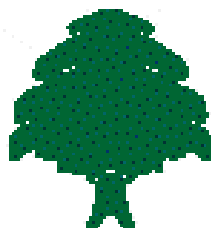

**POST GRADUATE GOVERNMENT COLLEGE FOR GIRLS
SECTOR-11, CHANDIGARH**



COURAGE TO KNOW



DEPARTMENTAL PROFILE

BOTANY

2017-2022

DEPARTMENT OF BOTANY – FACULTY PROFILE

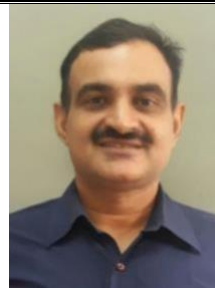
Dr. Vishal Sharma

Associate Professor

Qualifications: M.Sc., Ph.D.

Contact Number: 9988150150

Email ID: vishal_2370@yahoo.com



Dr. Anurita Sharma

Associate Professor

Qualifications: M.Sc. (Hons.), Ph.D.

Contact Number: 9463743007

Email ID: anurita30@gmail.com



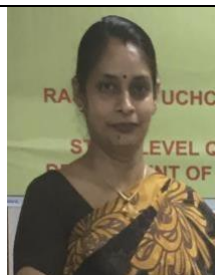
Dr. Madhumita Bhattacharjee

Associate Professor

Qualifications: M.Sc. (Botany), Ph.D.

Contact Number: 9814401010

Email ID: madhumita3680@gmail.com



Dr. Anju Pehwal

Assistant Professor

Qualifications: M.Sc. (Hons.), Ph.D.

Contact Number: 9914953741

Email ID: anjupehwalo2@yahoo.co.in



Dr. Amit Jakhal

Assistant Professor

Qualifications: M.Sc. (Hons.), Ph.D.

Contact Number: 9467562678

Email ID: amitjakhal@gmail.com



Dr. Shikha Sharma

Assistant Professor

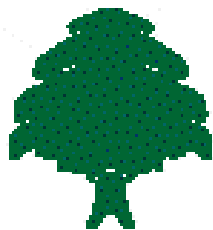
Qualifications: M.Sc. (Hons.), M.Phil.
(Gold Medalist), Ph.D.

Contact Number: 9646625919

Email ID: sharmashikha682@gmail.com



**POST GRADUATE GOVERNMENT COLLEGE FOR GIRLS
SECTOR-11, CHANDIGARH**



COURAGE TO KNOW

DEPARTMENTAL PROFILE - BOTANY

Sr. No.	Contents	Page No.
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ANNEXURES

I	Syllabus
II	Alumni List & Placements
III	Time Tables
IV	List of Books in Departmental Library
V	List of Plants in Botanical Garden

Courses offered

Year of Establishment:

- Under-graduate course: 1959
- Post-graduate course: 2009

Sr. No.	Names of courses	Departments/units involved
1.	B.Sc. Botany	Semester system (w.e.f. July 2014)
2.	M.Sc. Botany	Semester system (w.e.f. July 2009)
3.	Add on course (Floriculture & Landscaping)	Annual system Dr. Vishal Sharma, Associate Professor in Botany (Convener)

Infrastructural facilities

❖ **Laboratories:**

- 2 Under-Graduate Labs
- 1 Post-Graduate Lab cum Herbarium

❖ **Botany Culture Room**

❖ **Library:**

- Number of books (related to Botany) available in College Main Library: 565
- Number of title in College Main Library: 365
- Total number of books available in the Departmental library: 506
- Book Bank for needy students: 135 books available in Departmental library

❖ **Research Journals:**

Four research journals have been subscribed in Main Library:

- The Indian Forester
- Indian Fern Journal
- Indian Journal of Biotechnology

❖ **E-journals:**

Inflibnet e-journal

- Each faculty member has been given individual user-id and password to access e-journals
- About 300 e-journals related to Botany & its various branches are on Infflibnet.

❖ **Internet facilities for Staff & Students:**

- 3 laptops
- 1 desktops
- One scanner
- One printer

❖ **Botanical Garden**

- ❖ Bio-reactor & Windrow Composting Plant

Faculty strength

1. Number of Teaching posts

Sanctioned	Filled		
	Professors	Associate Professors	Assistant Professors
06	-	03	-

2. Faculty profile with name, qualification, designation, specialization and teaching experience

❖ Faculty on regular basis

Sr. No.	Name	Qualifications	Designation	Specialization	No. of Years of Experience
1.	Dr. Vishal Sharma	M.Sc., Ph.D	Associate Professor	Biotechnology (Plant tissue culture)	25 years
2.	Dr. Anurita Sharma	M.Sc. (Hons), M.Phil, Ph.D	Associate Professor	Pteridophytes	20 years
3.	Dr. Madhumita Bhattacharjee	M.Sc., Ph.D	Associate Professor	Cytology	20 years
4.	Dr. Harsh Manchanda (2017-2022) Now posted at PGGCG-42	M.Sc., M.Phil, Ph.D	Associate Professor	Plant Physiology	15 years

❖ Faculty on contract basis

Botany					
5.	Dr. Anju	M.Sc. (Hons.), Ph.D	Assistant Professor	Molecular Biology & Biotechnology	13 years
6.	Dr. Amit Jakhal	M.Sc. (Hons.), Ph.D	Assistant Professor	Mycology	14 years
7.	Dr. Shikha Sharma	M.Sc. (Hons.), Ph.D	Assistant Professor	Angiosperms	6 years

3. Number of academic support staff (technical) and administrative staff; sanctioned and filled

Number of Posts	Sanctioned	Filled
Senior Lecture Assistant	1	1 filled
Junior Lecture Assistant	2	1 filled,1 vacant
Laboratory Attendant	3	3+1 in place of JLA (All on contractual basis)
Gardeners for Botanical Garden, Herbal Garden, Green House, Vermi-compost Unit	2+1	2 (on contractual basis)

Under-graduate results 2017-2018

B.Sc. I Med

	Name of the Examination	Subject Taught	No. of Students who appeared	No. of Students passed	No. of students obtaining I, II and III Division			College pass %	Univ. pass %	Difference (+ or -)
					I	II	III			
Mrs. Inderveena Dr. Amit Jakhal	B.Sc. 1 st Sem Dec 2017	Botany Theory & Practical	117	109	62	14	33	93.16	90.2	+2.96
Mrs. Inderveena Dr. Amit Jakhal	B.Sc. 2 nd Sem May 2018	Botany Theory & Practical	116	115	90	15	08	99.14	98.53	+0.39

B.Sc. II Med

	Name of the Examination	Subject Taught	No. of Students who appeared	No. of Students passed	No. of students obtaining I, II and III Division			College pass %	Univ. pass %	Difference (+ or -)
					I	II	III			
Dr. Madhumita Dr. Shikha Sharma	B.Sc. (3 rd Sem) Dec. 2017	Botany Theory & Practical	70	70	65	05	Nil	100%	97.46%	+2.54%
Dr. Anurita Sharma Dr. Shikha Sharma	B.Sc. (4 th Sem) May 2018	Botany Theory & Practical	70	70	65	05	Nil	100%	98.53%	+1.47%

B.Sc. III Med

	Name of the Examination	Subject Taught	No. of Students who appeared	No. of Students passed	No. of students obtaining I, II and III Division			College pass %	Univ. pass %	Difference (+ or -)
					I	II	III			
Dr. Vishal Sharma Dr. Harsh Manchanda	B.Sc. (5 th Sem) Dec. 2017	Botany Theory & Practical	98	98	86	8	4	100	98.55%	+1.45%
Dr. Vishal Sharma Dr. Harsh Manchanda	B.Sc. (6 th Sem) May 2018	Botany Theory & Practical	97	97	90	7	Nil	100	97.46%	+2.54%

Post-graduate results 2017-2018

Year	No. of students appeared	No. of students passed	Ist divisions	Distinction	Special Achievements
M.Sc. Sem II May 2017	22	21 (+ 1 RLL)	21	20	First 10 positions in Panjab University
M.Sc Sem IV May 2017	22	21 (+ 1 RLL)	21	19	1 st , 3 rd , 4 th , 5 th , 6 th , 7 th , 8 th and 10 th positions in Panjab University
M.Sc. Sem I Dec 2017	25	25	25	20	1 st , 2 nd , 3 rd , 4 th , 6 th and 10 th positions in Panjab University
M.Sc. Sem III Dec 2017	22	21 (+ 1 RLL)	21	21	First 10 positions in Panjab University

UNIVERSITY MERIT POSITIONS MAY 2018

BOTANY DEPARTMENT

M.Sc. Botany 4th Semester May 2018:

Sr.No.	University Roll No.	Name of the student	Position in University Exam
1	62221	Sarita	1 st
2	62209	Kirti	2 nd
3	62211	Navneet Kaur	3 rd
4	62202	Ankita Thakur	4 th
5	62213	Nishtha Jain	5 th
6	62216	Preeti	6 th
7	62222	Satinder Kaur	7 th
8	62212	Nisha Yadav	8 th
9	62217	Ramneet Kaur	9 th
10	62219	Reetika Basatia	10 th

M.Sc. Botany 2nd Semester May 2018:

Sr.No.	University Roll No.	Name of the student	Position in University Exam
1	33333	Swati	1 st
2	33321	Komalpreet Kaur	2 nd
3	33315	Arju	3 rd
4	33311	Aishwarya	4 th
5	33328	Preeti Devi	5 th
6	33331	Shivani Sharma	7 th
7	33320	Kishmita Sharma	8 th
8	33317	Harnoor Kaur Sidhu	10 th

B.Sc. 3rd Semester December 2018:

Sr.No.	University Roll No.	Name of the student	Position in University Exam
1	17061586	Monika	9 th

UNIVERSITY MERIT POSITIONS DECEMBER 2018

BOTANY DEPARTMENT

M.Sc. Botany 3rd Semester December 2018:

Sr.No.	University Roll No.	Name of the student	Position in University Exam
1	62602	Swati	1 st
2	62591	Komalpreet Kaur	2 nd
3	62585	Arju	3 rd
4	62597	Preeti Devi	4 th
5	62600	Shivani Sharma	5 th
6	62590	Kishmita Sharma	6 th
7	62584	Anmol Saini	8 th
8	62587	Harnoor Kaur Sidhu	9 th
9	62598	Priyanka Arora	10 th

M.Sc. Botany 1st Semester December 2018:

Sr.No.	University Roll No.	Name of the student	Position in University Exam
1	33532	Tania Jindal	3 rd
2	33533	Tripti	4 th
3	33517	Ishu	6 th
4	33514	Anjali Kashyap	7 th
5	33523	Rachna Thakur	8 th

- ❖ Students who have cleared national and state competitive examinations such as net, slet, gate, civil services, defense services, etc.
 - **Deachen Angmo** (M.Sc. Botany 2016 Batch) has qualified CSIR-JRF in Life Sciences (June-2017) and GATE (2017)
 - **Rigzin Chuskit** (M.Sc. Botany 2016 Batch) has qualified CSIR-JRF in Life Sciences (June-2017)
 - **Amrit Pal** (M.Sc. II Botany - 2017) has qualified GATE (2017) with All India Rank 2507 and has qualified Ph.D. entrance (in Life Sciences, 2017) of Jawahar Lal Nehru University, New Delhi
 - **Sagarika** (M.Sc. Botany 2017 Batch) has qualified Ph.D. entrance (in Life Sciences, Molecular Medicine and Biotechnology, 2017) of Jawahar Lal Nehru University, New Delhi

UNDER-GRADUATE RESULTS (2018-2019):

B.Sc. I

	Name of the Examination	Subject taught	No. of Students appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	University pass %	Difference (+ or -)
					I	II	III			
Mrs. Inderveena Dr. Amit Jakhal	B.Sc. 1 st Sem Dec 2018	Botany Theory & Practical	108	104	59	19	26	96.29	92.12	+4.17
Mrs. Inderveena Dr. Amit Jakhal	B.Sc. 2 nd Sem May 2019	Botany Theory & Practical	105	104	79	19	06	99.05	91.25	+7.8

B.Sc. II

	Name of the Examination	Subject taught	No. of Students appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	University pass %	Difference (+ or -)
					I	II	III			
Dr. Shikha Sharma Dr. Madhumita	B.Sc. 3 rd Sem Dec 2018	Botany Theory & Practical	97	95	69	19	07	97.94%	79.04%	+18.9
Dr. Anurita Dr. Shikha Sharma	B.Sc. 4 th Sem May 2019	Botany Theory & Practical	96	96	92	04	-	100%	75.32%	+24.68

B.Sc. III

	Name of the Examination	Subject taught	No. of Students appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	University pass %	Difference (+ or -)
					I	II	III			
Dr. Vishal Sharma Dr. Anju	B.Sc. 5 th Sem Dec 2018	Botany Theory & Practical	100	99	73	21	5	99	95.2	+3.8
Dr. Vishal Sharma Dr. Anju	B.Sc. 6 th Sem May 2019	Botany Theory & Practical	100	100	95	5	-	100	96.5	+3.5

POST-GRADUATE RESULTS (2018-2019):

Year	No. of students appeared	No. of students passed	Ist divisions	Distinction	Special Achievements
M.Sc. Sem IV May 2019	24	21 (+ 1 RLL)	21	20	1 st , 2 nd , 3 rd , 4 th , 5 th , 7 th , 8 th , 9 th and 10 th positions in Panjab University
M.Sc Sem II May 2019	22	22	22	20	First 10 positions in Panjab University
M.Sc. Sem III Dec 2018	24	24	24	20	1 st , 2 nd , 3 rd , 4 th , 6 th and 10 th positions in Panjab University
M.Sc. Sem I Dec 2018	22	22	22	20	First 10 positions in Panjab University








ACHIEVMENTS OF STUDENTS OF BOTANY DEPARTMENT 2018-2019

University positions of 4th SEM-May-2019				
S.No.	Name	Roll No	Positions	Marks
1	Swati	62582	First	1840/2000
2	Komalpreet Kaur	62571	Second	1788/2000
3	Arju	62565	Third	1778/2000
4	Preeti Devi	62577	Forth	1744/2000
5	Shivani Sharma	62580	Fivth	1742/2000
6	Kishmita Sharma	62570	Seventh	1709/2000
7	Priyanka Arora	62578	Eighth	1703/2000
8	Harnoor Kaur Sidhu	62567	Ninth	1699/2000
9	Anmol Saini	62564	Tenth	1698/2000

University positions of 2nd SEM-May-2019				
S.No.	Name	Roll No	Positions	Marks
1	Varsh Jasrotia	33233	First	849/1000
2	Tania Jindal	33231	Second	832/1000
3	Tripti	33232	Third	832/1000
4	Rachna Thakur	33223	Eighth	819/1000
5	Ishu	33217	Ninth	816/1000
6	Anjali Kashyap	33214	Tenth	793/1000

ACHIEVEMENTS OF STUDENTS OF BOTANY DEPARTMENT 2018-2019

Student progression to higher education					
Year	Number of students enrolling into higher education	Programme graduated from	Department graduated from	Name of institution joined	Name of Programme admitted to
2018	Kajal Saini	B.Sc. Medical	M.Sc. Botany Botany Department	Botany Department Panjab University, Chandigarh	Ph.D.

Students qualifying in state/ national/ international level examinations					
1	Sarita – Rank 79	NET – JRF (2018)	308225		
2	Amita Rawa – Rank 42	NET – JRF (2018)	310059		
3	Amrit Pal – Rank 89	NET – JRF (2018)	311663		
4	Simran – Rank 2698	GATE (2019)	XL19S28005037		
5	Komalpreet Kaur – Rank 2814	GATE (2019)	XL19S28026125		
6	Harnoor Kaur Sidhu – Rank 2361	GATE (2019)	XL19S28026077		
7	Kishmita Sharma – Rank 2268	GATE (2019)	XL19S28028136		

Under-Graduate Results (Session 2019-20)

B.Sc. I

	Name of the Examination	Subject taught	No. of Students appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	University pass %	Difference (+ or -)
					I	II	III			
Dr. Harsh Dr. Amit Jakhal	B.Sc 1 ST sem Dec2019	Botany Theory & Practical	108	108	98	10	NII	100	98	+2.0
Dr. Harsh Dr. Amit Jakhal	B.Sc 2 ND sem May 2020	Botany Theory & Practical	108	108	103	05	NII	100	98.4	+1.6

B.Sc. II

	Name of the Examination	Subject taught	No. of Students appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	University pass %	Difference (+ or -)
					I	II	III			
Dr. Shikha Sharma Dr. Madhumita	B.Sc.(3 rd sem) Dec. 2019	Botany Theory & Practical	97	96	80	13	03	100%	Not mentioned in the gazette	-
Dr. Anurita Dr. Shikha Sharma	B.Sc.(4 th sem) May. 2020	Botany Theory & Practical	97	97 (81+16 RLL)	80	1	-	100	-	-

B.Sc. III

	Name of the Examination	Subject taught	No. of Students appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	University pass %	Difference (+ or -)
					I	II	III			
Dr. Vishal Sharma Dr. Anju	B.Sc. 5 th Sem Dec 2019	Botany Theory & Practical	72	72	62	07	03	100	98	+2.0
Dr. Vishal Sharma Dr. Anju	B.Sc. 6 th Sem May2020	Botany Theory & Practical	72	72	72	-	-	100	98.4	+1.6

POST-GRADUATE RESULTS (SESSION 2019-2020):

Year	No. of students appeared	No. of students passed	1 st divisions
M.Sc. Sem I Dec 2019	23	23	23
M.Sc. Sem III Dec 2019	24	24	24
M.Sc Sem II May 2020	23	23	23
M.Sc. Sem IV May 2020	24	24	24





ACHIEVEMENTS OF STUDENTS OF BOTANY DEPARTMENT 2019

Perna of B.Sc. 1st year from our college is being awarded First Prize of Rs. 25000/- in “Jal Sanrakshan” Hackathon in poster competition titled “Innovative ideas and affordable solutions to conserve water” in the category of college students. This contest was organized by the Municipal Corporation, Chandigarh in conjunction with India Smart City Fellows, from the Ministry of Housing & Urban Affairs, Government of India.








