmukh (IQAC Coordinator)
	3) Mrs. Dipali Mali (Course Coordinator, Mathematics dept.)

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## Proposal



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& M. H. Mehta Senore College, Edicher.

(Best College - Deversity of Mombal) (Amongst Top 100 Colleges in India by "India Today - MOKA Survey 2019).

## PROPOSAL

## Certificate Course in Statistical Methods using R-Software

Programme	Statistical Methods Using R-tool
Objectives	The main objective of this course is to introduce the students with the programming language R and its applications in Statistics using R-tool
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Syllabus Committee	Prof. Dipali Mali (Course coordinator) Prof. Shirin Memon (Assistant professor, Mathematics Dept.) Prof. Nidhi Mali (Assistant professor, Mathematics Dept.) Prof. Ishrat Gawandi (Assistant professor, Mathematics Dept.)

	Prof. Husnawaz Contractor (Assistant professor, Mathematics Dept.)
Testing	Assignments will be given topic wise and assessed time to time.      Total evaluation will be out of 100
	marks. Written Test : 40 marks
	Practical Exam: 40 marks
	Assignments : 20 marks
Certificate	After successful completion of the course, participants will get certificate from college.
Advisory Commiee	Dr. Kiran Save (Principal)     Prof. Mahesh Deshmukh (IQAC Coordinator)     Mrs. Dipali Mali (Course Coordinator, Mathematics dept.)
	3) Wis. Dipair Mair (Course Coordinates)
Course Fees	Rs. 200/-
Eligibility	<ul> <li>Minimum HSC passed from any stream.</li> <li>Degree students of Commerce/ Science/ IT/ CS/ BMS/ BAF/BBI.</li> </ul>

genes.

Mrs. Dipali Mali Head &Course coordinator Dept. of Mathematics Dr.Kiran J. Save (Principal)

## **Notice**

Date: 04/01/2023

## NOTICE

Department Of Mathematics, S.D.S.M College, Palghar

# CERTIFICATE COURSE IN STATISTICAL METHOD USING R-SOFTWARE

All the students of Senior College (Commerce, Science, IT, CS, BAF, BBI & BMS) are hereby informed that, Considering importance of Understanding our past and making prediction about the future, STATISTICS plays a vital role, whether it be in Projects, Science, Research, Economics, Data Analysis, Business and Management, Machine Learning or day to day life etc. The Department of Mathematics is starting a "Certificate Course in Statistical Method Using R-Software" from January 2023.

Enrolment for the above course should be done on or before 20th January 2023 through the Google form link given below.

For the payment of Course Fee Rs. 200/- payment link will be provided after the Completion of registration process.

After successful completion of the course, participants will get certificate from the college.

Google form link for the Registration:

https://forms.gle/5RKRdkX2QWexEBNf8

Mrs. Dipali Mali Head & Course coordinator Dept. of Mathematics

Prof. Mahesh Deshmukh (IQAC coordinator)

MDoshmukh

PRINCIPAL Dr. Kiran J. Save Spropant Dandel Pincipal ollege, v.S. Apte Commerce College & IA.H. Mehta Science College PALGHAR (W.R.)

### **Brochure**



## Sonopant Dandekar Shikshan Mandali's

Sonopant Dandekar Arts, V.S. Apte Commerce & M.H. Mehta Science College Palghar, Kharekuran Rd. Palghar, Dist. Palghar, 401404.

# Methods using r-software

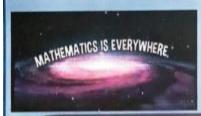
## Organised by Department of Mathematics

### AIM & USE:

- ☐ The main objective of the course is to introduce the students with the different Statistical Methods and the programming language R with its applications to Sampling Methods using R-tool.
- ☐ To develop the ability to analyse statistical data through R-software.

## ELIGIBILITY:

Degree students of
Arts/Commerce/Science/IT/
CS/BMS/BAF/BBI





### LINK FOR REGISTRATION:

https://forms.gle/UX8h2VK5zPqzcAzY8

Analysis in



Statistical

### SYLLABUS MODULES:

- Statistics Meaning and Scope, Frequency Distribution.
- Measures of Central Tendency.
   Measures of Dispersion,
   Correlation & Regression
   Analysis.
- Random Variable and Probability Distribution.
- 4. Sampling Theory.
- Practical: Correlation Analysis, Regression Analysis, Sampling Using R-tool.

ENQUIRY: Department of Mathematics,

Sonopant Dandekar College,

Email: dipali.mali1@gmail.com

Contact Number:

Prof. Dipali Mali :-9049543079

COURSE DURATION: 3 months TOTAL SESSIONS: 40 Sessions (Each session of 1 hour)

COURSE FEES: Rs.200/-

## **SYLLABUS:**

	Contents	No. of sessions
	Statistics – Meaning and Scope.	
	<ul> <li>Definition, Meaning of Statistics</li> </ul>	1
	<ul> <li>Applications of Statistics</li> </ul>	1
	Frequency Distribution	
	Collection and Classification of data	1
	<ul> <li>Tabulation</li> </ul>	1
	Frequency table or Frequency	
	Distribution	
	Cumulative Frequency Distribution	
	Measures of Central Tendency	
	<ul> <li>Objects of Measures of Central Tendency</li> </ul>	1
	<ul> <li>Types of Measures of Central</li> </ul>	
	Tendency for grouped and ungrouped	
<b>Course Content</b>	data i) Arithmetic Mean or Arithmetic Average ii) Median iii) Mode	
	Measures of Dispersion	
	Concept and idea of dispersion	1
	<ul> <li>Methods of measuring dispersion : Standard</li> </ul>	
	Deviation, Variance	
	Correlation Analysis	
	Meaning	3
	Types of correlation	3
	<ul> <li>Determination of correlation</li> </ul>	
	<ul> <li>Karl pearsons method of correlation coefficient</li> </ul>	
	<ul> <li>Spearman's Rank correlation</li> </ul>	
	coefficient	
	Regression Analysis	
	• Meaning	3
	Concept of Regression equations	
	<ul> <li>Slope of Regression line and its interpretation</li> </ul>	
	Regression coefficient	
	Relation between coefficient of	
	correlation and Regression coefficient.	
	<ul> <li>Method of least squares.</li> </ul>	

