

Report on 'X-ray Crystallography workshop' (21st July 2022 to 23rd July 2022)



Goa University
Talgao-Plateau, Goa, India

*School of Chemical Sciences
&
School of Physical & Applied
Sciences*

Welcomes you for the workshop on

X-ray Crystallography

From 21st July to 23rd July 2022





X-ray crystallographic techniques like single crystal and powder diffraction are widely used among researchers. The workshop intends to educate research students about fundamentals of X-ray crystallography as well provide them hands on experience with basic tools used in material analysis.

Resource persons



Dr. Digamber G. Parob
Associate Professor of Analytical Chemistry, SCS, Goa University



Dr. Venkatesha R. Hathwar
UGC - Assistant Professor of Physics, SPAS, Goa University

Prof. V.M.S. Venenkar Dean, SCS	Prof. K. R. S. Priolhar Dean, SPAS
Dr. Savita A. Kundaikar Convener (SCS)	Dr. Rajesh Kumar Shanikar (Tyam) Co-Convener (SPAS)
Coordinators: Dr. Rupesh Patre (SCS), Dr. Bishan Shinkre (SCS), Dr. Pranav Naik (SPAS) & Mr. Vishnu Chari (SCS)	

Registration is free

Link for registration: <https://forms.gle/b8n8F3J8aLQUjW3G7>

Venue: M.Sc-Part-I lecture hall, School of Chemical Sciences, Goa University

-- Participants should carry their laptop on 2nd & 3rd day of workshop --

E-certificate will be provided to all the participants after successful completion of workshop

For further information contact: scsvents@unigoa.ac.in or call at 7009741211/+91 8806512626

Programme schedule		
Day-1 21 st July 2022	2:00 to 2:30 pm	Inaugural function
	2:30 to 3:30 pm	Introduction to Crystallography (DGP)
	3:30 to 4:00 pm	Tea Break
	4:00 to 5:00 pm	Symmetry and X-ray diffraction (VRH)
Day-2 22 nd July 2022	2:00 to 3:00 pm	Single Crystal X-ray Diffraction (VRH)
	3:00 to 4:00 pm	Lab visit (in batches) and Tea break
	4:00 to 5:00 pm	Fundamentals of Powder X-ray Diffraction (DGP)
Day-3 23 rd July 2022	10:30 to 11:30 am	Hands on training in Indexing, unit cell refinement and Particle size analysis (DGP)
	11:30 to 12:00 noon	Tea break
	12:00 to 1:00 pm	Hands on training in Single crystal structure solutions (VRH)
	1:00 to 2:00 pm	Lunch break
	2:00 to 3:00 pm	Analysing powder samples (DGP)
	3:00 to 4:00 pm	Lab visit (in batches) and Tea break
	4:00 to 4:45pm	Preparation and Reporting of Structure data (VRH)
4:45 to 5:00 pm	Feedback from the participants and concluding remarks	

The School of Chemical Sciences & School of Physical and Applied Sciences, Goa-University jointly organized an "X-ray Crystallography workshop" from 21st July 2022 to 23rd July 2022 as one of the activities in commemoration of Azadi ka Amrut Mahotsav and was free for all the research students of Goa University and from other research institutes/centers in Goa. The

workshop had a series of lectures and hands-on training for research students working in the area of X-ray Crystallography. The workshop was organized to educate the research students about the basics of X-ray Crystallography and also to give them hands-on experience to use the basic tools required for material characterization. The idea of the workshop on X-ray crystallography was initiated by Dr. Digamber Porob, Associate Professor of Analytical Chemistry, SCS & Dr. Venkatesha Hathwar, UGC-Assistant Professor of Physics from SPAS and both of them were the resource speaker for the workshop.