University positions of 4th SEM-May-2019

S.No.	Name	Roll No	Positions	Marks	PHOTO
1	Swati	62582	First	1840/2000	 <p align="center">SWATI 1st Position MSc Botany Year-2019</p>
2	Komalpreet kaur	62571	Second	1788/2000	
3	Arju	62565	Third	1778/2000	
4	Preeti Devi	62577	Forth	1744/2000	
5	Shivani Sharma	62580	Fivth	1742/2000	

6	Kishmita Sharma	62570	Seventh	1709/2000	
7	Priyanka Arora	62578	Eighth	1703/2000	
8	Harnoor Kaur Sidhu	62567	Ninth	1699/2000	
9	Anmol Saini	62564	Tenth	1698/2000	 ANMOL SAINI

LIST OF TOPPERS OF M.Sc. IIIrd SEM (BOTANY)-DECEMBER-2019

University positions of 3rd SEM-Dec -2019					
S. No.	Name	Roll No	Positions	Marks	
1	Tania Jindal	33231	First	1281/1500	 <p>Tania Jindal Roll no. 33231 83.2% 2nd Rank M. Sc. 1 Botany 2nd sem 2019</p>
2	Varsha Jasrotia	33233	Second	1279/1500	 <p>Varsha position 1 (2018-2019) 84.9%</p>
3	Tripti	33232	Fifth	1260/1500	 <p>Tripti 33232 84.8% 2nd rank Msc.botany1, 2nd semester</p>
4	Ishu	33217	Sixth	1253/1500	 <p>Ishu Roll no. 33217 81.8% (7th rank) Msc1 botany 2nd sem 2019</p>
5	Rachna Thakur	33223	Seventh	1249/1500	 <p>Rachna Thakur 81.9% 8326 6th</p>

Following students of Botany Department has been selected for CSIR sponsored Online National Summer Research Training Programme (SRTP). The students will be trained in handling of recent sophisticated analytical instruments and equipment of high value. The SRTP comprise of online lectures by eminent scientists.

Sr.No.	Name	Class	Roll Number
1	Ridhi	M.Sc. II Botany	8309
2	Mansi	M.Sc. II Botany	8316
3	Kundalata	M.Sc. I Botany	12832

Under-Graduate Results (Session 2020-21)

B.Sc. I

	Name of the Examination	Subject Taught	No. of Students who appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	Uni v. pass %	Difference (+ or -)
					I	II	III			
Dr. Harsh Dr. Amit Jakhal	B.Sc I 1 st Sem Dec 2020 (Feb 2021)	Botany Theory & Practical	85	85	85	-	-	100	98	2.0
Dr. Harsh Dr. Amit Jakhal	B.Sc I 2 nd Sem May 2021	Botany Theory & Practical	84	84	84	-	-	100	98.4	1.6

B.Sc. II

	Name of the Examination	Subject Taught	No. of Students who appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	Uni v. pass %	Difference (+ or -)
					I	II	III			
Dr. Shikha Sharma Dr. Madhumita	B.Sc 3 rd sem Dec 2020 (Feb 2021)	Botany Theory & Practical	108	108	107	01	Nil	100 %	98.97%	+2.54
Dr. Anurita Sharma Dr. Shikha Sharma	B.Sc. 4 th Sem May 2021	Botany Theory & Practical	108	108	108	Nil	Nil	100 %	98.97%	+2.54







B.Sc. III

	Name of the Examination	Subject Taught	No. of Students who appeared	No. of Students passed	No. of students obtaining I,II and III Division			College pass %	Uni v. pass %	Difference(+ or -)
					I	II	III			
Dr. Vishal Dr. Anju	B.Sc. 5 th Sem Dec 2020 (Feb 2021)	Botany Theory & Practical	96	96	96	-	-	100	98	+2.0
Dr. Vishal Dr. Anju	B.Sc. 6 th Sem May 2021	Botany Theory & Practical	96	96	96	-	-	100	98.4	+1.6






❖ **POST-GRADUATE RESULTS:**







Year	No. of students appeared	No. of students passed	Ist divisions
M.Sc. Sem I Dec 2020	24	24	24
M.Sc. Sem III Dec 2020	25	25	25
M.Sc Sem II May 2021	24	24	24
M.Sc. Sem IV May2021	25	25	25

Botany Department - Merit positions
M.Sc. I (Botany) Sem 1 December 2021

Sr. No.	University Roll No.	Name of the student	Photograph	University position
1	33669	Naina		1 st in University
2	33665	Arushi Sharma		2 nd in University
3	33673	Nikita Vashist		6 th in University
4	33688	Ujjwal	 	8 th in University
5	33675	Pallavi Thakur		10 th in University

Botany Department - Merit positions
M.Sc. II (Botany) Sem 3 December 2021

Sr. No.	University Roll No.	Name of the student	Photograph	University position
1	62811	Kimmi Mittal		4 th in University
2	62825	Tamanna		6 th in University
3	62823	Simran		6 th in University
4	62816	Muskan Gupta		6 th in University
5	62804	Arshdeep Kaur		7 th in University

6	62826	Tamanna Sharma		8 th in University
7	62813	Minakshi Rana		8 th in University
8	62812	Manpreet Kaur		8 th in University
9	62815	Muskan		8 th in University
10	62801	Akshita Kumari		10 th in University
11	62819	Priya Thakur		10 th in University

Departmental Activities

(Session: 2017-18)

INDEX

S.No.	Activity	Date
1	Earth Day Celebrations	23 rd April, 2018
2	Van Mahotsav	29 th July, 2017
3	Campus cleanliness drive	5 th September, 2017
4	Documentary Movie on 'Rally for Rivers'	14 th September, 2017
5	World Ozone Day	16 th September, 2017
6	Anti-Cracker Awareness Campaign	17 th October, 2017
7	Educational Field trip	27 th -28 th October, 2017
8	Lecture cum workshop on Cancer Awareness	10 th November, 2017

Earth Day Celebrations

Earth Day was celebrated on **23rd April, 2018** by undertaking a tree plantation drive at college campus. Principal Prof. Dr. Anita Kaushal; Dean College, Dr. Rama Arora; Members Advisory Council other teaching and non-teaching faculty along with forty students of the College participated in the event. Dean Dr. Rama Arora apprised the staff members about the significance of the spiritual relationship between human beings and trees. Human beings get many services from trees which sometimes cannot be measured in term of economic calculation. She further added that one should plant trees in fallow lands and when one tree is chopped down two seedlings of trees should be planted. The plantation drive initiated in the sports ground at 10.30 am. Saplings of *Polyathia* were planted by Principal Prof. Dr. Anita Kaushal; Dean College, Dr. Rama Arora; Members Advisory Council and other teaching faculty of the College.



Members Advisory Council planting tree sapling



Planting of tree sapling by the teaching and non-teaching staff

Van Mahotsav

Van Mahotsav was celebrated on **29th July, 2017** where a massive tree plantation drive was undertaken under the greening Chandigarh action Plan. The Chief Guest of the function was Director Higher Education, Chandigarh Administration, Mr. R.K. Popli. The function was attended by senior faculty members, members of Environment Society, NSS and Students. Principal Dr. Anita Kaushal who is also the President of the Environment Society and the Alumni Association asked the faculty and the students of the college to adopt these plants and take special care of them. As many as 50 saplings of various ornamental, medicinal, avenue and Shade loving trees like Hibiscus, Amaltas, Gulmohar, Ashoka, Arjun, Kikar and Neem were planted in various areas of the College. 60 students participated.



Mr. R.K Popli, Director Higher Education planting tree sapling in college campus



Principal Ma'am Prof (Dr.) Anita Kaushal planting tree sapling in college campus

Campus Cleanliness Drive

A campus cleanliness drive was undertaken to celebrate Teacher's Day on **5th September, 2017**. The Celebrations were marked by cleaning campus area and conducting tree Plantation Drive by the students as a tribute and expression of gratitude to their guiding light, their teachers. The Chief Guest of the function was Principal Dr. Anita Kaushal. The function was attended by about 50 faculty members, members of Environment Society and students (70). Principal Dr. Anita Kaushal who is also the President of the Environment Society asked the faculty and the students of the college to adopt these plants and take special care of them. She also said that through such plantation drives, more and more people can be inspired to promote the importance of being at harmony with the environment. As many as 60 saplings of various ornamental, medicinal, avenue and Shade loving trees like Hibiscus, Amaltas, Bahera, Ashoka, Arjun, Kikar and Neem were planted in various areas of the College.



Faculty members and students planting saplings



Teaching & non-teaching staff planting saplings

Documentary Movie on ‘Rally for Rivers’

The undergraduate and post graduate students of College were shown a small documentary movie on 14th September, 2017 to create awareness and initiate action to save rivers which are dying. ‘Rally for Rivers’ campaign was launched by Isha Foundation to save the Life lines of this country to create awareness and momentum amongst all sections of society and the government. The message to the students was given that secure water resources are essential for individual well-being and for future economic growth of country. The rivers can be saved by maintaining substantial number of trees for at least one kilometer of width along the riversides. If there are no trees, a destructive cycle of floods and drought occur and rivers go dry because there is no moisture in the soil to feed them. With a comprehensive policy and resolve action our rivers can be nurtured so that they nourish the future generation. Thirty students participated. 30 students participated.



Brochure of the event

World Ozone Day

“World Ozone Day” was celebrated on **16th September, 2017**. The function started with the formation of Human Chain by the faculty and the student members of the society. This Human Chain terminated into a rally by the student members within the college campus. The students were carrying placards bearing slogans and messages like “Save Ozone”, “Stop Use of Deodorants And Perfumes”, “Save Ozone Save Earth”, “Reduce the use of CFC’s”, to sensitize people about the depletion of Ozone layer and the harmful effects of UV radiations on human beings. This rally was flagged off by the Vice Principal Mr. Kanwar Iqbal Singh and senior members of the Faculty, Vice Principal emphasized that Sustainable Development was the need of the hour. He appreciated the efforts of the society members and applauded their constructive role for the betterment of the society. The students along with the faculty members also took a pledge to preserve the ozone layer by decreasing the use of Chloro-fluorocarbons. 150 students participated.



Students and faculty members at the entrance of college



Students and faculty members participating in rally

Anti-Cracker Awareness Campaign

An awareness campaign on safe and pollution free Diwali was organized on **17th October, 2017**. More than 100 students participated in the awareness campaign. Following activities were organized during awareness campaign: 1. Human Chain formation and Anti Cracker Rally around the College and outer roads of Sector-11, 2. Pledge by Students and Faculty members of the Society. On this occasion a human chain was formed and a rally was organized by the members of faculty and students (80). The rally was flagged off by Principal Prof. (Dr.) Anita Kaushal. She emphasized the importance of celebrating on Eco friendly Deepawali and thereby reducing the air and noise pollution. This was followed by a pledge by the faculty members and students to celebrate a safe and pollution free Diwali by not bursting crackers and thereby protecting the environment. They further pledged to spread this message to one and all.



Students showing slogans during rally



Students during rally inside the College

Educational Field trip

An Educational Field trip was organized to the Mussorie for M.Sc. Botany students **on 27th & 28th October, 2017**. Twenty-two students of M.Sc. II along with twenty-five students of M.Sc. I, were benefitted by active participation in this educational activity. Four faculty members Dr. Anurita Sharma, Dr. Madhumita Bhattacharjee, Dr. Harsh Manchanda and Dr. Anju Pehwal along with the two lab staff members Mr. Hari Om and Mrs. Manjeet accompanied the students. The students were made aware of wild flora at various sites at Paonta, Dehradun and Mussoorie. Students learnt various species of Bryophytes, Pteridophytes, Angiosperms and Gymnosperms prevalent in the area.



Students during educational trip



Students apprised of wild flora

A lecture-cum-workshop on “Cancer Awareness”

Department of Botany organized a lecture cum workshop on Cancer Awareness on **10th November, 2017** as a part of Cancer Awareness Programme. A team headed by Prof. (Dr) Sushmita Ghosal, HOD, Department of Radio-therapy, Dr. Renu Madan delivered a lecture on Breast Cancer and Cervix Cancer to UG and PG students. In her lecture she sensitized the students about the early signs and symptoms of these two types of cancers and how these can be prevented at an early intervention. Lecture was followed by an interactive session by Dr. Sushmita Ghosal, in which she answered various queries of the students (50) regarding the topic.



Dr. Sushmita Ghosal answering queries of the students

Departmental Activities

(Session: 2018-19)

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S. No.	Activity	Date
1	Akshaya Urja Diwas	24 th August, 2018
2	Poster Making Competition and Power Point Presentation	18 th & 19 th September, 2018
3	Anticracker Awareness Campaign	2 nd Nov, 2018
4	Inauguration of Windrow Composting Unit	9 th March, 2019
5	Visit to Water Treatment Plant	25 th March, 2019
6	Tree Plantation Drive	30 th April, 2019

Akshaya Urja Diwas

Akshaya Urja Diwas was celebrated on **24th August, 2018**. The function was sponsored by Chandigarh Renewable Energy Science and Technology Promotion Society (CREST). Various Inter college Competitions like Slogan Writing, Poster Making and Face Painting Competitions on the theme “Impact of Akshaya Urja in India” were held. Prof. Vasundhara Singh gave presentation on “Renewable Energy: Solar Energy and Biomass to Energy”. The talk included an insight into The Indian Scenario of Renewable energy and energy requirements. The function concluded with the prize distribution ceremony wherein Principal of the College, Professor Dr. Anita Kaushal, distributed prizes to various prize winners of Inter College Competitions. 150 Students participated.



Students participating in Rangoli making competition



Students participating in Poster making and slogan writing competitions

Poster Making Competition and Power Point Presentation

Green Thumbs – The Botanical Society, Prakriti – The Environmental Society and Science Society of Post Graduate Government College for Girls, Sector-11, Chandigarh organized a two days activity of Poster Making and Power Point Presentation Competition on **18th & 19th September, 2018**. About 100 students from the college registered for the competitions. Power Point presentation competition held separately for the Post Graduate and Under Graduate students. Presentations covered the topics Ozone Layer depletion, Global Warming and Cancer.



Power Point Presentation competition by PG & UG students



Judgement of Poster making competition

Anticracker Awareness Campaign

An awareness campaign was organized on safe, pollution free and cracker free Diwali on **2nd November, 2018**. More than 200 students participated in various activities organized during the event. Following activities were organized during awareness campaign: Slogan writing/ Placard making and Poster making competition on theme GREEN DIWALI/ Ecofriendly Diwali; Human Chain formation and Anti Cracker Rally within the College campus and inner roads of Sector-11 outside the College; Pledge by Students and Faculty members of the College; and Poetry recitation competition on hazardous impacts of crackers by students. On this occasion a human chain was formed and a rally was organized by the members of faculty and students. The rally was flagged off by Principal Prof. (Dr.) Anita Kaushal. She emphasized on the importance of celebrating on Eco friendly Deepawali and thereby reducing the air and noise pollution.



Principal Prof. Dr. Anita Kaushal showing flag to rally



Teachers and students participating in 'Anticracker awareness rally'

Inauguration of Windrow Composting Unit

Windrow Composting unit was inaugurated in the college on **9th March, 2019** by Prof. (Dr.) Anita Kaushal, Principal of the college. Windrow composting is a recent and simple biological process of Organic waste management. Its main utilization is for stabilization of organic matter and its conversion into valuable soil thereby improving its physical properties. It reduces risks of odor, decreases soil and water pollution and maintains optimum Carbon and Nitrogen ratio (C:N). All food waste (100%) from the college food-service operations is collected in windrow composting plant and compost is generated. This compost is used on college land including landscaping, maintenance of lawns and raising of flower beds making it an organic college. Principal applauded the efforts of Programme Coordinator Dr. Vishal Sharma (Associate Professor in Botany) and stressed on restoration of environmental degradation and making the campus fully organic. Fifty students participated in the event.