	Random variable and its Probability Distribution	
	<ul> <li>Concept of random experiment, sample space</li> <li>Random variable(discrete and continuous)</li> <li>Probability density function,     Distribution function     (discrete and continuous)     Discrete probability distribution: Binomial,     Poisson, Normal.</li> </ul>	10
	Sampling Theory	
	<ul> <li>Small samples: t test</li> <li>Large samples: Chi test of association,         F test, ANOVA one way and two way         classification, Sign test, Wilcoxon signed         Ranked test, Kruskal Wallis test.</li> </ul>	10
Practical using R tool	<ul> <li>Correlation Analysis</li> <li>Regression Analysis</li> <li>Sampling Theory</li> </ul>	10
Certificate	Every participating candidate will be issued a certificate atthe completion of training programme successfully.	
Advisory Committee	Dr.Kiran Save (Principal)     Prof. Mahesh Deshmukh (IQAC Coordinator)      Prof. Dipali Mali (Head, Mathematics Dept.)	

## CERTIFICATE COURSE Statistical Methods Using R – tool



## Department of Mathematics

## CERTIFICATE COURSE Statistical Methods Using R – tool

### List of the Students Enrolled

Sr. No.	Name of the Students
1	Mistry Aayush Kirtikumar Dharmishthaben
2	Nawabali Kismatali Nawabali Safakunnish
3	Sahane Payal Ganesh Sarika
4	Yadav Hariom Rajbahadur Sudamadevi
5	Singh Ashwani Urmila
6	Yadav Vishal Ramjanam Saroj
7	Yadav Vikas Ramkishan Gceta
8	Yadav Amit Mohan Bindu
9	Shirole Rahul Balasaheb Vaishali
10	Govind Vidyashri Vinayak Ujwala
11	Jadhav Jyoti Kashinath Pramila
12	Tiwari Sangya Surya Narayan Kanchan
13	Tejani Zeba Ashraf Sahenaz
14	Shaikh Shafin Akhlaque Sagda
15	Salkar Kiran Sadya Ranji
16	Gangoda Pramod Jatrya Bharti

### Sonopant Dandekar Shikshan Mandali's



## SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

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17	Ghatal Vaibhav Ramal Savita
18	Gavali Rutik Ramesh Kalavati
19	Khan Husna Mohiuddin Kalimunnisha
20	Khan Sadika Atikullah Nahida
21	Pachalkar Sonali Vasudev Mangala
22	Singh Sunil Vishnu Seeta
23	Yadav Vishal Rajesh Kumar Bindu
24	Shaha Nisha Loknath Sangita
25	Sahu Savita Santosh Imarati Devi
26	Desle Harshita Ravindra Rakhi
27	Luckyraj Niraj Singh Rinku
28	Yadav Priyanshu Rangbahadur Kiran
29	Varma Nitish Mundrika Sugandha
30	Yadav Pankaj Binda
31	Singh Abhishek Randhir Singh Shashikala
32	Suthar Dipak Devilal



## TIME TABLE

SR. NO.	DATE	TIME	NO. OF HOURS	TOPIC
1.	21/01/2023	1.00 – 3.00 PM	2	<ul> <li>Statistics – Meaning and Scope.</li> <li>Frequency Distribution</li> </ul>
2.	27/01/2023	1.00 – 3.00 PM	2	<ul><li>Measures of Central Tendency</li><li>Measures of Dispersion</li></ul>
3.	28/01/2023	1.00 – 3.00 PM	2	Correlation Analysis
4.	03/02/2023	1.00 – 3.00 PM	2	<ul><li>Correlation Analysis</li><li>Regression Analysis</li></ul>
5.	04/02/2023	1.00 – 3.00 PM	2	Regression Analysis
6.	10/02/2023	1.00 – 3.00 PM	2	Random variable and its Probability Distribution
7.	11/02/2023	1.00 – 3.00 PM	2	Random variable and its Probability Distribution
8.	16/02/2023	1.00 – 3.00 PM	2	Random variable and its Probability Distribution
9.	17/02/2023	1.00 – 3.00 PM	2	Random variable and its Probability Distribution
10	23/02/2023	1.00 – 3.00 PM	2	Random variable and its Probability Distribution
11		1.00 – 3.00 PM	2	Sampling Theory
12		10.00 – 12.00 PM	2	Sampling Theory
	01/03/2023	10.00 – 12.00 PM	2	Sampling Theory
	02/03/2023	10.00 – 12.00 PM	2	Sampling Theory
	03/03/2023	10.00 – 12.00 PM	2	Sampling Theory
16	06/03/2023- 04/05/2023	10.00 – 12.00 PM	10	PRACTICAL

## **Students Attendance List**





# SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin-401 404. Sonopant Dandekar Shikshan Mandali's

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23. DEPARTMENT OF MATHEMATICS

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# Sonopant Dandekar Shikshan Mandak's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# Sonopant Dandekar Shikshan Mandah's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# Sonopant Dandekar Shikshan Mandah's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

20	19	18	17	16	15	14	13	12	11	No.
Khan Sadika Atikullah	Moniudain	Ravuesh	Ramal Vaibhau	Jatelya.	Sadya kiran	Akhlague	Tejant Zeba O	Tiwari Sangya Surya Nariayan	Kashinath	Name of student /Date
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# Sonopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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Rinda Pankaj	Munduka Nitish	Rangbahadus	Singh Nilay	Rayindya	Sahu Savita Santosh		Rajesh	Singh Sunil	Yasuder yenau			Name of student
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# Sonopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# Sonopant Dandekar Shikshan Mandah's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# Sonopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# Sonopant Dandekar Shikshan Mandah's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist- Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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30	29	28	27	26	25	24	23	22	21		No.
Singh Abhiskek	Yadav Punkaj Binda	Varmo Nitiah Mundrika	Nadav Upriyanahu Rangbahadur	Luckyroj Niraj	Deale Harshita	Sahu Savita Santosh	Sharla pliaha Loknath	Madan Viahal Rajeah	Singh Sunil	/Date	Name of student
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# Sonopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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# Sonopant Dandekar Shikshan Mandah's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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Jadhav Jyoti	Govind Vidyashri Woulned	Shizole Rahul	Yaday Vikos	Yadav Vishou	Singh Ashuvari	Yodav Haricon	Satranz Payed	Hawadahi Kismatah	Mistry Ayush	Name of student /Date
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# Sonopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