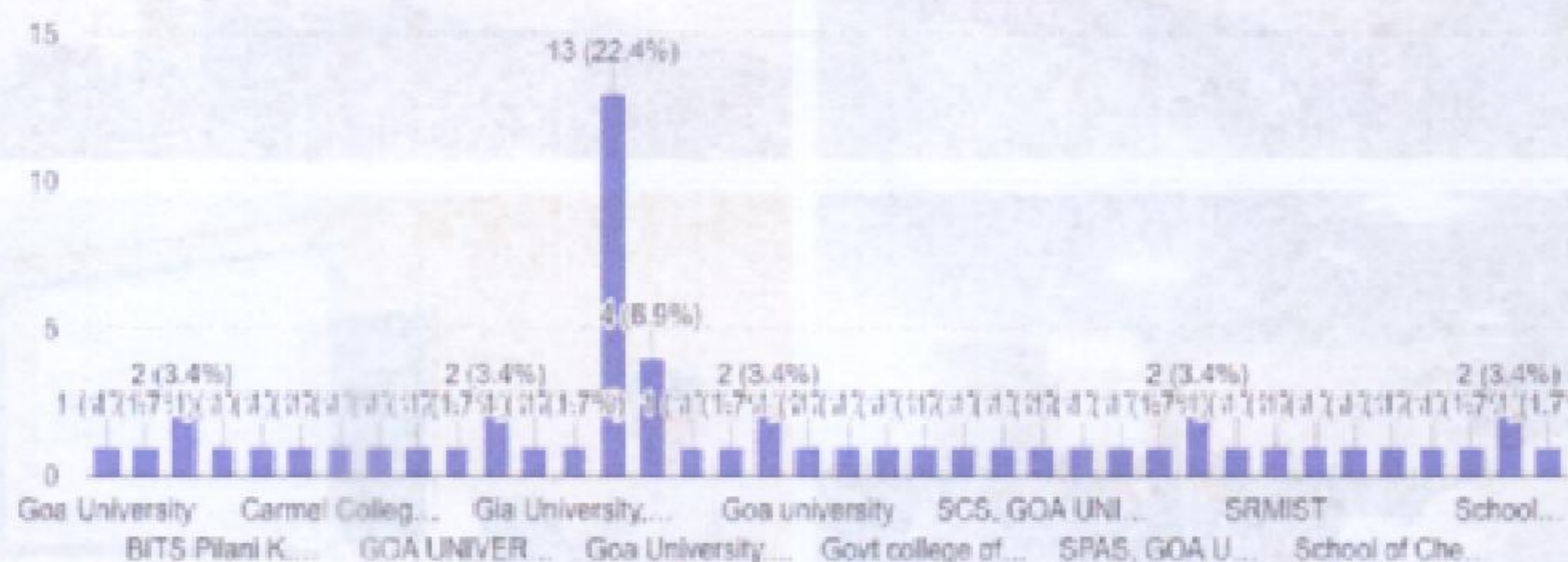
The convener of the workshop was by Dr. Savita A. Kundaikar, Assistant professor in Analytical Chemistry (SCS), and Dr. Rajesh Kumar Hyam, Assistant Professor in Physics (SPAS) served as the co-convener. The event was coordinated by Mr. Vishnu Chari, Dr. Bidhan Shinkre, Dr. Rupesh Patre from SCS, and Dr. Pranav Naik from SPAS. The workshop was inaugurated on 21st July 2022, in the gracious presence of Prof. V. M. S. Verenkar (Dean, SCS) and Prof. K.R.S. Priolkar (Dean, SCS). Both the Deans addressed the gathering and requested participants to make use of the opportunity to learn details of X-ray crystallography. The inauguration function was followed by two lectures. The first lecture was by Dr. Digamber Porob on introduction to X-ray crystallography which was followed by a lecture on X-ray diffraction by Dr. Hathwar. On the second day of the workshop, (22nd July 2022) Dr. Hathwar, introduced the Single crystal X-ray Diffraction technique to the participants followed by a lecture on the Fundamentals of Powder diffraction by Dr. Digamber Porob. During the tea break lab, visits were arranged in batches for the participants wherein participants got an opportunity to see single crystal and powder X-ray diffractometers. On day three of the workshop which is on 23rd July 2022, Dr. Digamber Porob gave hands-on training sessions to the participants on indexing, unit cell refinement, and analyzing particle size of powder samples. Participants were introduced to various software such as FullProf suite with the given practice datasets. Dr. Venkatesha Hathwar gave hands-on training on Single crystal solutions using Olex2 and Mercury software and showed how to prepare and report the structure data. After every lecture and hands-on training, session speakers responded to the various queries/questions asked by the participants.