Inauguration of Windrow Composting Unit by Principal Prof. Dr. Anita Kaushal



Dr. Vishal Sharma (Associate Professor in Botany) explaining the methodology

Visit to Water Treatment Plant

A visit to Water Treatment Plant Sector-39, Chandigarh on **25thMarch, 2019** was organized to mark “World Water Day” The students experienced the process of water purification with the help of alum, sedimentation, flocculation and filtration process. The significance of adding chloride was also elaborated to the students. It was a wonderful experience for the students.



Students visiting Water Treatment Plant

Tree Plantation Drive

Mrs. Suman Malhan (Head, Department of Physical Education), Mrs. Neeraj Aggarwal (Head, Department of English), Prof. (Dr.) Anil Kumar (Department of Physics), Prof. (Dr.) Nirupma Luthra (Vice Principal), Dr. Kuldeep Kaur (Associate Professor, Department of Psychology), Dr. Madhurima Sharma (Head, Department of Zoology) and Mr. Shashikant (Associate Professor, Economics) along with other faculty members of the College planted tree saplings of avenue trees such as Gulmohar, Ficus and Palash in lawn in front of administrative Office on **30thApril, 2019**.



Dr. Madhurima Sharma (Head, Department of Zoology) planting tree sapling



Prof. (Dr.) Anil Kumar (Department of Physics) planting tree sapling

Departmental Activities

(Session: 2019-2020)

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S. No.	Activity	Date
1	Van mahotsav	26 th July, 2019 To 31 st July, 2019
2	World Environment Day	6 th June, 2019
3	World Wetland Day	3 rd February, 2020
4	One Day Workshop On Medicinal Plants And Their Cultivation	6 th February, 2020
5	Swachhta Pakhwada	1 st March to 15 th March, 2020
6	Poster Making Competition and Dry flower arrangement to celebrate International day for Biological Diversity (IDB). Platform: Zoom	22 nd May, 2020
7	Online Inter-College declamation Competition Platform: Cisco-Webex	5 th June ,2020
8	Virtual National Seminar on Science and Technology for Human welfare and its effects on Conservation Platform: Cisco-Webex	14 th June, 2020
9	First Cleanathon (Sanitation and Fumigation Drive)	24 th to 28 th June, 2020
10	Regional Colloquium: An Intellectual Discussion Series Platform: Cisco-Webex	30 th June, 2020

Van Mahotsav

Van Mahotsav was celebrated by organizing a Tree Plantation Drive from **26th July, 2019 to 31st July, 2019**. The Drive was organized in collaboration with NSS, NOSTALGIA-the Alumni Association of the College and Dainik Jagran Group of Newspapers. Chief Engineer Mr. Mukesh Anand was the Chief-guest on the occasion. He planted saplings of Chandni; and Prof. Anita Kaushal, Principal of the college planted saplings of Hibiscus. Senior faculty members Mr. Jasbir Singh, Head, Department of Punjabi and Mrs. Harjeet Kaur, Head, Department of Mathematics who was superannuating on 31st August 2019 also planted tree saplings. Faculty members, alumni, distinguished guests, media persons and volunteers of Prakriti and NSS also planted tree saplings of Neem, Guava, Kadamb etc. The objective of the plantation drive was to promote environment conservation, beautification of the campus and landscaping. Addressing faculty and students on this occasion, Principal of the college stressed the growing significance of tree plantation in the wake of sustainable development.



Principal Prof. Dr. Anita Kaushal planting tree sapling

World Environment Day

World Environment Day was celebrated on **5th June, 2019** by organizing the following events for the children of teaching and non-teaching employees of the college: 1. Painting and decorating the pots; 2. How to plant a sapling in a pot and post plantation care of the same; and 3. Poetry recitation regarding cleanliness, environment protection, health and hygiene. About 15 children in the age group of 4-8 years of teaching and non-teaching employees of the College took part in various events on world Environment Day. The tiny tots painted and decorated the pots beautifully. They were taught how to plant the saplings in the pot and how to take post plantation care. Youngest of the children Garima recited a beautiful poem covering on health, hygiene and cleanliness. Principal of the college, Prof. (Dr). Anita Kaushal lauded the efforts of the society and asked the children to do their best for Mother Nature and play a very proactive role in conserving the environment by planting more trees and not using plastics. The Function concluded with the prize distribution ceremony by the Principal of the College.



Poster making competition



Prize distribution function

World Wetland Day

World wetland day was celebrated on **3rd February, 2020** (Monday) in the college. Various Competitions like Slogan Writing, Poster Making, Quiz, Lecture and Skit on the theme “Wetland Conservation and Biodiversity” were held. About 150 undergraduate and postgraduate students participated in various competitions. Events Organized were:

- 1 Poster making Competition on Wetland Conservation and Biodiversity
- 2 Slogan Writing Competition on Wetland Conservation and Biodiversity
3. Quiz on Wetland Conservation and Biodiversity
4. Lecture on wetland and Biodiversity
5. Skit on Water Conservation



Display of Posters and Slogans made by students



Chief guest and Principal Ma'am Viewing Posters and Slogans

One Day Workshop on Medicinal Plants and Their Cultivation

Post Graduate Department of Botany and PRAKRITI-The Environment Society, PGGCG-11, Chandigarh organized a one-day Workshop on Medicinal Plants and their Cultivation on Thursday **6th February, 2020** at PGGCG-11, Chandigarh. The programme was sponsored by Department of Environment, Chandigarh Administration. Mr. Debendra Dalai, Chief Conservator of Forests, Director Environment and Director Science & Technology, Chandigarh Administration was the chief guest of the day. Environment Society Incharges of various colleges of tricity, faculty and students of Botany Department and PRAKRITI- The Environment Society participated in the Workshop. This was followed by tree plantation ceremony by the Chief Guest, Principal Prof. Dr. Anita Kaushal, and other distinguished guests. Saplings of laxmi- taru and Bougainvillea were planted in the Herbal Garden. In Next session Mr. Om Parkash, Principal coordinator Eco clubs Chandigarh and Advisor National Ayush Mission Chandigarh, gave Demonstration on various Kitchen Herbal Plants and their Cultivation. This was followed by a lecture cum presentation on Herbal Plants and their Uses by Mrs. Baljinder Kaur, Lecturer in Chemistry and Incharge Eco Clubs Chandigarh.



Principal Ma'am addressing the students and faculty members



Tree plantation by Chief Guest, Principal and faculty members

Swachhta Pakhwada

Swachhta Pakhwada was organized under Swachh Bharat Mission from **1st to 15th March, 2020.**

Following activities were organized:

1. Essay Writing Competition on the theme “Best Practices in Solid Waste Management” on 13.03.2020 in Botany Lab III at 10.00 am (Word Limit:800-1000 words, Time Limit: 1 hour, Language: English). The topics were:
 - Composting, Vermicomposting
 - Window Composting
 - Segregation of Biodegradable and non-biodegradable.
2. Pledge on Swachh Bharat Mission on 13.03.2020 at 12.30 am in Room No. 129
3. Certificate Distribution of Essay writing competition on 13.03.2020 at 11.30 am in lawn in front of office.



Students participating in Essay writing competition



Swachhta Pledge being administered by Ms. Inderveena Sharma, Coordinator Environment Society and Ms. Karun Lekha, Coordinator NSS

Poster Making Competition and Dry flower arrangement to celebrate International Day for Biological Diversity (IDB); Platform: ZOOM

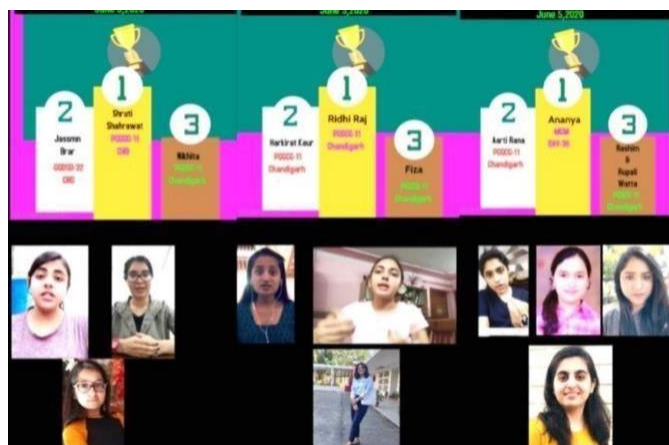
Biodiversity is the living fabric of our planet. This year the International Day for Biological Diversity is targeted towards raising awareness and building momentum on the importance of biodiversity as well as global issues on biodiversity loss and the theme of the **International Day for Biological Diversity (IDB)** on **22nd May, 2020** is "**Our solutions are in nature**". Against this backdrop, Botany Department of NAAC Grade 'A' accredited, Post Graduate Government College for Girls, Sector-11, Chandigarh, organized the various online competitions (Poster making, Dry flower arrangement) to celebrate the International Day for Biological Diversity (IDB) in Biodiversity Week (18 -22 May 2020) to create mass awareness. Nearly 250 students from different states Punjab, Haryana, Delhi, Chandigarh Himachal Pradesh participated in these competitions. The Chief Guest, Prof. Anita Kaushal stressed that these online competitions increase society understanding, appreciating, safeguarding biodiversity sustainability and a perfect community outreach process to reverse the decline of biodiversity. The results of Poster making and dry flower arrangement on theme Biodiversity are: In Poster making competition: Dharvi Bhagat, Roll No:1164(B.SC1) stood first; Gurnoor, Roll No.12838 (M.Sc 1) stood second and third position bagged by Tanya Gupta, Roll No,7544(B.Sc111) In Dry Flower Arrangement: First: Surbhi Kashyap M.Sc1 12813; Second: Monika Yadav M.Sc1 12818; Third: Prabhdeep Kaur M.Sc1 12812.



Poster making competition

Online Inter-College declamation Competition; CISCO-WEBEX

Botany Department of Grade 'A' accredited with CGPA 3.52 Post Graduate Government College for Girls, Sector 11, Chandigarh organized an Inter-College Declamation contest on **5th and 6th June, 2020** on research oriented scientific topics i.e. Artificial intelligence, Artificial trees, recombinant DNA, Ozone, which are of immense importance in present Covid era. Declamation competition helps to enhance participant diction, stage presentation skills and boost their confidence. The competition was held in Undergraduate and Postgraduate categories. Around 100 participants of five different colleges of Chandigarh, DAV-10, PGGC-11, PGGCG-11, MCM DAV- 36 and SD college took part in completion and they are assessed at different levels before the final of the event which is held for two days (**5th and 6th June, 2020**) on the eve of Environment day.



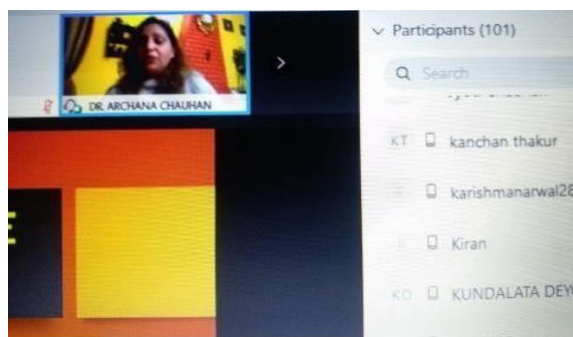
Result of Inter-College declamation Competition

Virtual National Seminar on Science and Technology for Human welfare and its effects on Conservation; Platform: CISCO-WEBEX

Post Graduate Government College for Girls-11, Chandigarh organised an Online Virtual National Seminar on **14th June, 2020** on “Science and Technology for Human welfare and its effects on Conservation”. The seminar, a perfect blend of traditional and modern tools of diversity and human welfare, had scientific and innovative sessions. The prominent personalities of the science field, Prof. Promila Pathak, Prof. Alok Srivastava, Dr, Mukesh Jewariya and Dr Archana Chauhan, participated in an academic interaction and apprised students about the finer details of the Orchid science, Bar coding, Laser and Entropy in conservation and Human welfare. Today’s seminar, was attended by more than 100 students of five colleges of Chandigarh, and was in synchronization with the theme “Our solutions are in nature”, hence is of importance in the COVID era. Principal Prof (Dr) Anita Kaushal urged the students to be keen observers for developing new technologies and lauded the effort of the Departments of Science (Botany Chemistry, Physics and Zoology), in providing platform for students to uptake knowledge in this COVID-19 testing time.



Brochure of the event



Virtual National Seminar on Science and Technology

First Cleanathon (Sanitation and Fumigation Drive)

Botany Department organized a five day cleanliness drive called Cleanathon (cleanliness and sanitation drive) bi-annually in the sprawling campus. The college stand to the fundamentals of prosperity with cleanliness and nurturing the young girls mind, who are about to foot in the world scenario with value based education regarding cleanliness, its awareness and benefits. The first Cleanathon was organized on **24th to 28th June, 2020** in which around 105 teaching and non- teaching staff members took part. The cleanliness drive has taken place first in class rooms in scheduled manner, which should have a positive ambience for students in the coming academic session. After the classrooms, the laboratory of science Departments are cleaned. The state of cleanliness remain a power indicator and after cleanliness, a sanitation team, conducted sanitation and fumigation drive at administrative building, hostels, classrooms, and dispensary of the campus. During the drive, awareness was given to the cleaning staff of the college, how to protect themselves from Dengue, Malaria and Covid-19. The sanitation drive conducted in two stages in campus, in which the primary stage is the sanitation of administrative block ,hostels, class room, Laboratories, toilets and food services (Canteen, Mess) and in the secondary stage, the sanitation of the gardens and garbage segregation & collection points of the campus was done.



Sanitation and Fumigation of canteen



Sanitation and Fumigation of classrooms

Regional Colloquium- An Academic Interaction

The first colloquium series on **30th June, 2020** was organized on theme, Conservation and Sustainability with enlighten lecture delivered by Prof. Neelu Sood, Chairperson, Kurukshetra University, Kurukshetra on Harvest from Pollution (Encash Pollution) and attended by more than 100 students.



Brochure of the event



Regional Colloquium

Departmental Activities

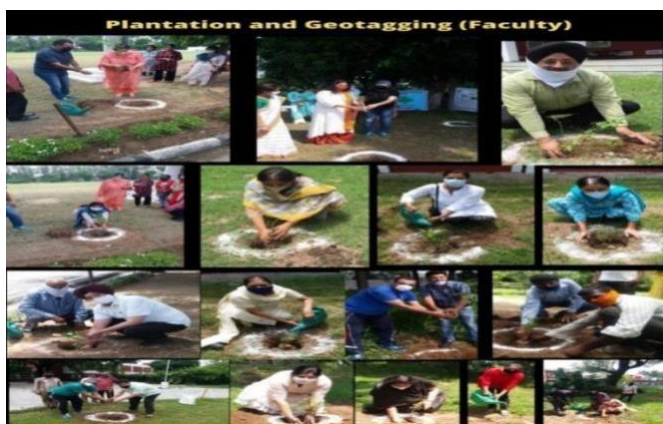
(Session: 2020-2021)

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S. No.	Activity	Date
1.	Regional Campaign on Plantation and Geo-tagging	16 th July, 2020
2.	Release of Wall Magazine “New Scientist-A Periodical ‘Rafflesia’ Issue 1	17 th July, 2020
3.	Tree plantation drive to celebrate 74 th Independence Day	15 th August, 2020
4.	Sapling plantation on Ozone day	16 th September, 2020
5.	Intra-College Declamation Contest	20 th September, 2020
6.	Talk on topic “COVID-19 in Relation to Environment” to celebrate World Habitat Day	5 th October, 2020
7.	Cleanathon (Sanitation & Fumigation drive)	18 th November to 23 rd November, 2020
8.	Web Talk of Full Proof Strategy to Crack the CSIR-NET Examination	21 st March, 2021
9	Colloquium series 3 on Climate change and Carbon Footprint: An International Chapter	16 th April, 2021
10	Colloquium Series 4 on Role of Biotechnology in Conservation of Biological Materials	22 nd May, 2021

Regional Campaign on Plantation and Geo-tagging

Van Mahotsav is an annual tree plantation movement in India celebrated on **16th July, 2020** to create awareness about the bad effects of deforestation. Botany Department, Post Graduate Government College for Girls, Sector 11, Chandigarh, is taking initiative to organise “Regional Campaign on Plantation and Geo-tagging” with the theme “If you plant a tree, you plant a life”. The objective of the campaign is to encourage community outreach and to raise public awareness on environmental pollution and plant conservation. The pioneer campaign witnessed massive public support and cooperation; around 400 people from Chandigarh, Delhi, Haryana, Himachal and Punjab participated, belonging to different strata of society ranging from, businessmen, doctor, lecturers students and housewives. The main aim of Geo-tagging plantation is preservation of nature and eco-restoration, a best gift to society.