20	19	18	17	16	15	14	13	12	11	No.
Bachalkar	Khan Sadika	Khan Husna	Govori Rutik	anotal Voilbhav	Gangoda Pramod	Sakar Kiyan	Shoikh Shafih	Tejani Zeba	Timeri Congya	Name of student /Date
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# Somopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palcher Dist. Belgher Bir 1911

Palghar, Dist-Palghar, Pin- 401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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Singh Abhisher	Yadav Pankaj	Ymma NiHSh	Yaclar Priganshu	Luckyrej Singh	Deale Harshita	Sahu Savita	Shaha Nisha	Yaday Vichal	Singh Sunil	Name of student /Date
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# Sonopant Dandekar Shikshan Mandali's SONOPANT DANDEKAR ARTS, V.S.APTE COMMERCE AND M.H.MEHTA SCIENCE COLLEGE, Palghar, Dist-Palghar, Pin-401 404.

# DEPARTMENT OF MATHEMATICS

# CERTIFICATE COURSE IN STATISTICAL METHODS USING R-SOFTWARE, 2022-23.

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## **Teachers Attendance Sheet**



Sonopant Dandekar Shikshan Mandali's

## Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

(Best College - University of Mumbai) [Amongst Top 100 Colleges in India by 'India Today - MDRA Survey 2019']

### DEPARTMENT OF MATHEMATICS

## Certificate Course in Statistical Methods Using R-Tool, 2022-2023

### **Teachers Attendance Record**

Sr.	Date	Time	Name of the	Topic Taught	Signature
No. 1.	21/01/23	01:00 - 2:00 pm	Teacher Husnawaz Contractor	Introduction to certificate Course in Statistical Methods	
2.	21/01/23	02:00 - 03:00pm	* 1 . 10 : 5 4 0	Frequency Distribution	Amol
3.	27/01/23	1:00 - 2:00pm	Nidhi Mali	Measurus of Central Tendency	Amol.
4.	27/01/23	2:00 - 3:00 pm	Shirin Hadiya	Measures of Dispersion	Tatalia.
5.	28/01/23	1:00 - 2:00 pm	Husnawaz	Introduction to Correlation Analysis	)
. 6.	28/01/23	2:00 - 3:00pm	Husnowaz Contractor	Karl Pearson's Correlation. Co-efficient	1
7.	03/02/23	1:00 -2:00pm	Husnawaz Contractor	Spearman's Rank Courelation Coefficient	
8.	03/02/23	2:00 - 3:00 pm	Husnawaz Contractor	Introduction to Regression Analysis	



### Sonopant Dandekar Shikshan Mandalı's

# Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

(Best College - University of Mumbai) (Amongst Top 100 Colleges in India by 'India Today - MDRA Survey 2019')

# DEPARTMENT OF MATHEMATICS Certificate Course in Statistical Methods Using R-Tool, 2022-2023 Teachers Attendance Record

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9.	04/02/23	1:00 - 2:00 pm	Husnawaz	Regression Equation of x on y and y on x
10.	04/02/23	2:00 - 3:00 pm		Regression Co-efficient
11.	10/02/23	1.00 - 2.00 pm	Nidhi Mali	Random Variable & its Brobability ?
12.	10/02/23	2.00 - 3.00 pm	Nidhi Mali	Concept of Random Experiment/ trail and possible outcomes
13.	11/02/23	1.00 - 2.00 pm	Nidhi Mali	Sample Space & Probability Distribut & Mand
14.	11/02/23	2.00-3.00 pm	Nidhi Mali	Expertation & Variances of Random Variable
15.	16/02/23	1.00 - 2.00 pm	Nidhi Mali	Random Variable & its Probability
16.	16/02/23	2.00-3.00pm	Spirin Memon	Binomial Distribution 2 tristic
17.	17/02/23	1.00 - 2.00 pm	Shioun-Memon	Binomial Distribution



### Sonopant Dandekar Shikshan Mandali's

# Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

(Best College - University of Mumbai) (Amongst Top 100 Colleges in India by 'India Today - MDRA Survey 2019')

# DEPARTMENT OF MATHEMATICS Certificate Course in Statistical Methods Using R-Tool, 2022-2023 Teachers Attendance Record

				<u> </u>	
18.	17/02/23	2.00-3.00pm	Shirin Memon	Poisson Distribution	2 mini
19.	23/02/23	1.00-2.00 pm	Shirin Memon	Normal Distribution	
20.	23 02 23	2.00-3.00 pm	Shirin Memon	Normal Distribution	
21.	24102123	1.00-2.00 pm	Dipali mahi	Sampling Theory	3 2a~v.
22.	24/02/23	2.00-3.00 pm	Dipali Mali	Z-tut	J 7
23.	28/02/23	10.00-11-00 Ar	Dipali nali	t-tut	2 anos
24.	28)02123	11.00-12.00 PM	Dipali Mali	1-14+	J +
25.	0/103/23	10.00-11.00 Am	Dipali Mahi	chi fest of association	3 ans.
26.	01103123	11.00-12.00 pm	Difali Mali	chitest if association	J



Sonopant Dandekar Shikshan Mandali's

# Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

[Best College - University of Mumbai] [Amongst Top 100 Colleges in India by 'India Today - MDRA Survey 2019']

# DEPARTMENT OF MATHEMATICS Certificate Course in Statistical Methods Using R-Tool, 2022-2023 <u>Teachers Attendance Record</u>

27.	02   03   23	10.00 - 11.00 AM	Dipahi mahi	f test	Zans.
28.	02/03/23	11.00-12.00 pm	Dipali Mali	F fest	J +
29.	03   03   23	10.00- 11.00 AM	Dipali Mali	ANOVA one way Classification	3 games.
30.	03   03   23	11-00-12.00 pm	Dipali Mali	ANOVA two way classification.	
31.	06/03/2023	10100-11:00cm	Ishrat Gawoneli	retool practical on Correlation Analysis	SAN .
32.	06/03/2023	11:00-12:00 pm		Regression Analysis.	06103123.
33.	08/03/2023	10:00-11:00	Ishrat	r tool practical pascel on . ? correlation Analysis	NY
34.	08/03/2023	11:00-12:00 pm	Gawandi	r tool practical based on Respection Analysis.	०६१०३१७३.
35.	28/04/2023	10:00 - 11:00 am	Ishrat Gawardi	r tool practical based on	1 25/4/2



# Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

(Best College - University of Mumbai)
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## DEPARTMENT OF MATHEMATICS

## Certificate Course in Statistical Methods Using R-Tool, 2022-2023

## **Teachers Attendance Record**

36.	28/04/2023	11:00-12:00pm	r tool practical based on F test	A JURIHAR
		10:00 - 11:00 am		P NX
			r tool practical based on Wilcoxon Singed Ranked test	() () () (SIS123
39.	0410572023	10:00 -11:00 ow	r bol practical based on Kruskal Mallis test	1 NO410523
40.	0410512023	11:00-12:00 pm	r tool practical based on Chi-Square test of association.	