The X-ray Crystallography workshop witnessed the participation of research students from different schools from Goa University, and other research institutes across Goa and the registration of participants from research institutes from outside the state of Goa were also observed. Around seventy participants were present on all three days of the workshop. The feedback received for the workshop was very good as revealed by the data obtained from

Google feedback forms. Many participants have requested to hold more such workshops on instrumental techniques used in the field of research. Overall, the Workshop was very informative and participants were very impressed with the knowledge and the experience of the speakers. The workshop was concluded with participants' feedback and concluding remarks from Prof. V.M.S. Verenkar, Dean (SCS, Goa University). Finally vote of thanks was proposed by Dr. Rajesh Kumar Hyam.

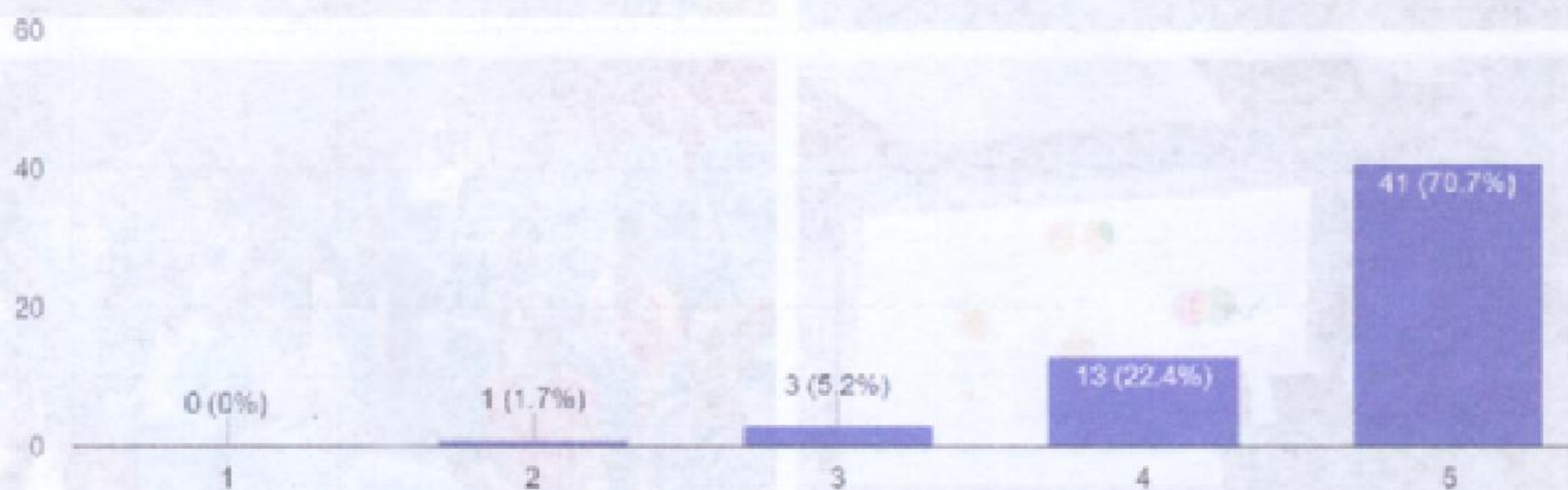
Name of the Institution

58 responses



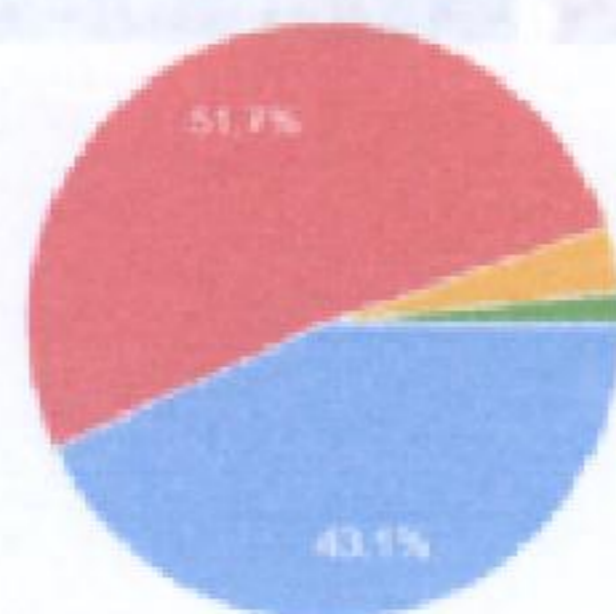
How informative this workshop was for you?