Plantation and Geo-tagging by teaching faculty



Plantation and Geo-tagging by non-teaching faculty

Release of Virtual Wall Magazine “New Scientist-A Periodical ‘Rafflesia’ Issue 1

Botany Department, Post Graduate Government College for Girls, Sector 11, Chandigarh, launched a Virtual wall magazine “New Scientist-a periodical, on 17th July, 2020. It is an integral part of Botany Department, where students refresh their knowledge with recent findings and express their skills posting articles. “New Scientist-a periodical”, an extraordinary window for learning opened the doors of creativity and nurtured students imaginations and give wings to young girls to soar the sky. It provides a beautiful medium to enable the students to express their internal feelings, developing positive and desirable qualities and learn writing skills. The main objectives of mobilizing virtual wall magazine in this COVID-19 era is to reflect the identity of education institute and provide a wonderful platform for these young potential ones to show case their talent and express themselves into a conglomeration in COVID-19 era and to initiate community outreach, pupil-teacher interaction and provide forum to communicate opinions, ideas and information of students activities-an excellent community outreach.



Cover page of Virtual Wall Magazine

New Scientist-Periodical "Rafflesia"	
Vol. 1, June-July, 2020	
Post Graduate Government College For Girls Sector 11 Chandigarh	
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Tree plantation drive to celebrate 74th Independence Day

Botany Department organized a tree plantation drive in the campus to mark the 74th Independence Day, celebrations on **15th August, 2020**. The function was attended by special invitee, Mr Kuljeet Singh Sandhu, Sarpanch Dhanas Village, adopted by College under Unnat Abhiyan, faculty members and programme officers of NSS. More than 100 saplings of medicinal and ornamental trees of *Azadirachta indica* (Neem), *Butea monosperma* (Flame of the Forest; Palash), *Cassia fistula* (Amaltas), *Mangifera indica* (Mango), *Mimusop selengi* (Maulsari), *Tamarindus indica* (Imli), *Putranjiva roxburghii* (Putranjiva), *Tinospora cordifolia* (Giloy) were planted across the campus maintaining social distancing norms.



Tree plantation by Principal Prof. Dr. Anita Kaushal



Tree plantation by Sarpanch Dhanas Village

Sapling plantation on Ozone day

Botany Department (Green Thumb) of Post Graduate Government College for Girls, Sector 11, Chandigarh carried out plantation drive on the occasion of International Ozone day on 16th **September, 2020**. Teaching faculty from various department such as English, Hindi, Punjabi, Political Science, Public Administration, Geography, Botany, Zoology, Physics and Chemistry planted more than 100 multipurpose trees of medicinal and ornamental value i.e Ashoka (*Saraca indica*), Azadirachta indica (Neem), GulMohar (*Delonix regia*), Mango (*Mangifera indica*), Harshingar (*Nyctanthes arbortristis*), Palash (*Butea monosperma*), Tecoma (*Tecoma stans*). The importance of growing trees to bring down carbon dioxide emissions and thereby hamper depletion of the ozone layer. The ozone layer prevents high frequency ultraviolet rays of the sun from reaching the earth, thus protecting human beings from skin cancer and host of other diseases.



Sapling plantation by Dr. Tanuja Pathak, English Department



Sapling plantation by Dean, Dr. Ajay Sharma

Intra-College Declamation Contest

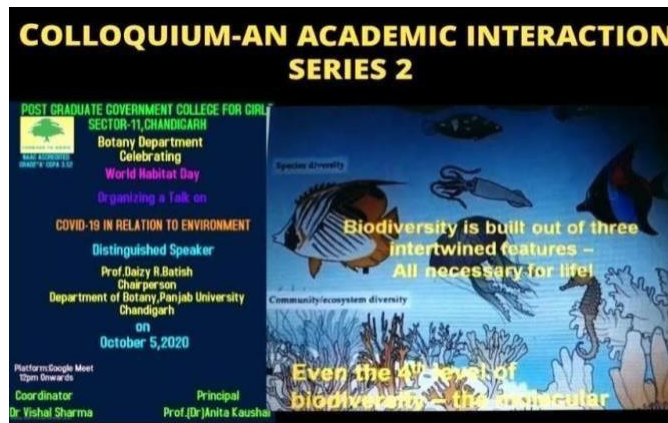
Botany department organized declamation contest on topic “To facilitate parallel study on impact of 1918 Spanish pandemic and Covid-19 with mitigation measures adopted to control pandemics “on **20th September, 2020** in which more than hundred UG and PG students participated. Declamation helps to enhance participant diction, stage presentation skills, boost their self-confidence and public speaking skills. The participants gain valuable skills that will serve them well in the years and decades ahead. The declamation competitions offers a chance for participants to gain substantial experience, evaluate outcomes and a great platform to display knowledge and skills amasses over a years.



Students participating in Intra-College Declamation Contest

Talk on topic “COVID-19 in Relation to Environment” to celebrate World Habitat Day

The second series of Colloquium-an academic interaction occurred on **5th October, 2020** on theme Biodiversity and lecture was delivered in backdrop of COVID-19 by Prof. Daizy R. Batish, Chairperson, Botany Department, Panjab University, Chandigarh on Covid-19 in relation to Environment and the lecture which focused on effects of COVID-19 on environment and mitigation measures to deal with it, was attended by 100 UG & PG students.



Brochure of the event

Cleanathon (Sanitation and Fumigation Drive)

Botany Department organized a five day cleanliness drive called Cleanathon (cleanliness, sanitation and fumigation drive) bi-annually in the sprawling campus. The second cleanathon was organised on **18th to 23th November, 2020**, in campus .in pursuant to the vision of Principal, Prof. (Dr) Anita Kaushal. The cleanathon is a social project in which the hostels and the adjoining areas are also cleaned to promote healthy and hygienic surroundings. The sanitation drive creates the infectionless and cleaner environment. The college stand to the fundamentals of prosperity with cleanliness and nurturing the young girls mind, who are about to foot in the world scenario with value based education regarding cleanliness, its awareness and benefits.



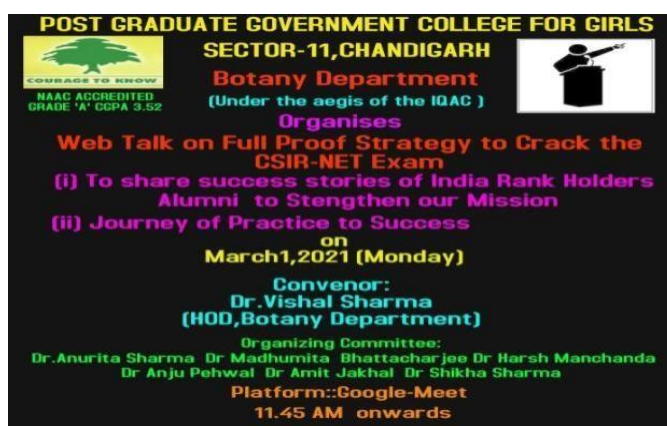
Fumigation in class rooms



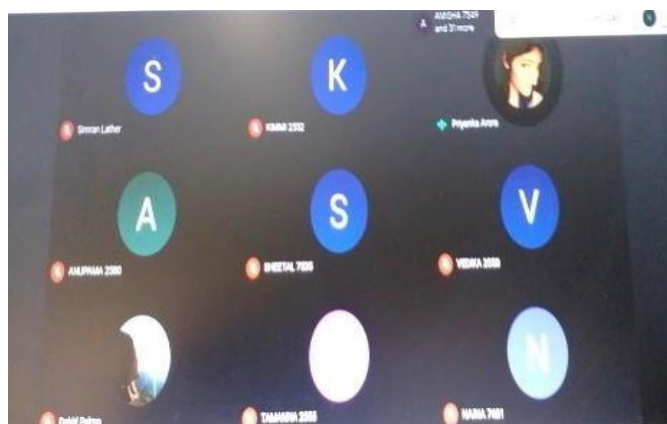
Fumigation outside the Departments

Web Talk of Full Proof Strategy to Crack the CSIR-NET Examination

A web talk was organized on **21st March, 2021** to apprise the students of various strategies to crack CSIR-NET. In this event, alumni of the college who were able to crack CSIR-NET were invited. They interacted with the students and answered their queries. The main inferences of the Alumni talk were: Time Management Skills, Practice Mock Tests, Positive Attitude, Examination Analysis and Clear Concepts. The practice of going through previous UGC NET Examination papers and tries to analyze the frequency or the pattern of repeating questions/concepts, as this to be useful for most students. Approximately 40 PG students along with 5 teachers attended the talk.



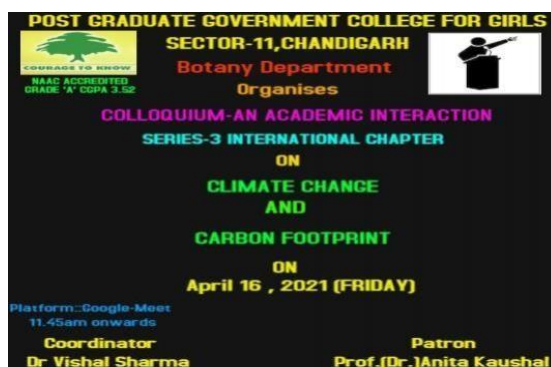
Brochure of the event



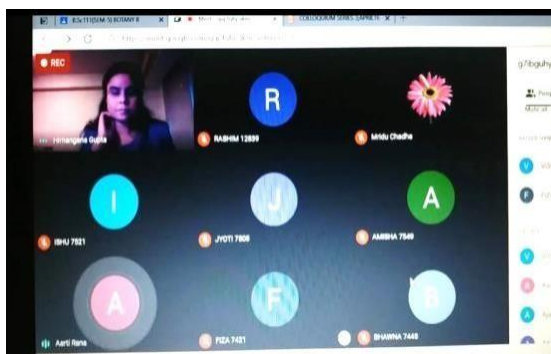
Web Talk of Full Proof Strategy

Colloquium series3 on Climate change and Carbon Footprint: An International Chapter

A Colloquium (an academic conference) was organized on **16th April, 2021**. The distinguished speaker of the series is Himangana Gupta, a JSPS-UNU Postdoctoral Fellow at the University of Tokyo and United Nations University Institute for the Advanced Study of Sustainability (UNU- IAS). She is a certified expert in climate adaptation finance and adaptation ambassador of the Frankfurt School of Finance and Management, Germany. She stressed on reducing the atmosphere carbon footprints, which results climate change and to have sustainable development, the carbon mitigation is necessary. A large number of students (approx. 100) harvested knowledge listening to the series of lectures. The Colloquium showcased student research through poster and oral presentations and provide platform to the undergraduate and postgraduate students to share their views and research and improve their diction and presenting skills.



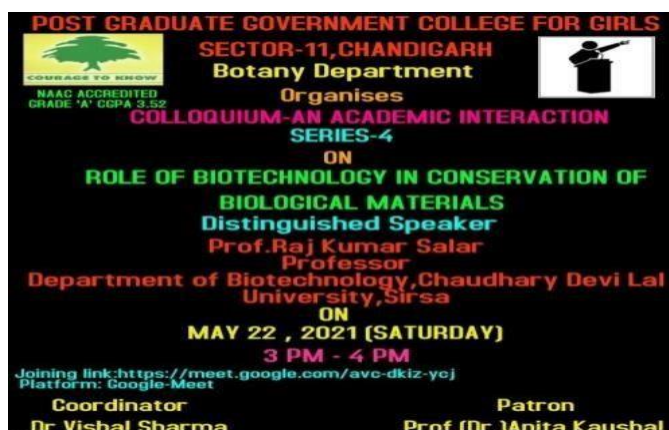
Brochure of the event



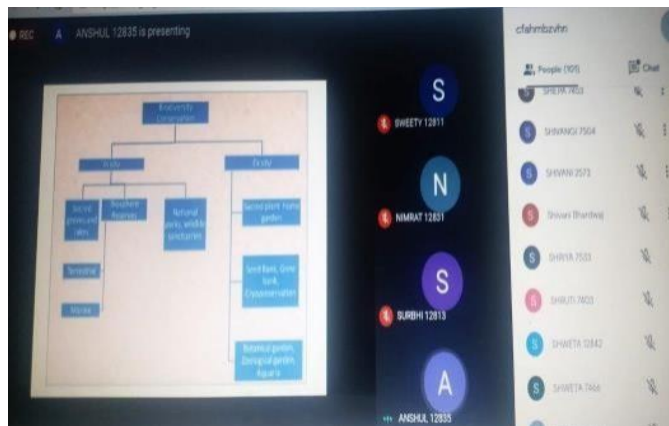
Colloquium series 3 on Climate change and Carbon Footprint

Colloquium series 4 on Role of Biotechnology in Conservation of Biological Materials

The Colloquium provides a friendly interface that allows panel members to input data and monitor the execution study. The series 4 of the colloquium was held on **22nd May, 2021** to celebrate International Day of Biological Diversity. Prof. Raj Kumar Salar, Professor Department of Biotechnology, Chaudhary Devi Lal University, Sirsa appraised more than 100 PG and UG students about the recent advances in the field of Biotechnology and its role in Conservation of Biological Materials.



Brochure of the event



Colloquium series 4

Departmental Activities

Session-2021-22

S.No.	Activity	Date
1.	Environment Day Celebrations: No Plastic Day-Be Part of the solution	5 th June, 2021
2.	Intra college Declamation contest on World Environment Day	5 th to 8 th June, 2021
3.	Rally on International Plastic Bag Free Day	3 rd July, 2021
4.	National Campaign on Plantation and Geo-tagging	16 th to 30 th July, 2021
5.	Tree Plantation drive on Ozone	16 th September, 2021
6.	Tree Plantation drive to celebrate Azadi ka Amrit Mahotsav.	10 th to 26 th February, 2022
7.	Colloquium-An Academic Interaction (Series 5)	28 th February, 2022
8.	Virtual workshop on “Swachhta Action Plan and Sustainability Effort in Higher Education Institutions	6 th March, 2022
9.	Celebration of World Water Day at Regional Institute of English	22 nd March, 2022
10.	Environment Celebrations a. Colloquium b. Waste to Wealth - Workshop & Exhibition c. Poster and Slogan competition on Climate Change d. Tree Plantation drive	5 th & 6 th June, 2022

Environment Day Celebrations: No Plastic Day-Be part of the Solution

Botany Department of Post Graduate Government College for Girls, Sector-11, Chandigarh, celebrated Environment Day on **5th June, 2021** by organizing 'No Plastic Day-Be part of the Solution' by taking initiative on this day to make campus plastic free on every Saturday. For this a poster making competition was organized in which about 100 students participated with enthusiasm. PGGCG-11 has been recently conferred with Green Champion Award by MGNCRE, Ministry of Education, Government of India for its exemplary performance in eco-restoration, generates 170 kg solid waste per day, of that 17.6% is plastic waste. The objective of campaign is to encourage community outreach and to raise public awareness about the dangers brought by non- biodegradable plastic products. The college organised various activities like poster making and slogan writing competitions and interaction with stakeholders in past to mitigate the negative effects of solid waste generated and create mass awareness among students and stakeholders.



Brochure of the event



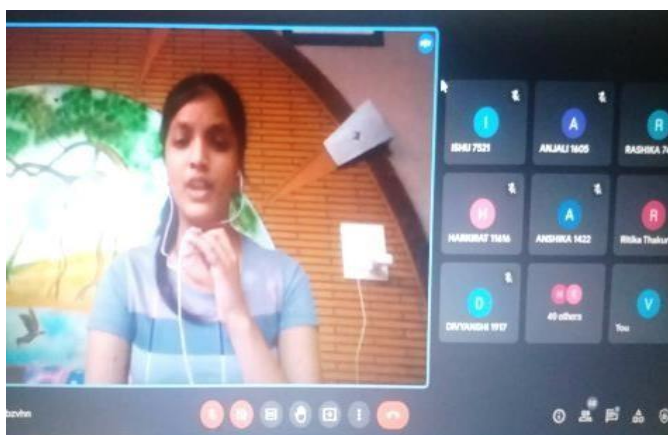
No Plastic Day-Poster Making

Intra college Declamation contest on World Environment Day

In order to create mass awareness, Botany Department organising “Intra-College Declamation content on **8th June, 2021** on topics: Artificial Intelligence-A Game Changer for Climate Change, Human Computer Interface, Artificial/Synthetic trees, Role of recombinant Biotechnology in Human welfare, “We’re art of Solution”, Recent innovation in Basic Sciences, Global Warming, Ozone Layer Depletion. Students were apprised of the history of WED. In 1972, the UN General Assembly designated June 5 as World Environment Day (WED). The first celebration under the slogan “Only One Earth” took place in 1974. WED, a pinnacle of environment activities has developed as a platform to raise global awareness on the problems facing our environment (air pollution, plastic pollution sustainable consumption, global warming and food security) and need to take positive environmental actions. 100 students from PG and UG classes participated in the event.