## **DEPARTMENT OF MATHEMATICS**

## **Question Paper for Practical Examination**

### Certificate Course

### STATISTICAL METHODS USING R - TOOL

### **Practical Examination**

	Solve any F	OUR:			[40 N	[arks]
	recorded for 15,17,24,25 Use Wilcox	r 12 patients:	est to check wh			
2.	The followi	ng data gives	the effect of a t	reatment that ar	e as follows:	-12
	A	2	3	7	2	6
	В	10	8	7	5	10
	C	10	13 all treatments ar	14	13	15
				atio of the popu		
4.	II: 30, 25, 3 The height	of six random of ten randoml evidence that	31, 31, 26, 31 36, 28, 31, 32, ally chosen soldies y chosen sailors soldiers are tall	32, 27, 31, 28, 3 ers are in inches s are: 61, 62, 65	s: 63, 65, 68, 69 5, 66, 69, 69, 70	9, 71 and 9, 71, 72,
4.	II: 30, 25, 3 The height 72. Those of 73. Is there significance	of six random of ten randoml evidence that e?	31, 31, 26, 31 36, 28, 31, 32, aly chosen solding y chosen sailors soldiers are tall	32, 27, 31, 28, ers are in inches s are: 61, 62, 65 ler than sailors	s: 63, 65, 68, 69 5, 66, 69, 69, 70 at 10% level of	9, 71 and 9, 71, 72,
	II: 30, 25, 3  The height 72. Those 673. Is there significance  Let X deno Calculate i. P (X = 5) ii. P (X ≤ 6) iii. P (X > 6)	of six random of ten randoml evidence that evidence that evidence that evidence that of the randoml of ten randoml of ten randoml over the randoml of ten ra	31, 31, 26, 31 36, 28, 31, 32, ally chosen soldic y chosen sailors soldiers are tall heads in an exp	32, 27, 31, 28, ers are in inches s are: 61, 62, 65 ler than sailors	s: 63, 65, 68, 69 5, 66, 69, 69, 70 at 10% level of	9, 71 and , 71, 72,

## **Assignments**

Spnopant Dandekar Shikshan Mandah's



# Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

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### Certificate Course Assignments 2022-23

### Department of Mathematics

# Certificate Course in Statistical Methods using R-Software ASSIGNMENT NO 1

Find the arithmetic mean for the following data. Representing marks of 80 students.

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	12	13	21	19	15

ii. Find the mode for the following data

Income in	2000-	4000-	6000-	8000-	10000-
Rs.	4000	6000	8000	10000	12000
No. of	16	34	60	37	13
persons					

iii. Find the median for the following data

Income	15000-	17000-	19000-	21000-	23000-	25000-
in Rs.	17000	19000	21000	23000	25000	27000
No. of	70	100	120	150	100	60
families						

Find the median for the following set of observations
 53, 42, 30, 55, 75, 50, 32, 39, 62.

v. Find the median for the following data:

Class	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
Interval							
Frequency	8	18	27	21	10	8	7

Find the arithmetic mean for the following set of observations

125, 132, 127, 139, 140, 142, 137, 122, 120, 130

 The following table gives the distribution of daily wages of 100 employees of a company. Find the average wages.

Daily wages in Rs.	50-55	55-60	60-65	65-70	70-80	80-100
No. of Employees	10	22	30	20	12	6

vii. Find the mean for the following sets of Observations:

х	12	14	16	18	20	22
f	5	10	15	12	8	3

viii. Determine mode for the following data relating to basic pay of 15 workers in a factory.

3500, 4000, 4500, 4000, 5500, 6000, 8000, 4000, 3000, 2500, 4000, 4000, 5000, 6500, 7000

ix. Find the mode of the following data.

Daily wages	200-300	300-400	400-500	500-600	600-700
in Rs. No. of	15	26	36	20	10
Employees					

#### ASSIGNMENT NO 2

 A biased coin is tossed thrice. X denotes the number of heads in the three tosses. If probability distribution of X is as follows

$$P(x = x) = \frac{5}{16}; x = 0,1$$
$$= \frac{1}{8}; x = 2$$
$$= \frac{1}{4}; x = 3$$
$$= 0; otherwise$$

Find: E(X) and V(X)

- From a well-shuffled pack of cards, a card is drawn at random, find the probability that the card drawn is (i) an ace, (ii) a heart card, (iii) a king of hearts.
- iii. A box contains 20 tickets numbered 1 to 20. A ticket is drawn at random from the box. Find the probability that the number on the ticket drawn is (i) divisible by 3
   (ii) not divisible by 5
- iv. Find the approximate probability distribution for X from the following frequency distribution:

X	1	3	4	5	8	10
Frequency	19	33	42	61	32	13

If X is the number appearing on the uppermost face of a fair dice, Find
 E(X) and V(X)

vi. If X is the random variable having a probability mass function

$$P(x = x) = \frac{x}{8}; x = 0,1$$
$$= \frac{k}{4}; x = 2$$
$$= \frac{kx}{16}; x = 3$$

Find the Value of k and E(X).

vii. If probability distribution of X is as follows

$$P(x = x) = \frac{1}{16}; x = -1,3$$

$$= \frac{3}{8}; x = 0$$

$$= \frac{1}{4}; x = 2,4$$

$$= 0; otherwise$$

Find: (i)P(X = 3)(ii)P(X < 1) (iii)P(X > 3)

- viii. A box contains 20 tickets numbered 1 to 20. A ticket is drawn at random from the box. Find the probability that the number on the ticket drawn is (i) divisible by 3 & 4 (ii) not divisible by 3 or 4
- ix. Two fair dice are rolled. If X denotes the sum of the numbers appearing on the uppermost faces of the dice, find (i) P(X<4); (ii) P(3<X<7).</p>

1. The following data relate to the age of 10 employees and the number of days which they reported sick in a month:

Age	20	30	32	35	40	46	52	55	58	62
Sick days					14					

Calculate the Karl Pearson's Coefficient of Correlation and interpret it.