58 responses



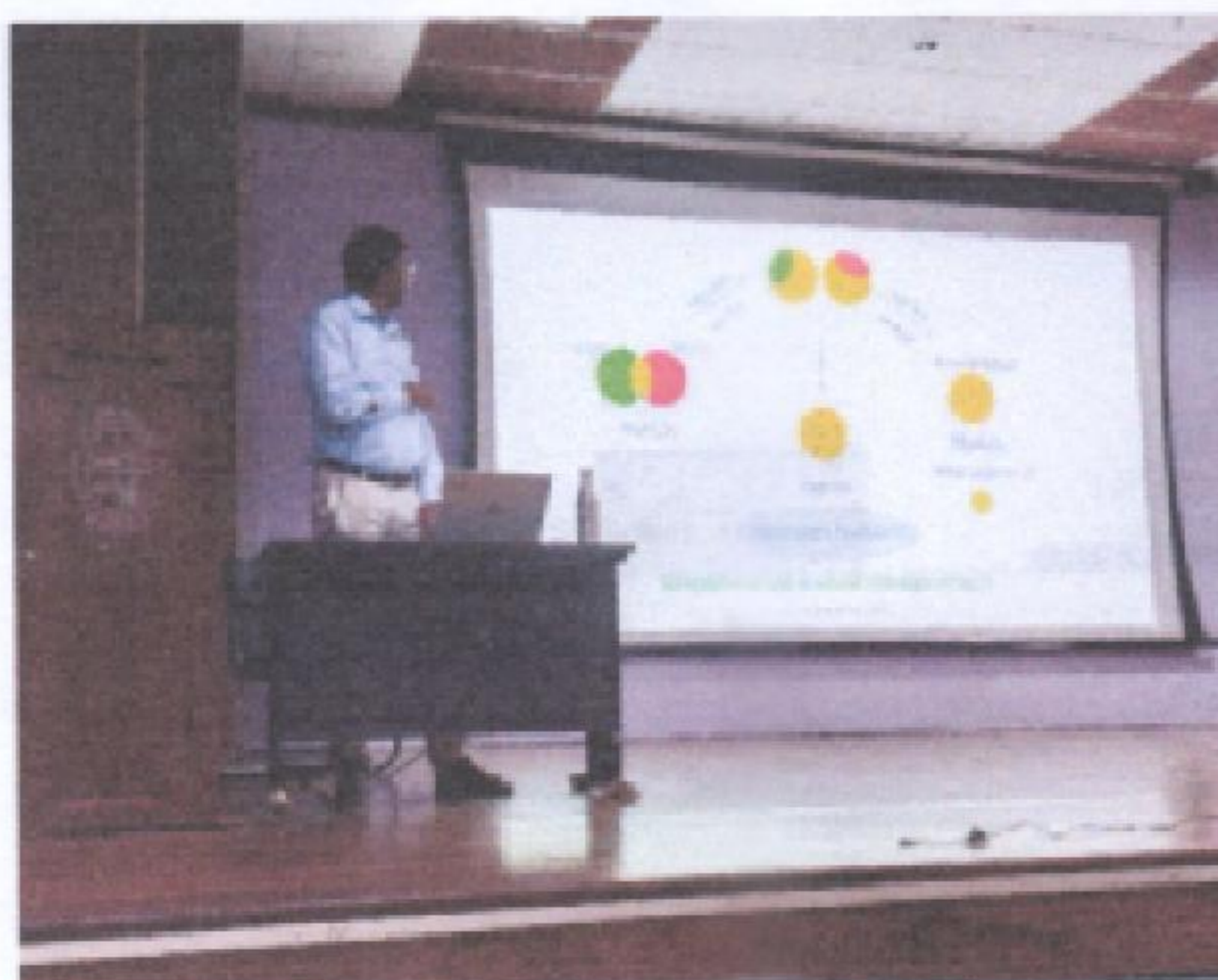
How would you rate the workshop?