Brochure of the event



Intra college Declamation contest

Rally on International Plastic Bag Free Day

PGGCG-11, Chandigarh along with other Educational Institutes of the city (under the aegis of Directorate Higher Education) launched a campaign on “No Plastic Bags Every Saturday” on **3rd July 2021**, which is celebrated as International Plastic Bag free day, a global initiative that aims to eliminate the use of plastic bags. The campaign has promoted 3R-Reduce, Reuse and Recycle plastic bags to manage approx.17.6% plastic waste in the institutes. The objective of the campaign is to support the government effort to preserve the environment and improve knowledge awareness amongst households on eco-restoration and to plastic free campuses in the coming days. All colleges organised various activities like rallies, poster making and slogan writing competitions and interaction with stakeholders in the past to create mass awareness and around 50 thousands students, teaching and non-teaching faculty took pledge on the day to mitigate the negative effects of single use plastics and plastic items to achieve zero waste sustainable future.



Brochure of the event



Rally on International Plastic Bag Free Day

National Campaign on Plantation and Geo-tagging

Department of Botany (Green Thumbs), Post Graduate Government College for Girls, Sector 11, Chandigarh, has taken initiative to organize “National Campaign on Plantation and Geo-tagging” **16th July to 30th July, 2021** with a theme “If you plant a tree, you plant a life”. Van Mahotsav is an annual tree plantation movement in India celebrated in the month of July to create awareness about the bad effects of deforestation. The vision of campaign is to encourage community outreach and to raise public awareness on environmental pollution and eco-restoration. The pioneer National campaign witnessed massive public support and cooperation nationwide, around 400 people from Chandigarh, Delhi, Haryana, Himachal and Punjab participated, belonging to different strata of society and planted multipurpose trees of medicinal value i.e. Azadirachta (Neem), Cedrus, Citrus, GulMohar, Hibiscus, Ixora, Mangifera, Mimusops, Moringa, Morus, Phyllanthus and Tecoma.



Brochure of the event



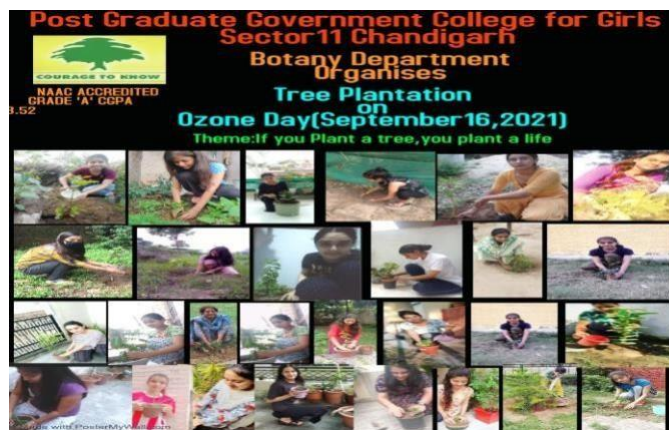
National Campaign on Plantation and Geo-tagging

Tree Plantation drive on Ozone day

Botany Department (Green Thumbs) of Post Graduate Government College for Girls, Sector 11, Chandigarh, on the occasion of International Ozone day (**16th September, 2021**), planted more than 100 multipurpose trees of medicinal and ornamental value i.e Ashoka (*Saraca indica*), *Azadirachta indica* (Neem), GulMohar (*Delonix regia*), Mango (*Mangifera indica*), Harshingar (*Nyctanthes arbortristis*), Palash (*Butea monosperma*), Tecoma (*Tecoma stans*) by faculty and students. This plantation drive was carried out to emphasize the importance of the ozone layer which prevents high frequency ultraviolet rays of the sun from reaching the earth, thus protecting human beings from skin cancer and host of other diseases and growing trees to bring down carbon dioxide emissions and thereby hampering depletion of the ozone layer. The solution of environmental problems like Global warming, Ozone depletion and pollution lies in planting more trees as forests are the only natural industry which is prime source of environmental purification and beautification.



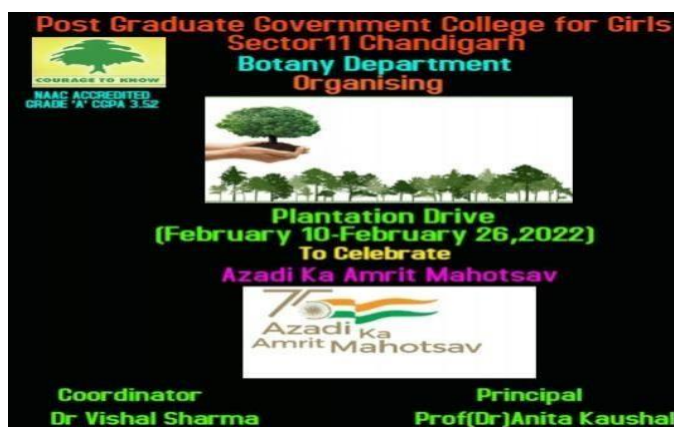
Brochure of the event



Tree Plantation drive on Ozone day

Tree Plantation drive to celebrate Azadi ka Amrit Mahotsav

Botany Department has organised plantation drive on 10th February to 26th February, 2022 to celebrate Azadi ka Amrit Mahotsav. More than 200 saplings of medicinal and ornamental trees of *Azadirachta indica* (Neem), *Butea monosperma* (Flame of the Forest; Palash), *Cassia fistula* (Amaltas), *Mangifera indica* (Mango), *Mimusops elengi* (Maulsari), *Tamarindus indica* (Imli), *Putranjiva roxburghii* (Putranjiva), *Tinospora cordifolia* (Giloy) were planted across the campus by teaching and non-teaching faculty.



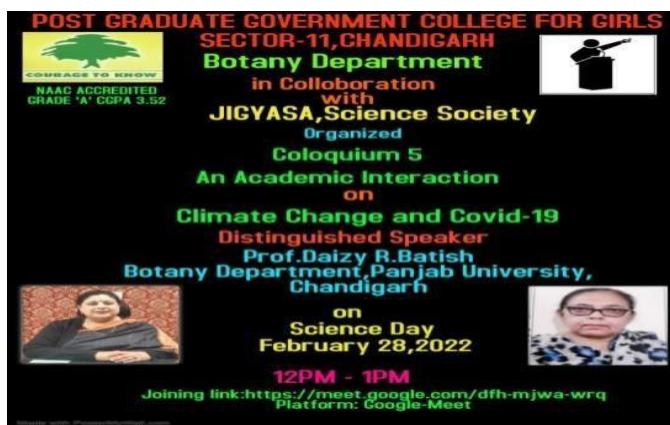
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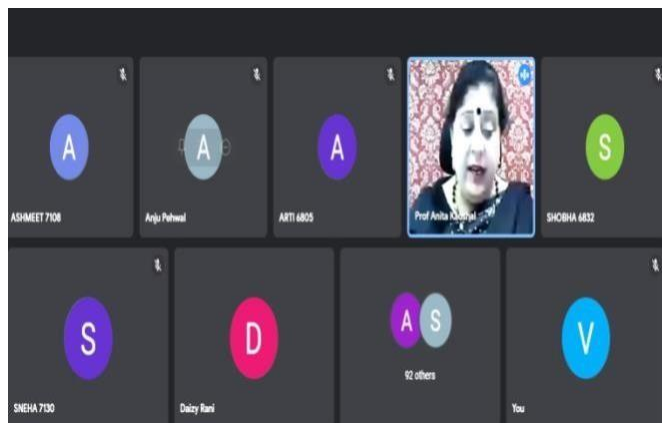
Principal Prof. Dr. Anita Kaushal planting sapling during Tree Plantation drive

Colloquium-An Academic Interaction (Series 5)

National Science Day (NSD) is celebrated on **28th February, 2022** to commemorate the discovery of the ‘Raman Effect’. The theme of the National Science Day (NSD) is ‘Integrate approach in science and technology for a sustainable future’. Botany department in collaboration with Jigyasa, Science society of Post Graduate Government College for Girls, Sector-11, organized fifth series of colloquium on “Climate Change and Covid-19” delivered by Prof. Daizy R. Batish, Botany Department, Panjab University, Chandigarh, which was attended by almost 500 students as well as faculty members from various colleges. The objective of the lecture was to bring science closer to society by highlighting the major global challenges which society is facing today. The relationship between climate change and coronavirus is ambiguous; hence it is becoming a serious threat to lives of billions of people and the planet. The inference drawn from the lecture is that there is a possibility of association between Covid-19 and climate change and the resource persons highlighted that safeguarding biodiversity is essential to prevent the next pandemic.



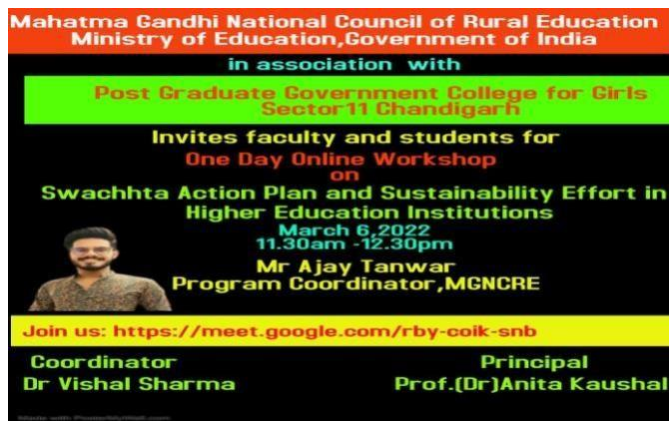
Brochure of the event



Principal Prof. Dr. Anita Kaushal addressing the participants during Colloquium

Virtual workshop on “Swachhta Action Plan and Sustainability Effort in Higher Education Institutions

The virtual workshop on “Swachhta Action Plan and Sustainability Effort in Higher Education Institutions” was conducted by Mahatma Gandhi National Council of Rural Education (MGNCRE; Ministry of Education, Govt. of India) in association with Botany Department, Post Graduate Government College for Girls, Sector-11, Chandigarh on 6th March, 2022 on Google meet. Mr. Ajay Tanwar was a resource person, who shared his wide knowledge of social entrepreneurship with the students. He focused on the vision of SESREC (Social Entrepreneurship, Swachhata & Rural Engagement cell) and shared case studies associated with SESREC. At the end, he urged students to participate in the national level competitions. The complete session was very interactive and informative. The participants discussed and shared their ideas with the resource person. Over 500 students registered in the event.



Mahatma Gandhi National Council of Rural Education
Ministry of Education, Government of India

in association with

Post Graduate Government College for Girls
Sector 11 Chandigarh

Invites faculty and students for
One Day Online Workshop
on
Swachhta Action Plan and Sustainability Effort in
Higher Education Institutions
March 6, 2022
11.30am - 12.30pm
Mr Ajay Tanwar
Program Coordinator, MGNCRE

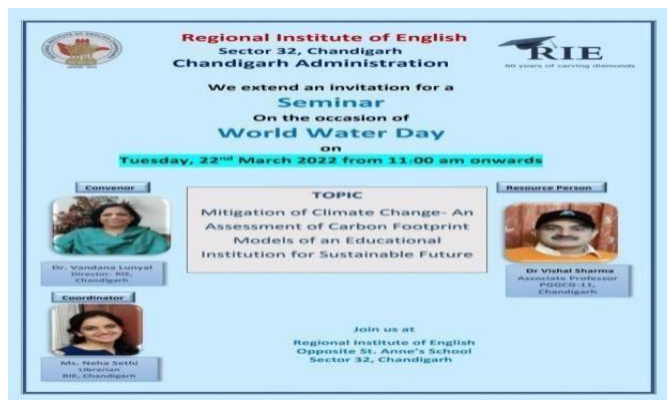
Join us: <https://meet.google.com/rby-coik-snb>

Coordinator: **Dr Vishal Sharma** Principal: **Prof.(Dr)Anita Kaushal**

SESREC workshop Brochure

Celebration of World Water Day at Regional Institute of English

Dr. Vishal Sharma, HOD, Botany has delivered lecture at Regional Institute of English (RIE), Sector-32, Chandigarh on “Mitigation of Climate Change-An Assessment of Carbon Foot Print Models of an Educational Institute For Sustainable Future” on World Water Day (22nd March, 2022), as a resource person. Approximately 50 faculty members attended the lecture.



Brochure of the event



Dr. Vishal Sharma addressing at RIE



Water Day Celebrations

Environment Celebrations

(a) Colloquium-An Academic Interaction on “Waste to Wealth”

Botany Department, Post Graduate Government College for Girls, Sector-11 organized sixth series of colloquium on “Waste to Wealth” on **5th June, 2022** in order to celebrate Environment Day (ED). A lecture was delivered by Mr. Samarth Sharma, Consultant, MGNCRE, Ministry of Education, Government of India, which was attended by almost 100 students as well as faculty members. The objective of the lecture was to bring science closer to society by highlighting the major global challenges which society is facing today. The inference drawn from the lecture is that there is a possibility of association between mitigation of plastic items and climate change and the resource persons highlighted that safeguarding biodiversity and surrounding sanitation is essential to prevent the climate change. Prof. Anita Kaushal, Principal of the college, said that the college has always mobilized resources for various pro-environment programmes, such as cleanliness and plantation campaigns in and around the campus for the micro-climatic eco-restoration.



Brochure of the event



Waste to Wealth Workshop

(b) “Waste to Wealth-Workshop and Exhibition”

Post Graduate Government College for Girls, Sector-11, Chandigarh in collaboration with Mahatma Gandhi National Council of Rural Education (MGNCRE), Ministry of Education, Government of India organized “Waste to Wealth” a Swachh Bharat Abhiyan and an initiative of Science Technology & Innovation Council, GOI on **5th June, 2022**. The resource person for the ‘Waste to Wealth’ workshop was Mr. Samarth Sharma, Consultant, MGNCRE Ministry of Education, Government of India. More than 200 students participated in the exhibition in which recycled products like planters, Jewellery stand, vertical hanging Garden, plastic décor, bird house tree décor, vases, watering can, charging dock and Toy cars were displayed along with innovative ideas to mitigate climate change. The Principal Prof. (Dr) Anita Kaushal congratulated Dr Vishal Sharma, HOD, Botany and judges Mr. Ajay Sharma, Dean and Ms. Monica Vij, Vice-Principal, respectively for conducting and evaluating the event and stressed on the roadmap for circularity in single use plastic to decouple plastic production adopting sustainable resource efficiency solutions.



Judgement of Waste to Wealth competition



Resource person interacting with participants

(c) “Poster and Slogan competition on Climate Change”

Post Graduate Government College for Girls, Sector-11, Chandigarh in collaboration with Mahatma Gandhi National Council of Rural Education (MGNCRE), Ministry of Education, Government of India organized Poster and Slogan competition on topic “To mitigate carbon footprints with the lowering of energy consumption, solid waste management and water conservation” **5th June, 2022**. This event was organized to aware the students about the elevated population and energy consumption resulting in high rates of greenhouse gases (GHGs) emission which results in climatic change and the paradigm of ‘waste to energy, mitigation of carbon and its sequestration is relegated to a secondary level which conversely results in India discarding 68.8 million tonnes in landfills and comes third after China and US in total GHGs emission. and results in acute problem of carbon footprints and conforming to Paris Agreement, COP21 and to limit temperature rise to 1.5⁰C to moderate the micro-climate of the campus. More than 200 students participated in the event.



Display of posters after competition

“Tree Plantation drive”

Botany Department has organised plantation drive on **6th June, 2022** to celebrate Environment Day and Azadi ka Amrit Mahotsav and mitigate carbon footprints through carbon offshoots. More than 100 saplings of medicinal and ornamental trees of *Azadirachta indica* (Neem), *Butea monosperma* (Flame of the Forest; Palash), *Cassia fistula* (Amaltas), *Mangifera indica* (Mango), *Mimusops elengi* (Maulsari), *Tamarindus indica* (Imli), *Putranjiva roxburghii* (Putranjiva), *Tinospora cordifolia* (Giloy) were planted across the campus by teaching faculty.