Two housewives, Geeta and Rita, asked to express their preferences for different kinds of detergents.

Detergents	_	В	C	D	E	F	G	Н	I	J
Geeta	4	2	1	3	7	8	6	5	9	10
Rita	4	1	2	3	8	7	5	6	9	10

To what extent does the preferences of these 2 ladies go together? Find out using Spearman's Rank Correlation Coefficient.

An examination of eight applicants for a clerical post was taken by a firm. From the
marks obtained by the applicants in the Accountancy and Statistics papers, compute
rank coefficient of correlation.

Applicants	A	В	C	D	E	F	G	H
Marks in Accountancy	15	20	28	12	40	60	20	80
Marks in Statistics	40	30	50	30	20	10	30	60

4. The ranks of the same 15 students in two subjects A and B are given below, the two numbers within the brackets denoting the ranks of the same student in A and B respectively:

Use Spearman's formula to find the rank correlation coefficient.

- There seems to be a low degree of negative correlation between family income and its percentage spent on food expenditure.
- 6. An office contains 12 clerks. The long serving clerks feel that they should have a seniority increment based on length of service built into their salary structure. An assessment of their efficiency by their departmental manager and the personnel department produces a ranking of efficiency. This is shown below together with a ranking of their length of service. Do the data support the clerks, claim for seniority increment?

Ranking according to length of service	1	2	3	4	5	6	7	8	9	10	11	12
Ranking according to efficiency	2	3	5	1	9	10	11	12	8	7	6	4

1. Find the regression equation of x on y and hence estimate x when y = 10.

x	11	7	9	5	8	6	10	59
у	16	14	12	11	15	14	17	99

2. From the following data, find the regression equation of y on x and hence estimate y when x = 13.

X	14	10	15	11	9	12	6
Y	8	6	4	3	7	5	9

3. Calculate rank correlation coefficient for the following data giving working capital in lakhs of Rs. (x) and profit in thousands of Rs. (y) of ten companies for the year 1990-1991.

X	15	32	25	30	35	20	19	22	27	31
у	50	70	65	72	90	58	53	57	68	74

4. From the following data, find the sales corresponding to advertising expenditure of Rs.30 lakhs using regression co-efficient.

Expenditure	10	12	15	23	20
Sales	8	6	4	3	7

5. Find the regression equation of x on y and y on x.

x	1	2	3	4	5
у	2	5	3	8	7

- Find the range and coefficient of range of the following data.
  - (i) 63, 89, 98, 125, 79, 108, 117, 68
  - (i) 43.5, 13.6, 18.9, 38.4, 61.4, 29.8
- If the range and the smallest value of a set of data are 36.8 and 13.4 respectively, then find the largest value.

3. Calculate the range of the following data.

Income	400- 450	450-500	500-550	550-600	600- 650
Number of workers		12	30	21	6

- 4. A teacher asked the students to complete 60 pages of a record note book. Eight students have completed only 32, 35, 37, 30, 33, 36, 35 and 37 pages. Find the standard deviation of the pages yet to be completed by them.
- 5. Find the variance and standard deviation of the wages of 9 workers given below: 310, 7290, 7320, 7280, 300, 290, 320, 310, 280.
- 6. A wall clock strikes the bell once at 1 o' clock, 2 times at 2 o' clock, 3 times at 3 o' clock and so on. How many times will it strike in a particular day. Find the standard deviation of the number of strikes the bell make a day.
- 7. Find the standard deviation of first 21 natural numbers.
- 8. If the standard deviation of a data is 4.5 and if each value of the data is decreased by 5, then find the new standard deviation.
- If the standard deviation of a data is 3.6 and each value of the data is divided by 3, then find the new variance and new standard deviation.

10. The rainfall recorded in various places of five districts in a week are given below.

Rainfall (in mm)	45	50	55	60	65	70
Number of places	5	13	4	9	5	4

Find its standard deviation.

- 1. Suppose X is the number of tails occurred when three fair coins are tossed once simultaneously. Find the values of the random variable X and number of points in its inverse images.
- 2. In a pack of 52 playing cards, two cards are drawn at random simultaneously. If the number of black cards drawn is a random variable, find the values of the random variable and number of points in its inverse images.
- 3. An urn contains 5 mangoes and 4 apples. Three fruits are taken at random. If the number of apples taken is a random variable, then find the values of the random variable and number of points in its inverse images.
- 4. Two balls are chosen randomly from an urn containing 6 red and 8 black balls. Suppose that we win ₹15 for each red ball selected and we lose ₹10 for each black ball selected. If X denotes the winning amount, find the values of Xand number of points in its inverse images.
- 5. The probability density function of X is

$$f(x) = \begin{cases} x & 0 < x < 1 \\ 2 - x & 1 \le x < 2 \\ 0 & \text{otherwise} \end{cases}$$

 $f(x) = \begin{cases} x & 0 < x < 1 \\ 2 - x & 1 \le x < 2 \\ 0 & \text{otherwise} \end{cases}$ Find (i) P (0.2 \le X < 0.6) (ii) P (1.2 \le X < 1.8) (iii) P (0.5 \le X < 1.5)

- 6. Compute P (X = k) for the binomial distribution, B(n,p) where (i) n = 6, p = 1/3, k = 3 (ii) n = 10, p = 1/5, k = 4 (iii) n = 9, p = 1/2, k = 7
- 7. The probability that Mr.Q hits target at any trial is 1/4. Suppose he tries at the target 10 times. Find the probability that he hits the target (i) exactly 4 times (ii) at least one time.
- 8. Using binomial distribution find the mean and variance of X for the following experiments
  - A fair coin is tossed 100 times, and X denote the number of heads. (i)
  - A fair die is tossed 240 times, and X denote the number of times that four (ii) appeared.
- 9. The probability that a certain kind of component will survive a electrical test is 3/4. Find the probability that exactly 3 of the 5 components tested survive.
- 10.A retailer purchases a certain kind of electronic device from a manufacturer. The manufacturer indicates that the defective rate of the device is 5%. The inspector of the retailer randomly picks 10 items from a shipment. What is the probability that
  - (i) at least one defective item (ii) exactly two defective items?