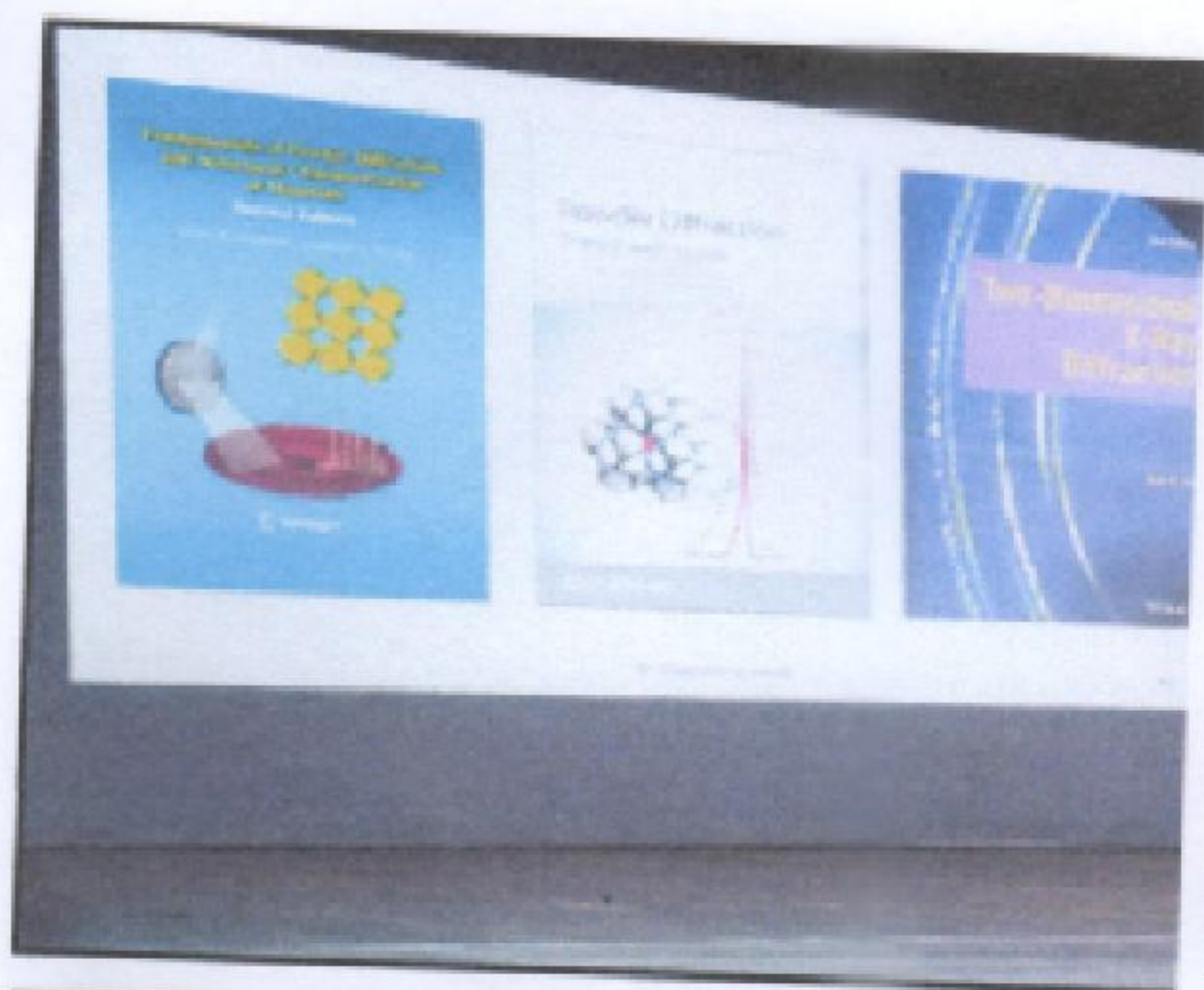
58 responses



- Excellent
- Very good
- Good
- Average

A glimpse of the X-ray Crystallography workshop (21st July 2022 to 23rd July 2022)