Faculty members planting saplings during Tree Plantation Drive

Email address and contact number of the resource persons

Session	Webinar/Seminar	Date	Name & address of the resource person	email address and contact number of the resource persons
2017-2018	Lecture cum workshop on Cancer Awareness	10th November, 2017	Prof. (Dr) Sushmita Ghosal, HOD, Department of Radio-therapy, Dr. Renu Madan	chakrab@sancharnet.in, Phone: 0172-2756394
2019-2020	One Day Workshop on Medicinal Plants and their Cultivation	6th February, 2020	Mr. Om Parkash, Principal coordinator Eco clubs Chandigarh and Advisor National Ayush Mission Chandigarh; Dr. Madan Gulati Former Director Ayush 93165 14157	Om Parkash 76962 77109; Dr. Madan Gulati Former Director Ayush 93165 14157
2019-2020	Virtual National Seminar on Science and Technology for Human welfare and its effects on Conservation	14th June, 2020	Prof. Promila Pathak, Professor & Chairperson, Botany Department, Panjab University, Chandigarh	ppathak_2207@yahoo.com 9876701963
2019-2020	Regional Colloquium: An Intellectual Discussion Series	30th June, 2020	Prof. Neelu Sood, Chairperson, Kurukshetra University, Kurukshetra	Neelusood61@gmail.com , 9416147725
2020-2021	Talk on topic "COVID-19 in Relation to Environment" to celebrate World Habitat Day	5th October, 2020	Prof. Daizy R. Batish, Chairperson, Botany Department, Panjab University, Chandigarh	chairman.botany@pu.ac.in , 9815603706
2020-2021	Colloquium series3 on Climate change and Carbon Footprint: An International Chapter	16th April, 2021	Himangana Gupta, a JSPS-UNU Postdoctoral Fellow at the University of Tokyo and United Nations University Institute for the Advanced Study of Sustainability	himangana@gmail.com , 9915231429

			(UNU-IAS)	
2020-2021	Colloquium Series 4 on Role of Biotechnology in Conservation of Biological Materials	22nd May, 2021	Prof. Raj Kumar Salar, Professor Department of Biotechnology, Chaudhary Devi Lal University, Sirsa	rajsalar@rediffmail.com , 9896106467
2021-2022	Colloquium-An Academic Interaction (Series 5)	28th February, 2022	Prof. Daizy R. Batish, Botany Department, Panjab University, Chandigarh	chairman.botany@pu.ac.in , 9815603706
2021-2022	Virtual workshop on “Swachhta Action Plan and Sustainability Effort in Higher Education Institutions	6th March, 2022	Mr Ajay Tanwar, Social Entrepreneurship, Swachhata & Rural Engagement cell	ajaytan.moe@gmail.com , 8222081391
2021-2022	Colloquium-An Academic Interaction on Waste to Wealth	5 th June, 2022	Samarth Sharma, Consultant, MGNCRE	samarth.moe@gmail.com , <u>Phone: 6239431614</u>

MEMORANDUM OF UNDERSTANDING (MOU)



MEMORANDUM OF UNDERSTANDING

Between

ICMR CENTRE FOR INNOVATION AND BIO-DESIGN (CIBIOD), PGIMER, CHANDIGARH

AND

POST GRADUATE GOVERNMENT COLLEGE FOR GIRLS, SECTOR-11 CHANDIGARH

This Memorandum of Understanding is made on 5th Feb, 2020 Between the ICMR CENTRE FOR INNOVATION AND BIO-DESIGN (CIBIOD), PGIMER, CHANDIGARH, hereinafter referred to as CIBioD, which expression shall mean and include its successor-in office and assigns and represented by its representatives.

AND

Post Graduate Govt. College for Girls, Sector-11, Chandigarh hereinafter referred to as PGGCG-11, CHANDIGARH.

BACKGROUND

ICMR Centre of Innovation and Bio Design (CIBioD) aims to promote innovation in medical devices and instruments by creating a conducive ecosystem with the involvement of multiple premier technology institutes in the region in collaboration with Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh with following sub-goals like innovation centre for devising indigenous technologies, instruments and devices for affordable health care, Manpower training for researchers, clinicians and faculty working in area of medical sciences etc.

AND WHEREAS, Post graduate Government college for Girls, Chandigarh

Established in 1956, the Post Graduate Govt. College for Girls, Sector-11, Chandigarh is one of the oldest educational institutions in Chandigarh being only few years younger than the city itself. Starting small, it has grown over the years to become a large entity. With a long history of nearly 60 years behind it the college has accumulated many layers of richness and recall. From this vantage of age, we can look back with pride at the many generations that entered the portals of this institution, filled its classrooms, performed in its auditorium, played on its fields and then left to take their place of pride in the world. They are our strength and also the validation of our existence.

A college campus is a young and exciting place to be in. And we educationists are invigorated by the sheer energy that surrounds us. We watch young girls coming to us from different parts of the country and it is indeed a very fulfilling experience to be a part of their journey of growth, both intellectual and emotional. We are with them when they arrive, hesitant and groping. And we then bid them adieu when they leave us as confident young women. It is a role we perform over and over again but it never palls on us and we all, in this institution, look forward to a future filled with many more generations of bright, young girls stepping out into the world and doing us proud.

A college campus is a young and exciting place to be in. And we educationists are invigorated by the sheer energy that surrounds us. We watch young girls coming to us from different parts of the country and it is indeed a very fulfilling experience to be a part of their journey of growth, both intellectual and emotional. We are with them when they arrive, hesitant and groping. And we then bid them adieu when they leave us as confident young women. It is a role we perform over and over again but it never palls on us and we all, in this institution, look forward to a future filled with many more generations of bright, young girls stepping out into the world and doing us proud.

OBJECTIVES

Both OBioD and Post graduate Government college for Girls, Chandigarh are, now

- Recognizing the importance of research & development, innovation and training in the areas related to medical devices, instruments, affordable healthcare, bio-design and other allied areas, and facilitate innovation and deployment of solutions.
- Appreciating the need for integrating the reservoir of highly qualified manpower in the fields of expertise available at both places and foster relationship between academia, students and practitioners.
- Desiring to amalgamate their efforts by pooling their expertise and resources and to form a nucleus for promoting Research & Development and training by exploiting the unique expertise, intellectual and infrastructural capabilities of both the parties.

FINANCIAL TERMS

There is no direct financial obligation on either institution unless specifically agreed to. The financial requirement of individual institutions for joint project proposals will be separately mentioned in joint projects while submitting to funding agencies. Before start of any activity, financial terms will be decided pertaining to that particular activity in advance.

DURATION

This agreement shall come into effect on the day of the approval by both institutions with an initial duration of three years.

TERMINATION

Either institution may terminate this agreement provided that a written notice to this intent is given to the other at least three months prior to the termination.

INTELLECTUAL PROPERTY RIGHT (IPR)

Rights regarding publications, patents, royalty, ownership of software, design, product developed, etc. under the scope of this MOU, shall be decided by the two parties by mutual consent.

Intellectual Properties, which are in possession of prior to this agreement or to be acquired outside the collaborative project with Post graduate Government college for Girls, will remain the exclusive property of Post graduate Government college for Girls. Intellectual Properties which are in possession of CIBioD prior to this agreement or to be acquired outside the collaborative project with Post graduate Government college for Girls will remain the exclusive property of CIBioD.

Intellectual Property/ies that may come about in the course of execution of collaborative project(s) between CIBioD and Post graduate Government college for Girls will be the joint property unless otherwise mentioned clearly in project proposals or project specific agreements.

CONFIDENTIALITY

- * During the Term of MOU, either party may provide to the other proprietary and confidential information that it considers essential for the conduct of any PROJECT at their sole discretion.
- * PROPRIETARY INFORMATION for the purposes of this AGREEMENT shall include all data, samples discoveries, inventions, technical information, reports, know-how and other information related to and disclosed by either party to the other in any form of written material and it shall be the duty of the receiving party to maintain its confidentiality.
- * The Post graduate Government College for Girls and CIBioD agree to hold PROPRIETARY INFORMATION in confidence and to protect it against disclosure to the public and third parties. Accordingly, both Post graduate Government college for Girls and CIBioD shall employ protective measures fully commensurate with those used by them to protect their own trade secrets and other confidential information from disclosure to the public and to third parties, but in no event less than ordinary degree of care required by law to preserve the secrecy of information that under such law is deemed confidential. By way of example, such efforts will include the act of obtaining the execution of suitable confidentiality agreements from other parties and from other persons to whom such information is disclosed in the course of execution of the PROJECT and to retrieve the connected documents on completion of the project where given for the same.
- * The Post graduate Government college for Girls and CIBioD agree to use PROPRIETARY INFORMATION only for the specific project during the term of such project.
- * The Post graduate Government college for Girls and CIBioD agree not to copy, reproduce or otherwise reduce to writing any Part of PROPRIETARY INFORMATION except and only as may be reasonably necessary for the PROJECT.
- * INFORMATION disclosed by either party to the other in the form of result of the study/ research originating from the projects under the agreement shall be treated as confidential and should not be shared with any third party, including and country, without the expressed permission of giving party.
- * Both Post graduate Government college for Girls and CIBioD will be free to publish research results out of projects under this agreement that does not contain proprietary information. In case it contains proprietary information decision to publish will be on a mutual consent basis so as to ensure protection of the related intellectual property.
- * The non-disclosure clause will survive five years from the date of expiry of this MOU.

CO-ORDINATION COMMITTEE

The following will constitute the Coordination Committee to monitor and review the collaborative program (s) between the two institutions:

- a) Principal, PGGCG-11, Chandigarh or her nominee(s)
- b) ICMR Centre For Innovation & Bio-Design, PGIMER, Chandigarh or his nominee(s)
- c) Coordinators both from CIBioD and PGGCG-11, Chandigarh.

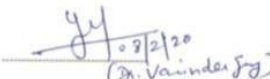
The Coordination Committee shall:

- a) Review the progress of the identified programs (at least twice a year)
- b) Consider new R&D and training proposals for the collaboration and implementation on case to case basis including IPR and financial arrangements
- c) Consider the addition/deletion of areas of co-operation between the two entities during review.
- d) Consider the continuance of the MoU

Any difference of opinion arising on any matters under the preview of the MoU will be referred to the Representative of Post graduate Government college for Girls and Representative of CIBioD for resolution through mutual consent.

Both the parties hereto set their hands and signed the agreement on the day, month and year mentioned above. It has been executed in two originals; one has been retained by CIBioD and the other by Post graduate Government college for Girls.


8-2-2020
Representative of
Post graduate Government college for Girls
Chandigarh -160011


09/2/20
(Dr. Vaishali Singh)
Representative of CIBioD
PGIMER, Chandigarh

Consolidation of CIBioD Data pertaining to Students
Session: 2020-2021

S.No	Name	Department	Class	Roll No	Remarks
1	Ridhi	Botany	M.Sc. II	8309	CIBioD certificate of Attachment
2	Mansi	Botany	M.Sc. II	8316	CIBioD certificate of Attachment
3	Kundlata	Botany	M.Sc. I	12832	CIBioD certificate of Attachment
4	Purnima Grover	Chemistry	M.Sc. I	12869	CIBioD offer Letter of Attachment
5	Mehak Sood	Chemistry	M.Sc. II	8353	CIBioD certificate of Attachment
6	Pallavi Sharma	Physics	M.Sc. I	13070	CIBioD offer Letter of Attachment
7	Jyoti	Physics	M.Sc. I	13073	CIBioD offer Letter of Attachment
8	Nazia	Physics	M.Sc. I	13057	CIBioD offer Letter of Attachment
9	Priti	Physics	B.Sc. II NM	7698	CIBioD offer Letter of Attachment
10	Chetna Malhotra	Zoology	M.Sc. II	8456	CIBioD certificate of Attachment
11	Poonam Mor	Zoology	M.Sc. II	8460	CIBioD certificate of Attachment
12	Jyoti Rastogi	Zoology	M.Sc. I	12982	CIBioD certificate of Attachment
13	Poonam	Zoology	M.Sc I	12987	CIBioD certificate of Attachment
14	Swati	Zoology	M.Sc I	12978	CIBioD certificate of Attachment

CIBioD certificates of Students



OFFER LETTER
of Attachment
Presented to

Jyoti

Congratulations!
You have been selected by The Center for Innovation and Bio-Design (CIBioD) for your internship period.

The Project is a Multi-Disciplinary Initiative designed to Incubate, Prototype, and Commercialize Novel Ideas in Health Care.

You will be part of "IMMERGESIC" Team working on innovative & multi-disciplinary research. There were will be 2 more students working with you in your team.

The 1st Meeting will take place tomorrow from 5:30 PM onwards headed by Dr. Varinder Garg. You will be shared a web meeting link on your email and phone. Please attend the meeting positively.

OFFER LETTER
of Attachment
Presented to

Nazia

Congratulations!
You have been selected by The Center for Innovation and Bio-Design (CIBioD) for your internship period.

The Project is a Multi-Disciplinary Initiative designed to Incubate, Prototype, and Commercialize Novel Ideas in Health Care.

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The 1st Meeting will take place tomorrow from 5:30 PM onwards headed by Dr. Varinder Garg. You will be shared a web meeting link on your email and phone. Please attend the meeting positively.

OFFER LETTER
of Attachment
Presented to

Priti

Congratulations!
You have been selected by The Center for Innovation and Bio-Design (CIBioD) for your internship period.

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The 1st Meeting will take place tomorrow from 5:30 PM onwards headed by Dr. Varinder Garg. You will be shared a web meeting link on your email and phone. Please attend the meeting positively.

Certificate
OF ATTACHMENT

PRESENTED TO

Chetna Malhotra
Congratulations!

You have been selected by The Center for Innovation and Bio-Design (CIBioD) for an Attachment Program.

The Project is a Multi-Disciplinary Initiative designed to Incubate, Prototype, and Commercialize Novel Ideas in Health Care.



Gunjan Sharma

Gunjan Sharma
CIBioD Project Director



Certificate
OF ATTACHMENT

PRESENTED TO

Congratulations!

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The Project is a Multi-Disciplinary Initiative designed to Incubate, Prototype, and Commercialize Novel Ideas in Health Care.



Gunjan Sharma

Gunjan Sharma
CIBioD Project Director



Certificate
OF ATTACHMENT

PRESENTED TO

Jyoti Rustagi
Congratulations!

You have been selected by The Center for Innovation and Bio-Design (CIBioD) for an Attachment Program.

The Project is a Multi-Disciplinary Initiative designed to Incubate, Prototype, and Commercialize Novel Ideas in Health Care.



Gunjan Sharma

Gunjan Sharma
CIBioD Project Director



Center for Innovation and Bio-Design

Certificate

OF ATTACHMENT

PRESENTED TO

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Gunjan Sharma
CIBioD Project Director



Center for Innovation and Bio-Design

Certificate

OF ATTACHMENT

PRESENTED TO

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The Project is a Multi-Disciplinary Initiative designed to Incubate Prototype, and Commercialize Novel Ideas in Health Care.



Gunjan Sharma
CIBioD Project Director



2022

Center for Innovation & Bio-design (CIBioD)

CERTIFICATE

OF APPRECIATION

is hereby granted to

Shikha

for

outstanding performance and lasting contribution in
Short Term Attachment- Innovation Product/ Idea Development Competition
Project Name- IoT based smart bottle for healthcare

Dr. Varinder Garg
Principal Investigator,
CIBioD, PGIMER, Chandigarh

Dr. Harish Kumar
Co-Principal Investigator,
CIBioD, PGIMER, Chandigarh

List of Project Works carried out by M.Sc. Botany (TYC) Semester 4 Students under guidance of Faculty members

Session 2016-2017

M.Sc. II Sem 4 May 2017			
1.	To study the effect of chemicals on post-harvest quality and extension of vase life of cut <i>Gerbera</i>	Jan-May, 2017	Dr. Vishal Sharma along with M.Sc. Students
2.	To evaluate the effect of <i>Azolla</i> as biofertilizer on Pea	Jan-May, 2017	Dr. Anurita Sharma along with M.Sc. Students
3.	To evaluate the potential of <i>Moringa oleifera</i> as natural plant growth enhancer	Jan-May, 2017	Dr. Madhumita Bhattacharjee along with M.Sc. Students
4.	Effects of different levels of Salicylic acid on <i>Avena sativa</i> & <i>Pisum sativum</i> seeds	Jan-May, 2016	Dr. Harsh Manchanda along with M.Sc. Students
5.	Determination of the ability of <i>Lemna</i> as an agent of bioremediation	Jan-May, 2016	Dr. Anju along with M.Sc. Students
6.	Common wood-decaying fungi from important places of Chandigarh	Jan-May, 2017	Dr. Amit Jakhal along with M.Sc. Students

Session 2017-2018

M.Sc. II Sem 4 ending May 2018			
1	Wood-rotting fungi from North-Eastern Chandigarh	Jan-May, 2018	Mrs. Inderveena Sharma, Dr. Anurita Sharma & Dr. Amit Jakhal along with M.Sc. Students
2	Modulation of Salt Stress Effect on Growth, Physio-chemical Attributes & Yields of <i>Pisum satioum</i> by Exogenous Application of Salicylic acid and <i>Moringa oleifera</i> leaf extract	Jan-May, 2018	Dr. Vishal Sharma along with M.Sc. Students
2	A Comparative Study of Trees of Chandigarh and Panchkula	Jan-May, 2018	Dr. Madhumita Bhattacharjee along with M.Sc. Students
3	Flora of Botanical Garden PGGCG-11, Chandigarh	Jan-May, 2018	Dr. Harsh Manchanda along with M.Sc. Students
4	To Evaluate the Effect of <i>Azolla</i> as Biofertilizer on Wheat	Jan-May, 2018	Dr. Anju along with M.Sc. Students
5	Tree Census of PGGCG-11, Chandigarh	Jan-May, 2018	Dr. Shikha Sharma with M.Sc. Students