#### ASSIGNMENT NO. 7

- Can it be concluded that the average life span of an indian is more than 70 years, If a random sample of 100 indians has a average life span of 71.8 years with S.D of 7.8 years?
- A college conducts both day and night classes intended to be identical. A sample of 100 day student yields examination results and a sample of 200 as under day students yields examination results as under

$\overline{X_1} = 72.4$	$S_1 = 14.8$	$N_1 = 100$	
$\overline{X_1} = 73.9$	$S_1 = 17.9$	N <sub>1</sub> = 209	

Are the two means statistically equal at 10% level?

- 3) In a random sample of size 500 the mean is found to be 20. In another independent sample of size 400 the mean is 15. Could the sample have been drawn from the same population with S.D 4?
- 4) From the following data test the significance of the difference between the means of two normal population with same S.D

	size	mean	S.D	
Sample 1	100	64	6	
Sample 2	200	67	8	

- 5) A certain injection administered to each of the 12 patients resulted in the following increases of blood pressures
  - 5,2,8,-1,3,0,6,-2,1,5,0,4
  - Can it be concluded that the injections will be in genral accompanied by an increase in B.P.
- 6) In nutritional study 13 children given a usual diet plus vitamins A & D tablets while second comparable group of 12 children was taking the usual diet. After 12 months the gain in weight in found was noted as given in table. Can you say that vitamin A and D were responsible for these difference

A	5	3	4	3	2	6	3	2	3	6	7	5	3
D	1	3	2	4	2	1	3	4	3	2	2	3	3

7) The students of two school were measured for there height. One school was east coast and another is west coast .Check whether there is any impact of wheather on height taking other variable constant.

East Coast: 43, 45, 48, 49, 51,52

West Coast: 47, 49, 51, 53, 54, 55, 55, 56, 57

#### ASSIGNMENT NO. 8

10 rats where feed with rice in first month and body weights were noted. In the next
month they feed with grass and their weights measured again. The repective weights
of 10 rats in 2 months are as follows

Weight in 1<sup>st</sup> month: 50, 60, 58, 52, 51 Weight in 2<sup>nd</sup> month: 56, 58, 68, 61, 56

2) The theory predicts the proportions of beans in 4 groups A,B,C and D should be 9:3:3:1. In an experiment among 1600 beans the numbers in 4 groups where 882, 313,287 & 118. Does the experiment result support the theory?

 Records taken of the number of male and female births in 800 families having 4 children are given in following table

Number of birth : Male: 0,1,2,3,4 Female: 4,3,2,1,0

Test whether the data are consistence with hypothesis that the binomial law holds & the chance of a male birth is equal to that of female birth.

4) In an experiment on the immunization of goats from athrax the following results where obtain. Derive your inference on the affectivity of the vaccine.

	Died of anthrax	survived
Inoculated with vaccine	2	10
Non-Inoculated with vaccine	6	6

5) Two samples are drawn from two normal populioans from following data test whether the two samples have the same variance of 5% of L.O.S?

Sample 1: 60,65,71,74,76,82,85,87

Sampl2 2: 61, 66, 67,85,78,88,86,85,63,91

6) A random sample of 50 items gives the mean 6.2 and standard deviation 10.24. Can it be regarded as drawn from a normal population with mean 5.4 at 5% level of significance?

7) A candidate at an election claims that, in a locality 90% voters support him. Verify his claim that if in a random sample of 400 voters from that locality 320 support

- Let X denotes number of heads in an experiment of tossing of a coin and X~ B (10, 0.5). Calculate
  - i. P(X = 5)
  - ii.  $P(X \le 6)$
  - iii. P(X > 7).
- Draw a random sample of size 10 from B (8, 0.4). Find mean and variance of the sample and print the result with proper headings.
- 3. Find value of x for which P(X < x) = 0.82 in B (10, 0.5).
- 4. Let X ~ N (10, 4). Evaluate
  - i. P(X > 12)
  - ii. P  $(X \le 7)$
  - iii. P(5 < X < 12)
  - iv. Find k such that P(X < k) = 0.4
  - v. Generate 100 observations, find its mean, median and variance.
- 5. The manufacturing of a rubber chemicals by a batch process, has a normal yield of 690lbs per batch. A new process is tried experimentally on 12 batches with the following yields: 620, 590, 660, 620, 700, 710, 690, 720, 700, 690, 720 and 650lbs. Are the yields of the new process a significantly different from that of the old process? (LOS = 0.01)
- 6. The height of six randomly chosen soldiers are in inches: 63, 65, 68, 69, 71 and
  - 72. Those of ten randomly chosen sailors are: 61, 62, 65, 66, 69, 69, 70, 71, 72,
  - 73. Is there evidence that soldiers are taller than sailors at 10% level of significance?

 Life expectancy in 10 regions of India in 1960 and 12 regions in 1980 are given below;

Region	1	2	3	4	5	6	7	8	9	10	11	12
1960	37	39	36	42	45	44	46	49	50	41		
1980										52	42	49

Test whether the variances of these are same.

The following are two independent samples from two normal populations.

Obtain 95% confidence interval for the ratio of the population variances.

1: 25, 28, 26, 22, 22, 29, 31, 31, 26, 31

11: 30, 25, 31, 32, 23, 25, 36, 28, 31, 32, 32, 27, 31, 28, 24.

3. The following data gives the effect of a treatment that are as follows:

Test the hypothesis that all treatments are equally effective.

Suppose the National Transportation Safety Board (NTSB) wants to examine the safety of compact cars, midsize cars and full-size cars. It collects a sample of three for each of the treatments (car types). Using the hypothetical data provided below, test whether the mean pressure applied to the driver's head during a crash test is equal for each type of car. Use α = 5%.

Compact cars	Midsize cars	Full-size cars
643	469	484
655	427	456
702	525	402

Use  $\alpha = 5\%$ .