Report by

Dr. Savita A. Kundaikar
Assistant Professor in Analytical Chemistry,
School of Chemical Sciences, Goa University



Workshop on X-ray Crystallography at School of Chemical Sciences Goa University

Attendance Sheet

Saturday (23/7/2022)

Sr. No.	Full Name	Name of the institution registered for PhD	21-07-2022	22-07-2022	23-07-2022	working lunch
1	Namrata Kumari	Goa University	<i>Namrata</i>	<i>Namrata</i>	<i>Namrata</i>	✓
2	Sanjali Navelkar	Goa University	<i>Sanjali</i>	<i>Sanjali</i>	<i>Sanjali</i>	✓
3	Sarvesha S. Shelgaonkar	Sarvesha S. Shelgaonkar Goa University	<i>Sarvesha</i>	<i>Sarvesha</i>	<i>Sarvesha</i>	✓
4	SAMANTHA DA COSTA	School of Chemical Sciences, Goa University	<i>Samantha</i>	<i>Samantha</i>	<i>Samantha</i>	✓
5	Seneca Costa	Goa University	<i>Seneca</i>	<i>Seneca</i>	<i>Seneca</i>	✓
6	Nandesh Nandakishore Kintekar	Goa university (SPAS)	<i>Nandesh</i>	<i>Nandesh</i>	<i>Nandesh</i>	✓
7	Sonam Kumari	Goa University	<i>Sonam</i>	<i>Sonam</i>	<i>Sonam</i>	✓
8	Ruturaj Vilas Daphale	Goa University	<i>Ruturaj</i>	<i>Ruturaj</i>	<i>Ruturaj</i>	✓
9	KARESH NAGESH PHONDEKAR	Goa University SPAS	<i>Karsh</i>	<i>Karsh</i>	<i>Karsh</i>	✓
10	Luann Romaine Dsouza	Goa University	<i>Luann</i>	<i>Luann</i>	<i>Luann</i>	✓
11	Ratan Wamanrao Jadhav	Goa University	<i>Ratan</i>	<i>Ratan</i>	<i>Ratan</i>	✓
12	Vilas Keshav Gawade	Goa University	<i>Vilas</i>	<i>Vilas</i>	<i>Vilas</i>	✓
13	DINESH NAGNATH NADIMETLA	Goa University	<i>Dinesh</i>	<i>Dinesh</i>	<i>Dinesh</i>	✓
14	Sujay Shivaji Rane	Goa University	<i>Sujay</i>	<i>Sujay</i>	<i>Sujay</i>	✓
15	Naha Uday Parsekar	Goa University	<i>Naha</i>	<i>Naha</i>	<i>Naha</i>	✓
16	Pooja Vitthal Shreechippa	School of chemical sciences, Goa university	<i>Pooja</i>	<i>Pooja</i>	<i>Pooja</i>	✓
17	SHILPA R. AMONKAR	GOA UNIVERSITY	<i>Shilpa</i>	<i>Shilpa</i>	<i>Shilpa</i>	✓
18	Nafea Manea Bhlos	Goa University, School Of physical and Applied science	<i>Nafea</i>	<i>Nafea</i>	<i>Nafea</i>	✓
19	Pritesh khobreakar	SCS, Goa University	<i>Pritesh</i>	<i>Pritesh</i>	<i>Pritesh</i>	✓
20	SHILPA R. AMONKAR	GOA UNIVERSITY	<i>Shilpa</i>	<i>Shilpa</i>	<i>Shilpa</i>	✓
21	Diksha C. Salgaonkar	Goa University	<i>Diksha</i>	<i>Diksha</i>	<i>Diksha</i>	✓
22	Myren M. Azavedo	SPAS, Goa University	<i>Myren</i>	<i>Myren</i>	<i>Myren</i>	✓
23	Namita Chandrakant Rane	Goa University	<i>Namita</i>	<i>Namita</i>	<i>Namita</i>	✓
24	Harshad Anil Mirgane	SCS, Goa University, Goa	<i>Harshad</i>	<i>Harshad</i>	<i>Harshad</i>	✓
25	Banu Kubendran	SRM IST	<i>Banu</i>	<i>Banu</i>	<i>Banu</i>	✓
26	Neha Mukund Phadte	Goa University	<i>Neha</i>	<i>Neha</i>	<i>Neha</i>	✓
27	BANDISHA B. PARWAR	GOA UNIVERSITY	<i>Bandisha</i>	<i>Bandisha</i>	<i>Bandisha</i>	✓