Session 2018-2019

Sr. No.	Title of project work	Name of Faculty member
1	Influence of essential oils on improvement of vase life and post harvest physiology of cut Gerbera (<i>Gerbera jamesonii</i>) flowers	Dr. Vishal Sharma
2	A review on heavy metals toxicity and uptake by plants through phytoremediation technology	Dr. Anurita Sharma
3	A surveillance on presence of adulterants in some commonly used food items	Dr. Madhumita Bhattacharjee
4	Effect of different concentrations of malathion on <i>Cicer arietinum</i>	Dr. Harsh Manchanda
5	Effect of organic fertilizers on oats and <i>Cicer arietinum</i>	Dr. Anju
6	Wood rot fungi from some important gardens of Chandigarh	Dr. Amit Jakhal

M.Sc. II Research Projects 2019-2020

Sr.No.	Title of the research project	Name of the faculty member/Supervisor
1	Evaluation of Interrelationship between Salicylic Acid, Calcium Chloride and Sucrose on Vase life of Rose cultivar "Gala"	Dr. Vishal Sharma
2	Therapeutic uses of Pteridophytes of India: A review	Dr. Anurita Sharma
3	A survey on the junk food consumption habit among college students of Chandigarh	Dr. Madhumita Bhattacharjee
4	A review on Microalgae as third generation biofuels	Dr. Harsh Manchanda
5	Potential of algae to produce biofuel	Dr. Anju Pehwal
6	Diversity of Wood rotting fungi	Dr. Amit Jakhal

M.Sc. II Sem IV 2021 Research Projects

Name of the teacher	Names of the students	Topics of Seminars
Dr. Vishal Sharma	Monika Yadav	Modulation of salt stress effectson the growth, physio-chemical attributes and yields of Pulses plants by the exogenous application of Salicylic acid andMoringa oleifera
	Kundalata	
	Gaganpreet Kaur	
	Hitashu Sharma	
Dr. Anurita Sharma	Kirandeep Kaur	"A Review On Heavy Metals Toxicity And Uptake By Plants InSoil"
	Rashim	"A Review On Threats Of Invasive Alien SpeciesOn Biodiversity Of India"
	Phuntsog Yangdol	A Review on risk and benefits of invasive alien species on IndianBiodiversity
Dr. Madhumita Bhattacharjee	Mamta Verma	Possible role of some of the spices and medicinal herbs in management of covid-19 havoc
	Aarti	
	Anshul Chauhan	
Dr. Harsh Manchanda	Dolly Kumari	A Review On Use Of Micro AndMacroalgae In Cosmetics
	Tanveer Fatima	
	Parul Kaushik	
Dr. Anju	Sweety Bisla	Immunity boosters: Miraculoushealers
	Surbhi Kashyap	
	Vagisha Panwar	
	Gurnoor	
Dr. Amit Jakhal	Gurpreet Kaur	An Account Of Wood-Rotting Fungi From Sector 11 Of Chandigarh
	Kanchan Thakur	
	Prabhdeep Kaur	
	Rupali	
Dr. Shikha Sharma	Kamaldeep Kaur	Traditional Uses Of Herbal DrugsFor The Treatment Of Diabetes
	Shweta Arya	
	Purnima Sharma	
	Nimrat Kaur	

M.Sc. II Sem IV 2022 Research Projects

Name of the teacher	Names of the students	Title of Project works
Dr. Vishal Sharma	Tamanna Arshpreet Muskan	Modulation of salinity stress effects in Chick pea (<i>Cicer arietinum</i>) plant with foliar application of <i>Moringa oleifera</i> leaf extract (MLE)
Dr. Anurita Sharma	Arshdeep Priya Jaspreet Stanzin	Blossoming trees of Chandigarh
Dr. Madhumita Bhattacharjee	Akshita Vedika Shivani Gurjeet	Formulation and evaluation of pure herbal hair dyes
Dr. Harsh Manchanda	Anupama Palak Natasha Simran	Algal pigments and their biotechnological applications
Dr. Anju	Manpreet Kaur Kimmi Mittal Diksha Minakshi	Phytochemical analysis of <i>Dillenia indica</i>
Dr. Amit Jakhal	Muskan Gupta Rigzin Dolkar Riya Monika Karn	Diversity of Wood-rotting fungi from four important locations of Northern Chandigarh
Dr. Shikha Sharma	Tamanna Gurmeet Dhruvi Anju Dehar	Medicinal Plants of PGGCG-11, Chandigarh

Curriculum-vitae



Dr. Vishal Sharma

Associate Professor

Qualifications: M.Sc., Ph.D.

Area of specialization: Plant Tissue Culture

Working experience: 25 Years

Publications

1. Vishal Sharma.2022. Carbon credits from Windrow composting of Municipal solid waste to combat climate change: a case study in Chandigarh. Pollution Research 41(3):189-195. Cite Scopus H-index 23; Scimago Journal Rank (SJR): 016; NAAS Rating: 5.10
2. Vishal Sharma.2022. A Micro- positive pressure aeration for windrow composting of municipal solid waste in Chandigarh: An opportunity in a carbon conscious world for combating climate change. Pollution Research 41(3):388-393.Cite Scopus H-index 23; Scimago Journal Rank (SJR): 016; NAAS Rating: 5.10
3. Vishal Sharma.2021. Windrow Composting as Municipal Solid Waste Stabilization case study in Chandigarh. Pollution Research, 40(3):168-174. Scopus Journal; Cite Scopus H-index 23; Scimago Journal Rank(SJR):016;NAAS Rating:5.10
4. Vishal Sharma.2021. Analytical Approach to optimizing the design of windrow composting plant. Pollution Research, 40(3):359-364.ScopusJournal; Cite Scopus H-index 23; Scimago Journal Rank (SJR):016; NAAS Rating: 5.10
5. Vishal Sharma.2021. Micropropagation of therapeutically important Swarna Jibanti (*Coelogyne cristata*Lindl) through pseudobulb segments-a study in vitro. Ecology, Environment and Conservation, 27(Feb):230-235.ScopusJournal: Cite score 0.90; Scopus H-index 11; SNIP Impact factor:0.677, NAAS Rating:4.89.

6. Vishal Sharma.2020. Exogeneous application of Moringa oleifera leaf extract and Salicylic acid on modulation of Salinity stress effects in Pea (*Pisum sativum*) plants. Ecology, Environment and Conservation,26(3):234-240. ISSN: 0971765X; ScopusJournal: Cite score0.90; Scopus H-index 11; SNIP Impact factor: 0.677, NAAS Rating: 4.89.
7. Vishal Sharma.2020. Effect of CuSO₄.5H₂O on regenerative capacity of mature foliar explants of *Papilionanthe teres*. Research Journal of Biotechnology (RJB); 15(2):111-116. Scopus Journal: SJR: 0.14;H-index:13;Citescore;0.22;NAAS Rating:6
8. Vishal Sharma.2019. Regenerative Competence in root explants of *Rhynchostylis gigantea*, an endangered genera: in vitro study. International Journal of Conservation Science,10(1):133-138.Scopus Journal: SJR:0.12;ISSN: 0971765X.
9. Vishal Sharma.2019. In vitro conversion of root meristem into protocorm like bodies in *Rhynchostylis retusa*-an Endangered fox tail orchid.Eco.Env &Cons.,25(4):328-332.ScopusJournal:Cite score0.90 ;Cite Rank ; Scopus H-index 11;SNIP Impact factor:0.677, NAAS Rating:4.89
10. Vishal Sharma.2018. Regenerative competence of thin layers (epidermal peel) for in vitro propagation of *Cattleya 'Almakee'*. Asian Journal of Microbiology, Biotechnology and Environmental Sciences (Oct Suppl.): 65-69.Scopus Journal; NAAS Rating:4.93; ISSN: 0972-3005;H-INDEX:13;SJR:0.11
11. Vishal Sharma.2018. Effect of Copper sulphate (CuSO₄.5H₂O) and pre-coldtreatment on labellum explants in Endangered Orchid taxa.Nature Environment and Pollution Technology,17(4):1425-1430.Scopus Journal:Scopus SJR Index (2017) = 0.193;H Index=7; NAAS (India;2019) = 3.85 Copernicus Index(2016) = 109.45;ISI Journal Impact Factor) =2.236 (2018).
12. Vishal Sharma *et al.*2018.Extending a post harvest life and keeping quality of *Gerbera(Gerbera jamesonii)* using Silver nitrate, Salicylic acid and Sucrose. Journal of Biol.Chem, Research, 35(2):730-736
13. Vishal Sharma 2018.The phytodiversity and comparative account of Biological spectrum of Dehradun and Mussorie. Research Journal of Life sciences, Bioinformatics, Pharmaceutical and Chemical sciences (RJLBPSC), 4(5): 251-259;ISSN;2454-6348
14. Vishal Sharma and Nandini Paul Sharma. 2018. The floristic composition and Biological Spectrum of Chandigarh and Mussorie region. *International Journal for*

Research in Applied Science & Engineering Technology (IJRASET), 6(III):3338-3342; IC Value: 45.98; SJIF: 6.887; UGC approved: ISSN No: 2321-9653

15. Vishal Sharma, Garima Kamra, Rakhi Thakur, Ramandeep Kaur. 2018. Extending Post Harvest life and keeping quality of Gerbera (*Gerbera jamesonii*) using HQS and Calcium chloride with Sucrose. *International Journal of Innovative Pharmaceutical Sciences and Research*,6(04):1-9: ICvalue:95.53; GIF:2.6095; UGC approved; ISSN:2347-2154

Awards of Excellence

Sr.No.	Title of the innovation	Awarding agency	Date of award
1.	Environment Sustainability	United Nation (UN-SDG Action Award	2020-2021
2.	Solid Waste Management 66 Skoch Order of Merit-Semi-Finalist	SKOCH GROUP MG Road, Gurugram, Haryana 122001	2019-2020
3.	Windrow Composting-Solid waste Management	26 th International Congress of IFHE-International Award 2020 organised by IFHE (International Federation of Health Care Engineering). Italy	2020-2021
4.	Green Champion Award – Swachhta Action Plan- Exemplary Performance Award-2020-2021	Mahatma Gandhi National Council of Rural Education (MGNCRE), Department of Higher Education, Ministry of Education, Government of India	2020-2021
5.	Research Under Literal Access (RULA Award)	RULA43650 Bandar Malaysia	2019-2020
6.	Best Maintained Campus (H ₃ Category)	47 th Rose festivalMunicipal Corporation (MC), Chandigarh	2018-2019

7.	Best Maintained Campus	48 th Rose festival	2019-2020
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	Category)	Municipal Corporation (MC), Chandigarh	
8.	Best Maintained Campus(H ₃ Category)	50 th Municipal Corporation (MC), Chandigarh	2021-2022
9.	Holcim award for Outstanding achievement in the field of Solid Waste Management is pioneer in Asia-Pacific region, passed all criteria in last 2507(2020-2021).	Holcim Foundation The Holcim Awards is an international competition that recognises innovative projects and future-oriented concepts in sustainable	2020-2021
11.	“Innovation in Recycling process and Technology” (Solid Waste Management)	Business World prestigious award “Recycling for Greener Tomorrow Conclave Awards	2021-2022

Other recognitions

- Member Board of studies for the Post Graduate course in Botany (2017-2019)
- Appointed as External Expert Member of IQAC committee of the Government College for Panchkula, Sector-1, Panchkula (Haryana) on 14th March, 2016 till date.
- Appointed as Subject Expert and DHE Nominee (2018-2019) for the selection of Assistant Professor in Botany at MCM DAV College, Sector – 10, Chandigarh in the interview held at Chitra Gupta Road, Delhi.
- Life member of ‘The Orchid Society of India’ (TOSI), Panjab University Chandigarh
- Life member of ‘Phytomorphology – An International Society of India’, Delhi University, Delhi

Dr. Anurita Sharma
Associate Professor



Publications:			
Title of the paper	Title of the journal	Year of publication	ISSN/Citation Index
“Stevia – A natural sweetener”.	Milestone Education Review8 (1): 66-69	Apr, 2017	ISSN: 2278-2168
Experimental studies on gametophytic generation of <i>Pteris</i> species from Mt. Karol (Dist. Solan) Himachal Pradesh.	International Journal of Current Advanced Research, 06(12): 8393-8395.	Dec, 2017	ISSN-O: 2319-6475
“Studies on gametophytic generation of <i>Dryopteris</i> species.	International Journal of Current Advanced Research, 07 (1): 9117-9119.	Jan, 2018	ISSN-O: 2319-6475
Consumer attitude for buying organic food.	Lokayata Journal of Positive Philosophy 8(2): 73-75.	Sep, 2018	ISSN: 2249-8389

Paper/Poster presentations	
Title	Date
Presented a poster “Study of gametangial sequence in three fern species of <i>Asplenium</i> ” in National Conference “Recent Trends in Environment, Science & Technology-2016 (RTEST-2016)” organized by University School of Sciences, Rayat-Bahra University, Mohali (Punjab).	March 11, 2016.
Presented a paper “Experimental studies in three fern species” in International Conference “ICAST” organized by University School of Sciences, Rayat-Bahra University, Mohali.	April 20-21, 2017
Presented a poster “Molecular Farming plants: The future factories” at Chandigarh Science Congress (CHASCON) held at Panjab University, Chandigarh.	Mar 13-15, 2019

In-service training	
Title	Duration
Five-day Information and Communication Training Course (ICT Training) conducted by Directorate of Technical Education, U.T., Chandigarh Administration.	2.09.2019 to 6.09.2019

Seminars/Workshop attended	
Title	Date
RUSA sponsored capacity building workshop on “Digital Economy & Cyber Security” held at Post Graduate Govt. College for Girls, Sector 11, Chandigarh.	20.01.2017
“One day lecture cum workshop on importance of medicinal plants and their vegetative propagation” organized by the Environment Society ‘Prakriti’ of Post Graduate Govt. College for Girls, Sector 11, Chandigarh and Medicinal Plant Board, Department of Forest and Wildlife, Chandigarh Administration.	07.02.2017
RUSA sponsored capacity building workshop on Life Skills Training held at Post Graduate Govt. College for Girls, Sector 11, Chandigarh under aegis of State Higher Education Council, Chandigarh.	02.03.2017
“One –day workshop on Solar Energy – A key to the future” organized by Science Society of PGGCG-11, Chandigarh.	29.03.2017
RUSA sponsored one day workshop on “e-books: Selection, Acquisition and access” held at PGGCG-11, Chandigarh.	25.05.2017
Akshay Urja Diwas celebrations organized by Environment Society ‘Prakriti’ held at PGGCG-11,	19.08.2017

Chandigarh.	
One-day capacity building workshop on "Optimizing emotional well being" held at PGGCG-11, Chandigarh.	15.11.2017
One day capacity building workshop on "Research ethics, plagiarism & quality research paper" held at PGGCG-11, Chandigarh.	18.11.2017
RUSA sponsored seminar on "Sustainable and harmonious development in India: Issues and Challenges" held at PGGCG-11, Chandigarh.	24.01.2018
One day capacity building workshop on "Ethics in public life" organized by PGGCG-11, Chandigarh.	19.03.2018
International workshop on "Shock waves in Science, Engineering & Medicine" held at PGGCG-11, Chandigarh.	23.02.2018 to 24.02.2018
ICSSR sponsored National Seminar on Informal Employment in India: Issues and Challenges held at PGGCG-11, Chandigarh.	28.03.2019
"Workshop on Medicinal Plants and their cultivation" organized by Environment Society 'Prakriti' and sponsored by Department of Environment, Chandigarh Administration held at PGGCG-11, Chandigarh.	06.02.2020

Honours and recognitions received by teachers

(received awards, recognition, fellowships at State, National, International level from Government, recognised bodies during the year)

Deputed as subject expert by the DHE, Chandigarh Administration for selection of Assistant Professor in Botany on 21.02.2017 in GGSD College, Sector 32, Chandigarh.

Member, Faculty of Dairying, Animal Husbandry & Agriculture, Panjab University, Chandigarh. from Feb, 2019 to Jan, 2021.

Member, Post Graduate Board of Studies, Botany, Panjab University, Chandigarh for duration Feb 2019 to Jan 2021.

Participated as judge for Skit Competition for Science Day Celebrations, 2020 (Theme: Women in Science) held at PGGCG-11, Chandigarh sponsored by CREST.

Life Member, Indian Fern Society

Profile



(i) **NAME :** Dr. MADHUMITA BHATTACHARJEE

(ii) **QUALIFICATION:** M.Sc. (Botany), Ph.D. (Botany) & NET Qualified

❖ 1st Position Holder of University in M.Sc.