5. The time in minutes that a patient has to wait in a consulting room is recorded for 12 patients:

15,17,24,25,20,21,32,28,12,25,24,26

Use Wilcoxon sign rank test to check whether the median waiting

time is more than 20 minutes at 5% level of significance.

6. The weight of the persons before and after they stopped smoking are as follows:

	1	2	3	4	5
Before	65	75	75	62	72
After	72	82	72	66	73

Use Wilcoxon sign rank test to check whether the median weight of the persons increase after stopping smoking at 5% los.

## Question Paper for Exam

# CERTIFICATE COURSE EXAMINATION 2022-23 DEPARTMENT OF MATHEMATICS

SUBJECT: Certificate Course in Statistical Methods using

#### R-Software

DATE: 08/05/2023 DURATION: 2 hrs MAX. MARKS: 40 Marks

#### Q.1) Attempt any TWO from the following:

10 Marks

1. Find the median for the following data

Income	15000-	17000-	19000-	21000-	23000-	25000-
in Rs.	17000	19000	21000	23000	25000	27000
No. of families	70	100	120	150	100	60

Find the arithmetic mean for the following data. Representing marks of 80 students.

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	12	13	21	19	15

 A box contains 20 tickets numbered 1 to 20. A ticket is drawn at random from the box. Find the probability that the number on the ticket drawn is (i) divisible by 3 (ii) not divisible by 5

#### Q.2) Attempt any TWO from the following:

10 Marks

 The following data relate to the age of 10 employees and the number of days which they reported sick in a month:

Age	20	30	32	35	40	46	52	55	58	62
Sick days	11	12	10	13	14	16	15	17	18	19

Calculate the Karl Pearson's Coefficient of Correlation and interpret it.

An examination of eight applicants for a clerical post was taken by a firm.From the marks obtained by the applicants in the Accountancy and Statistics

papers, compute rank coefficient of correlation.

Applicants	Α	В	C	D	E	F	G	H
Marks in Accountancy	15	20	28	12	40	60	20	80
Marks in Statistics	40	30	50	30	20	10	30	60

3. Find the regression equation of x on y and y on x.

x	1	2	3	4	5	
у	2	5	3	8	7	

#### Q.3) Attempt any TWO from the following:

10 Marks

- 1. Find the range and coefficient of range of the following data.
  - (i) 63, 89, 98, 125, 79, 108, 117, 68
  - (i) 43.5, 13.6, 18.9, 38.4, 61.4, 29.8

The rainfall recorded in various places of five districts in a week are

Rainfall (in mm)	45	50	55	60	65	70
Number of places	5	13	4	9	5	4

Find its standard deviation.

 In a pack of 52 playing cards, two cards are drawn at random simultaneously. If the number of black cards drawn is a random variable, find the values of the random variable and number of points in its inverse images.

#### Q.4) Attempt any TWO from the following:

10 Marks

Can it be concluded that the average life span of an indian is more than 70 years, If a random sample of 100 Indians has a average life span of 71.8 years with S.D of 7.8 years?

From the following data test the significance of the difference between the means of two normal population with same S.D:

	Size	Mean	S.D
Sample 1	100	64	6
Sample 2	200	67	8

3. The theory predicts the proportions of beans in 4 groups A,B.C and D should be 9:3:3:1. In an experiment among 1600 beans the numbers in 4 groups where 882, 313,287 & 118. Does the experiment result support the theory?

## **Exam Attendance Sheet**



Sonopant Dandekar Shikshan Mandali's

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[Best College - University of Mumbai] [Amongst Top 100 Colleges in India by 'India Today - MDRA Survey 2019']

#### DEPARTMENT OF MATHEMATICS

#### Certificate Course in Statistical Methods using R-Software2022-23

#### **Exam Attendance Sheet**

Date: 08/05/23

Sr. No.	Name of the Student	Class	Signature
1	Mistry Ayush Kirtikumar	FYB. Com.	Agush
2	Nawabali Kismatali	FYB. Com	Chus
3	Sahane Payal Ganesh	FYB. Com	Parahane.
4	Yadav Hariom Rajbahadur	FYB.Com	Jarian.
5	Singh Ashwani Urmila	FYB. Com.	Dringh
6	Yadav Vishal Ramjanam	FYB. Com	key
7	Yadav Vikas Ramkishan	FYB. Com	Ji Kaj
8	Yadav Amit Mohan	FYB. Com.	Amit
9	Shirole Rahul Balasaheb	F.Y. Blom	Rahul S.
10	Govind Vidyashri Vinaya	F.Y.BSC	Found
11	Jadhar Jyoti Kashinath	F.V.BSc	Jelabus.
12	Tiwari Sangya Surya	S.Y.BSc	Shuai
13	Jejani Zeba Ashraf	F.Y.BSc	Ojejani.
14	Shaikh Shafin Akhlaque	S.Y.BSC	\$
15	Salkar Kiran Sadya	S.Y. BSc.	Raller
16	Gangoda Pramoel gatrya	S.Y.BSc	promotod
17	Ghatal Vaibhar Ramal	S.Y. BSc	Ochatal.

#### Sonopant Dandekar Shikshan Mandali's



# Sonopant Dandekar Arts, V. S. Apte Commerce & M. H. Mehta Science College, Palghar

(Best College - University of Mumbai)
(Amongst Top 100 Colleges in India by 'India Today - MDRA Survey 2019')

18	Gavali Rutik Ramesh	S.Y.BSc	Quli_
19	Khan Husna Moihuddin	F.Y.BSc	Hushin
20	Khan Sadika Atikullah	F.Y.BSc.	Sadila
21	Pachalkar Sonali Vasuder	S.Y.BSc	Spachallow.
22	Singh Sunil Viehnu	F.Y.BSc(C.S)	
23	Yadai Vishal Rajesh	F.Y.BSc(C·S)	M
24	Shaha Nisha Loknath	F.Y.B Com	Qirha
25	Sahu Savita Santosh	F.Y.B Com	Garifa
26	Desle Harshita Ravindra	F.Y.BCom	666
27	Luckyraj Niraj Singh	F.Y.BSC	Sab
28	Yadar Priyanshu	F.Y.BSc	Rydow
29	Varma Nitish Mundrika	F.Y.BSc	Drama
30	Yadav. Pankaj Binda	F.Y.BSc.	Pointaj
31	Singh Abhishele Randhir	F. Y.BSc	Airgh.
32	Suthar Dipak Devilal	S.Y.BSc	D

Mrs. Dipali Mali

(Course coordinator,

Head, Mathematics Dept.)