28	Samiksha V. Malik	Goa University	<i>Samiksha</i>	<i>Samiksha</i>	<i>Samiksha</i>	✓
29	SANTHOSHKUMAR BANDARU	GOA UNIVERSITY	<i>Santhosh</i>	<i>Santhosh</i>	<i>Santhosh</i>	✓
30	Shatakshi Jakhi	Goa University	<i>Shatakshi</i>	<i>Shatakshi</i>	<i>Shatakshi</i>	✓
31	subash M	SRM Institute of Science and Technology	<i>Subash</i>	<i>Subash</i>	<i>Subash</i>	✓
32	Harshini Mohan	SRM institute of science and technology Kattankulathur				
33	SHYAMVARNAN B	SRM Institute of Science & Technology				
34	Nikita Nonu Harmalkar	Nikita Nonu Harmalkar	<i>Nikita</i>	<i>Nikita</i>	<i>Nikita</i>	✓
35	Ankita Mohan Vemekar	Goa University	<i>Ankita</i>	<i>Ankita</i>	<i>Ankita</i>	✓
36	Leo Francisco Blaise D'Souza	Goa University	<i>Leo</i>	<i>Leo</i>	<i>Leo</i>	✓
37	Shubhaxmi K. Naik	School of Chemical Sciences, Goa University	<i>Shubhaxmi</i>	<i>Shubhaxmi</i>	<i>Shubhaxmi</i>	✓
38	Sujata Shrikant Geonkar	School of Chemical Sciences	<i>Sujata</i>	<i>Sujata</i>	<i>Sujata</i>	✓
39	Mahendra Choudhary	Goa University	<i>Mahendra</i>	<i>Mahendra</i>	<i>Mahendra</i>	✓
40	NEHAL WAGHCHOURE	BITS-Pilani, Goa Campus.	<i>Nehal</i>	<i>Nehal</i>	<i>Nehal</i>	✓
41	Mangala Ullhas Sawal	Goa University	<i>Mangala</i>	<i>Mangala</i>	<i>Mangala</i>	✓
42	Jeffrey Lauro Viegas	School of Chemical Sciences, Goa University	<i>Jeffrey</i>	<i>Jeffrey</i>	<i>Jeffrey</i>	✓
43	Gayatri Kotkar	Goa University	<i>Gayatri</i>	<i>Gayatri</i>	<i>Gayatri</i>	✓
44	Najmah Hajian Dehkordi	Goa University	<i>Najmah</i>	<i>Najmah</i>	<i>Najmah</i>	✓
45	PRAVEEN KUMAR PINAPATI	Goa University	<i>Praveen</i>	<i>Praveen</i>	<i>Praveen</i>	✓
46	Narvekar Samidha Sadanand	Goa University	<i>Samidha</i>	<i>Samidha</i>	<i>Samidha</i>	✓
47	Akshay Vinod Salkar	Goa University	<i>Akshay</i>	<i>Akshay</i>	<i>Akshay</i>	✓
48	Yatin P. Desai	Goa University	<i>Yatin</i>	<i>Yatin</i>	<i>Yatin</i>	✓
49	Firdosh Aslam Sakil	Cluster Research Centre in Chemistry Khandola-Marcela Goa	<i>Firdosh</i>	<i>Firdosh</i>	<i>Firdosh</i>	✓
50	AVANI ANIL TALKATKAR	Goa University (School of Physical and Applied Sciences)	<i>Avani</i>	<i>Avani</i>	<i>Avani</i>	✓
51	Diksha Nitin Karmalkar	SPAS, Goa University	<i>Diksha</i>	<i>Diksha</i>	<i>Diksha</i>	✓
52	Vipul Mangesh Ghare	Goa University	<i>Vipul</i>	<i>Vipul</i>	<i>Vipul</i>	✓
53	Pooja Hanumantrao Bhargao	Goa university	<i>Pooja</i>	<i>Pooja</i>	<i>Pooja</i>	✓
54	Shaikh Irshad Ahmad	Goa University	<i>Shaikh</i>	<i>Shaikh</i>	<i>Shaikh</i>	✓
55	Arti Krishnanand Naik	Cluster Research Centre, Khandola Marcela Goa	<i>Arti</i>	<i>Arti</i>	<i>Arti</i>	✓
56	Rupesh Patre	Goa University	<i>Rupesh</i>	<i>Rupesh</i>	<i>Rupesh</i>	✓

57	MARINA ALBUQUERQUE	Dept of Botany, Goa University	Medhure	Medhure	Medhure	No
58	Shriram Radhakanth	BITS Pilani K. K. Birla Goa Campus	R. Saha	R. Saha	R. Saha	✓
59	Priyanka Sahoo	Priyanka Sahoo BITS Pilani Goa	Priyanka	Priyanka	Priyanka	✓
60	MADHVENDRA RAI	BITS Pilani, KK Birla Goa Campus	Medhure	Medhure	Medhure	✓
61	PRATIK SANTRA	Goa University	Pratik Santra	Pratik Santra	Pratik Santra	✓
62	Shanon Viegas	BITs Pilani Goa	Shanon	Shanon	Shanon	✓
63	Ruchika Thayil	Goa University	Ruchika	Ruchika	Ruchika	✓
64	Deepthi Rane	Goa University	Deepthi	Deepthi	Deepthi	✓
X 65	Kesar Singh	Dr. Harisingh Gour Central University Sagar M. P.	Kesar	Kesar	Kesar	✓

- 66 Kerba More SCS, Goa University ~~Medhure~~ ~~Medhure~~ ~~Medhure~~ ✓
- 67 Prachi Toray SCS, G.U. ~~Prachi~~ ✓
- 68. Dr. Diptesh Naik, SCS, Goa University ~~Diptesh~~ ✓
- 69. Dr. Rohan K. Kunkalekar, SCS, Goa University ~~Rohan~~ ✓
- 70. Geeta A. Zaluni SCS (Research scholar) → ~~Geeta~~ ✓
- 71. Dr. Prayesh S. Vorvika SCS, Goa University ~~Prayesh~~ ✓
- 72. Vishnu R. Chari SCS, Goa University ~~Vishnu~~ ✓
- 73. Dr. Savita A. Kundaik SCS, Goa University ~~Savita~~ ✓
- 74. Dr. Hari K. Kadam SCS Goa Univ. ~~Hari~~ ✓
- 75. Dr. Sandesh T. Bugde SCS Goa Univ. ~~Sandesh~~ ✓
- 76. Dr. R.S. Hyan SPAS Goa Univ. ~~R.S.~~ ✓
- 77. Dr. Rupesh A. Kunkalekar SCS " ~~Rupesh~~ ✓
- 78. Dr. Bidhan A. Shinde SCS " ~~Bidhan~~ ✓
- 79. Priyanka Kavalekar SCS Goa Uni ~~Priyanka~~ (22/07/20) ✓
- 80. Nitish Venshi SCS Goa Uni ~~Nitish~~ ✓
- 81. Gayatri Kottkar SCS Goa Uni ~~Gayatri~~ ✓
- 82. Dr. Beena Vernekar Govt college, Khondole ~~Beena~~ ✓
- 83. Lalitprabha Salgaonkar SCS Goa University ~~Lalitprabha~~ (23/07/20) ✓
- 84. Namrata Kumari SCS Goa University ~~Namrata~~ ✓