# Faculty Compliance Report

	Asst. Prof. Dipali Mali										
Sr. No.	Topics Covered	Date	Time	Session Hours							
1	Sampling - Introduction, Z test	2/24/2023	1.00-2.00PM	1							
2	Sampling - Z test	2/24/2023	2.00-3.00PM	1							
3	Sampling - t test	2/28/2023	10.00-11.00AM	1							
4	Sampling - t test	2/28/2023	11.00-12.00PM	1							
5	Sampling -Chi test of association	3/1/2023	10.00-11.00AM	1							
6	Sampling -Chi test of association	3/1/2023	11.00-12.00PM	1							
7	Sampling - F test	3/2/2023	10.00-11.00AM	1							
8	Sampling - F test	3/2/2023	11.00-12.00PM	1							
9	ANOVA one way and two way classification	3/3/2023	10.00-11.00AM	1							
10	ANOVA one way and two way classification	3/3/2023	11.00-12.00PM	1							
	Total No. Of Lea	ctures: 10									

	Asst. Prof. Husnawaz Contractor									
Sr. No.	Topics Covered	Date	Time	Session Hours						
1	Introduction of Certificate Course	1/21/2023	1.00-2.00PM	1						
2	Introduction to Correlation Analysis	1/28/2023	1.00-2.00PM	1						
3	Karl Pearson's Co-efficient Correlation		2.00-3.00PM	1						
4	Spearman's Rank Correlation Coefficient	2/3/2023	1.00-2.00PM	1						
5	Introduction to Regression Analysis		2.00-3.00PM	1						
6	Regression equation of x on y and y on x	2/4/2023	1.00-2.00PM	1						
7	Regression Coefficient		2.00-3.00PM	1						
	Total No. Of Lectures:	,	-	7						

	Asst. Prof. Ishrat Gawandi								
Sr. No.	Topics Covered	Date	Time	Session Hours					
1	Correlation Analysis	3/6/2023	10:00am - 12:00pm	2					
2	Regression Analysis	3/8/2023	10:00am - 12:00pm	2					
3	t test	4/28/2023	10:00am - 11:00am	1					
4	F test	4/28/2023	11:00am - 12:00pm	1					
5	ANOVA test	5/3/2023	10:00am - 11:00am	1					
6	Wilcoxon Singed Ranked test	5/3/2023	11:00am - 12:00pm	1					
7	Kruskal Wallis test	5/4/2023	10:00am - 11:00am	1					
8	Chi - Square test of association	5/4/2023	11:00am - 12:00pm	1					
	Total No.	Of Lectures : 10	)						

	Asst. Prof. Shirin Memon									
Sr.	Topics Covered	Date	Time	Session						
No.				Hours						
1	Measures of Dispersion	1/27/2023	2.00-3.00PM	1						
2	Binomial Distribution	2/16/2023	2.00-3.00PM	1						
3	Binomial Distribution	2/17/2023	1.00-2.00PM	1						
4	Poison Distribution	2/17/2023	2.00-3.00PM	1						
5	Normal Distribution	2/23/2023	1.00-2.00PM	1						
6	Normal Distribution	2/23/2023	2.00-3.00PM	1						
	Tota	l No. Of Lectures: 6								

Asst. Prof. Nidhi Rajesh Mali				
Sr. No.	Topics Covered	Date	Time	Session Hours
1	Frequency Distribution	1/21/2023	02.00 pm- 03.00 pm	1
2	Measures of Central Tendency	1/27/2023	01.00 pm- 02.00 pm	1
3	Random variable and its Probability Distribution	2/10/2023	01.00 pm- 02.00 pm	1
4	Concept of random Experiment/trail and possible Outcomes	2/10/2023	02.00 pm- 03.00 pm	1
5	Sample Spaces & Probability Distribution of a discrete random Variable	2/11/2023	01.00 pm- 02.00 pm	1
6	Expectations & Variance of Random Variable	2/11/2023	02.00 pm- 03.00 pm	1
7	Random variable and its Probability Distribution	2/16/2023	01.00 pm- 02.00 pm	1
	Total No. Of Lectures: 7			

### Certificate



Sonopant Dandekar Shikshan Mandali's Sonopant Dandekar Arts, V.S. Apte Commerce and M.H. Mehta Science College, Palghar (Affiliated to University of Mumbai)

CERTIFICATE

Amongst top 150 colleges as per India Today Nation wise survey Awarded Best College by University of Mumbai

OF COMPLETION

CENTER FOR EXCELLENCE & INNOVATION DEPARTMENT OF MATHEMATICS

"Certificate Course in Statistical Methods Using R Software"

This is to acknowledge that

Mr/Ms. Yadav Hariom Rajbahadur

of F.Y.B.(om\_class of Sonopant Dandekar College

has successfully completed "Certificate Course in Statistical Methods Using R Software" conducted by Department of Mathematics during the academic year 2022-23 and secured A grade.

Prof. Dipali Mali

HOD, Dept. of Mathematics

Dr. Kiran Save Principal

Prof. Mahesh Deshmukh **IOAC Co-ordinator** 

MDeshmuth

# **Report**

The certificate course in Statistical Methods using R-Software is designed to equip students with the necessary skills in R programming and statistical analysis, preparing them for practical applications in various industries and academic fields. 31 students successfully completed this certificate course. Over 30 theoretical lectures and 10 practical sessions, they learned basic statistical concepts, various sampling methods, data analysis using R software, and computational skills for statistical inference. Additionally, they gained knowledge on applying statistics to fields such as science, commerce, business, and economics using R, and developed the ability to solve real-life problems using the software. After successfully completing the certificate course, students received a certificate of achievement.

**Duration:** 40 Hours (30 theory lectures and 10 practical lectures)

**Format:** Lectures, discussions, case studies, test. **Date of commencement:** 15<sup>th</sup> February, 2023

**Date of completion:** 08<sup>th</sup> May, 2023

**No. of Students Enrolled: 32** 

(Mrs. Dipali Mali) HOD, Dept. of Mathematics Sonopant Dandekar College,

Palghar