❖ 1st Position holder in the college & received Gold Medal

(iii) **DESIGNATION:** ASSOCIATE PROFESSOR

(iv) **DEPARTMENT:** Post Graduate Govt. College For Girls, Sector -11, Chandigarh

(v) **TOTAL TEACHING EXPERIENCE** : 19 years

(vi) **CLASSES TAUGHT** : Undergraduate and Post graduate classes.

(vii) IN SERVICE TRAINING

(1) Seven days faculty development programme (FDP) “ Education and pedagogy in the times of digital humanities from 09.01.2020 – 15.01.2020 at PGGCG11 , Chandigarh

(2) Skill Development Programme On Online Tools:2020 from **27-31 July, 2020** organised by Society For Research In Biological Science In Association With Government P G College Bazpur, Us Nagar, Uttarakhand & SS College, Shahjahanpur, UP.

(3) One Week Online National Faculty Development Program organized by Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) of Ministry of Education from **14th July to 20th July 2021 with Grade A+**.

AWARDS RECEIVED:

- “Life time achievement award” in International Conference on New Paradigms for Agriculture, Food and Sustainability Concerns (NPAFSC-2021) 26-28 February, 2021, Raichur, Karnataka.
- “Women researcher award” in the 7th International Scientist award on Engineering, Science and Medicine held on 4-5 July 2020, Coimbatore
- “International healthcare award 2020”- Times award
- International Best Scientist of the Year - Rula Award 2020

RESEARCH PUBLICATIONS :

- (i) Madhumita Bhattacharjee (2021) **Assessment of growth stimulating property of *Moringa* leaf extract (MLE) using *Vicia faba* as test Plant. *Eco. Env. & Cons.* 27 (October Suppl. Issue): 2021; pp. (S232-S236) *SCOPUS Journal, Web of Science and UGC care listed journal SCOPUS -H Index - 15 NAAS Rating - 5.41, Q4 SJR (2020) 0.15***
- (ii) Madhumita Bhattacharjee (2021) To Study the Influence of Microwave Oven Treated Water on Germination and Growth of *Trigonella foenum-graecum* .**Environment and Ecology 39 (2): 385—389 April—June 2021 , *Web of science journal ,UGC care listed journal ISSN 0970-0420.***
- (iii) Madhumita Bhattacharjee (2021) Assessment of cytotoxic potential of Chocolate Brown – HT (E155) using *Allium sativum* assay .**Advances in plant Sciences 34 (I&II) June & Dec. 17-21 (2021), ISSN 0970-3586. *Web of science journal ,UGC care list , NAAS Rating 2.80***
- (iv) Madhumita Bhattacharjee (2020) “*Moringa oleifera* : A potent immune booster in the catastrophe of Covid -19” in *Eco. Env. & Cons.* 26 (November Suppl. Issue) : 2020; pp. (S202-S209) *SCOPUS Journal, H Index – 12 ,NAAS Rating - 5.47, UGC care list journal*
- (v) Madhumita Bhattacharjee (2020) “Assessment of cytotoxic potential of tartrazine (E102) on meristematic cells of *Vicia faba*” in *Pollution Research.* 39 (4) : 1162-1167 (2020). *SCOPUS Journal, SCOPUS - H Index – 21,NAAS Rating - 5.10, UGC care list journal.*
- (vi) Madhumita Bhattacharjee (2020) A Review of Some Commonly Used Antimicrobial Food Preservatives. *Journal of Information and Computational Science* ISSN: 1548-7741 23, Volume 13 Issue 2 – **March 2020** Pg. 23-27
- (vii) Madhumita Bhattacharjee *et.al.* (June 2019)“ Detection of food adulteration in selection food items purchased from different Urban and rural Areas of Chandigarh region. *International J. of Eng, applied and management Sciences paradigms (IJEAM)* ISSN 2320-6608 Vol.54 (3)pp 150-155.
- (viii) Madhumita Bhattacharjee (2017)“Understanding The Surrounding Colours For A Blissful Life “in *Milestone Education Review (The Journal of Ideas on Educational & Social Transformation)* , ISSN: 2278 – 2168 Year 08, No.01 pg 44-5
- (ix) Madhumita Bhattacharjee (2017) “Hidden threat of two commonly used food preservatives : A Review “ in conference proceedings of International Conference on Advancements in Science & Technology (ICAST -2017) held on at University School of Sciences, Rayat – Bahra University , Mohali.
- (x) Madhumita Bhattacharjee (2017) Foul Role of a permitted Red Food Colour “ in *International Journal of Advanced Research in Science and Engineering .Vol6(1) ;902-907. ISSN no. 2319-835*

- **BOOK PUBLISHED :**

- (1) Madhumita Bhattacharjee (2021) Handy lab Manual of Gymnosperms Unistar Books Pvt. Ltd. ISBN 978-93-5205-366-7, **March 2021.**

Paper setting

- Bsc 4th Sem May 2021 Paper A
- Bsc BEd 3rd sem Dec 2021
- Bsc Hons 4th sem paper B May – June 2021
- Msc 3rd Sem Dec 2020 paper XIV

INVITED LECTURE / GUEST SPEAKER:

1. Delivered a lecture as a resource person In a National Seminar “The covid pandemic : Impact, prevention and significance of immunity” on 28th May 2020 organised by Chamanlal Mahavidyalaya, Landhaura, Haridwar.
2. Delivered a lecture as invited speaker in an Invited Lecture Series II on 13 July 2020 organised by SS college Shahjahanpur & Christ Church College, Kanpur.
3. Guest Speaker in a medical education programme “ Sports injuries Update 2017 Sports injuries Prevention : A Multidisciplinary Approach “ on 25th Feb 2017 at Air Force Officers Institute, Chd organized by Trinity Education & Research Foundation

- **MEMBER OF THE REFEREE PANEL / MEMBER OF EDITORIAL BOARD / REVIEWER**

- (1) Member of the referee panel of UGC care list approved, springer Journal “Vegetos : An international journal for Plant Sciences and Biotechnology ” for review of manuscripts.
- (2) Member of Editorial board of Peer reviewed Journal “Agricultural Letters”.
- (3) Reviewer of Agricultural Research Communication Centre (ARCC) journals ,
<https://arccjournals.com/ourReviewers>

- **LIFE MEMBER OF THE SOCIETIES**

- (i) Asian PGPR society
- (ii) Society for Plant Research
- (iii) Indian science congress
- (iv) Society for research in biological science (SRBS)
- (v) Agricultural letters

- **MEMBER BOARD OF STUDIES**

Member Board of studies Botany (PG) From 2017 to 2021

- **ACTED AS JURY MEMBER / JUDGE**

- (1) In an National online speech competition organized by Department of botany, SS college, Shahjahanpur, UP government PG college Bazpur, Uttarakhand and & society for research in biological science (SRBS) held on 15 August 2020.
- (2) In Rashtriya sangoshti : Rashtiyi Siksha Niti 2020 organised by SS college, Shahjahanpur, UP society for research in biological science (SRBS) & Pragya Parishad on 9th September 2020.
- (3) Acted as judge for herbarium display in One day lecture cum workshop on importance of medicinal plants and their vegetative propagation on 7th Feb 2017 at PGGCG -11, Chd
- (4) Acted as judge for poster presentation in 11th Chandigarh Science Congress, Chascon 2017 held at Punjab University on March 9-11, 2017

- **RESEARCH PAPERS PRESENTED:**

2021

- (1) Presented a Poster online on the topic "Moringa leaf extract as a boon in Indian agriculture" in an International Conference On New Paradigms for Agriculture, Food and Sustainability Concerns held on 26-28 Feb 2021, Raichur, Karnataka.

2020

- (1) Oral presentation entitled " Threats inside your sweet home "in 8th International conference on Technology, Innovation and management for sustainable development (TIMS-2020) on 19-20 February 2020 at school of science ,ITM University, Gwalior
- (2) A paper Review of Some Commonly Used Antimicrobial Food Preservatives, presented in 3rd International award conference on Research ,Analyze, communicate and Evaluate, SNDT Women's University , Mumbai on 15th March 2020

2019

- (1) A paper entitled "Intellectual property rights- An opening to a new era of food security " in a National seminar on Need and Challenges of Intellectual Property Rights on September 30, 2019 at Hindu College Moradabad .
- (2) A paper entitled " Beware of invisible enemy at your door step" on 5th November 2019 in a National seminar on " Recent trend in Interactive sciences : A path to Global Expansion " at PGGCG 11, Chandigarh

2017

- (1) Presented a paper " Foul Role of a Permitted Red Food Colour " in International Conference on Recent Development in Engineering Science , Humanities and Management (ESHM-17) on 29th January 2017 at National Institute of Technical Training & Research , Chandigarh
- (2) Presented a paper " Role of Nutrients in sports " in a National seminar cum workshop on Advances in

Applied Sport Psychology held at DAV College , Sector -10, Chandigarh on March 18-19 ,2017.

(3) Presented a paper on “ The Silent Killer – Indoor Pollution “ in 3rd International Conference on Recent Development in Engineering Science, Humanities and Management held on 26th March 2017 at National Institute of Technical Teachers Training & Research, Chandigarh.

(4) Presented a paper “ Hidden treats of two commonly used food preservatives “.In International Conference on Advancements in Science & Technology (ICAST -2017) organized by University School of Sciences, Rayat – Bahra University , Mohali on April 20-21, 2017.

2014

- (1) Presented poster on research paper entitled, “Mutagenic Evaluation of Chocolate Brown -HT “ in National conference on trends in plant science and biotechnology ,organized by Deptt. Of botany Panjab University & society for plant research ,India 21-23 February 2014.

- **WORKSHOP/ CONFERENCE/ SEMINAR/WEBINARS ATTENDED**

2021

- 1) International conference on New Paradigms for Agriculture, Food and sustainability concerns organized by Agriculture Letters, Raichur, Karnataka from 26-28 Feb 2021
- 2) National webinar Revamping Education sector digitally organized by PGGC 46, Chandigarh on 30 April 2021
- 3) National Webinar on "Revised Accreditation Guidelines of NAAC for Quality Enhancement in Affiliated Colleges" organized by Internal Quality Assurance Cell (IQAC), GGSDS College, Chandigarh in collaboration with National Assessment and Accreditation Council (NAAC), Bangalore on 12 June 2021
- 4) National Webinar on “Environmental Ethics” organized by Baring Union Christian College, Baltala ,Punjab on 18 June 2021.
- 5) Webinar on “15th National Statistic day 2021” organized by Deptt. Of Stat USOI, PU, Chd on 29 June 2021
- 6) Webinar on “UGC Care: Indian Perspectives” organized by Society for Plant research on 3 July 2021
- 7) International level Webinar on “Personality Development and Interpersonal skills” organized by Poona College, Pune on 10 July 2021.
- 8) National Webinar On “Stories of Mind: Causes And Prevention Of Suicide” held on 10 September 2021 organised by PGGC Sec 46, Chd.

2020

1. Attended a National webinar on “Towards excellence in higher education in India in the 21st Century: Challenges and opportunities” on 1st May 2020 at GAD-TLC & Guru Teg Baahadur Khalsa College, University of Delhi.
2. Attended a Webinar on “How to Avoid Plagiarism Using-URKUND as a Plagiarism Tool ’on 2nd May 2020 at e-Galactic in association with PGGC 42, Chandigarh & Birla IMT, Greater Noida in collaboration with Ranganathan Society for Social Welfare and Library Development.
3. Attended First leadership talk With Prof. D.P. Singh on 9th may 2020 organised by MHRD innovation cell.
4. Participated in a National webinar on “Challenges and prospects in higher education in Global Pandemic” on 10th May 2020 organised by Bareilly college, Bareilly.

5. Attended a Webinar on "Covid 19: High immunity society through scientific blend of traditions and environment" on 13th May 2020 organised by SRBS & SS college, Shahjahanpur.
6. Attended a Webinar on "Genomics for food, health and nutrition" on 14th may 2020 organised by ICRISAT, Hyderabad.
7. Attended an International e- conference on "Prevalent crisis triggered by the Covid 19 pandemic and its appraisal" on 18-19 th may 2020 organised by Deptt. of chemistry & biomedical science ofBCAS.
8. Attended Online entrepreneurship development program on 20-21 May 2020 organised byPGGCG 11 Chandigarh.
9. Attended a National seminar on "Role of biodiversity during Covid 19" on 22 nd May2020organised by PGGCG 42, Chandigarh.
10. Attended a National conference on "Scope and need of Digital learning in pandemic situation-Covid -19" on 23 -24 May 2020 organised by Shri Krishna University.M.P.
11. Participated in a National Webinar on "The Covid -19 :Impact, prevention and significance of immunity" on 28th May 2020 organised by Chamanlal Mahavidyalaya, Landhaura, Haridwar.
12. Attended a one day International Webinar on Recent advances in understanding eukaryotic protein synthesis using various interdisciplinary approaches" on 29 th May 2020 organised by PGDeptt.of Biotechnology ,Yallpur Khalsa Collge,Jalandhar
13. Attended a Webinar on "Use of anti plagiarism software in teaching & research" on31 st May 2020 organised by Chandigarh Govt. College teachers Association.
14. Attended a National webinar on "Paradigm shifting education : Classroom to Virtual Mode" on 2nd June 2020 organised by Deptt. of Teacher education ,Bareilly college , Bareilly.
15. Attended a one day International webinar "Eco-conscious Agriculture" on 4th June 2020 organisedby Maris Stella college, Vijayawada.
16. Attended an International e- conference on "Impact of globally growing Turbulence on the world environment" organized by CLM Haridwar, SS college Shahjahanpur on 5th June 2020.
17. Attended a Webinar on "Covid -19 and changing environment" organized by NIDM, new Delhi on9th June 2020.
18. Attended a Webinar on "Publishing Scholarly articles in scopus indexed journals" on20th June 2020 organised by Chandigarh Govt. College teachers Association.
19. Attended a National Workshop ""Online Teaching-Learning using LMS -MOODLE" organized byGuru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi
On 17-18 July 2020.

20. Attended a National webinar on "Environment, Development and Covid-19: Some Reflections from Indian Perspectives" organized by PGGCG 42, Chandigarh on 29th July 2020.
21. Attended a International e-conference on ""Recent trends in life science research : challenges & promises" on 8th August 2020 organized by Department of botany, SS college, Shahjahanpur,UP government PG college Bazpur,, Uttarakhand & society for research in biological science (SRBS).
22. Attended a National Webinar on "Recent advances in biomass valorisation" on organized by PEC, Chandigarh on 16 November 2020.

2019

1. Attended a ICSSR-NW sponsored National seminar on "Social Inclusion and social Equality through Education (with reference to North West Indian States)" on 26 th March 2019 at PGGCG-11, Chandigarh
2. Participated in a ICSSR New Delhi sponsored National seminar on "Informal Employment in India : Issues and Challenges on 28 th March 2019 at PGGCG-11, Chandigarh
3. First SPARS International workshop on vaccine chemistry and immunology on April 16th 2019 at Punjab University .
4. One day state level Traing Workshop on " Revised Assessment and Accreditation Framework" (RAF) conducted by National Assessment and Accreditation Council , Bengaluru on April 29th 2019at RUSA, Sector 42, Chandigarh .
5. A National seminar on Need and Challenges of Intellectual Property Rights on September 30,2019at Hindu College Moradabad .
6. A National seminar on " Recent trend in Interactive sciences : A path to Global Expansion " atPGGCG 11, Chandigarh on 5th November 2019
7. One day National workshop on " Organic Farming & Waste Segregation " on November 25, 2019 sponsored by RUSA at PGGC , Sector 46, Chandigarh

2018

1. International workshop on " Shock wavws in science,Engineering & Medicine on 23rd & 24 th Feb 2018 at PGGCG 11, Chandigarh
2. Attended RUSA sponsored workshop on "Dynamic of Interpersonal Behaviour" held on 27.11.2018 at PGGCG-11, Chandigarh.
3. Attended celebration of Akshay Urja Diwas on 20 August 2018 at PGGCG 11, Chad
4. Attended RUSA sponsored capacity building workshop on "Ethics in Public Life"19th March 2019at PGGCG-11,Chd.

2017

1. Participated in Rusa sponsored capacity building workshop on Digital economy and Cyber security on 20th January 2017 at PGGCG -11, Chd.
2. Participated in a Rusa sponsored capacity building workshop / seminar on “ Life skill Training “ on 2nd March 2017 at PGGCG -11 ,Chd under the aegis of State Higher education Council ,Chandigarh.
3. Participated in one day workshop on solar energy – A key to the future on 29 th March 2017 organised by science society of PGGCG -11, Chd
4. Participated in a Rusa sponsored capacity building workshop / seminar on “ E- Learning – Massive online courses (MOOCs) at PGGCG -11 , Chd on 5 th May 2017
5. Participated in a Rusa sponsored capacity building workshop / seminar on “ Hands on Training workshop on G e- market “ on 9th May 2017 at PGGCG 11, Chd.
6. Participated in a Rusa sponsored capacity building workshop / seminar on “e Books : selection, acquisition and access” on 25th May 2017 at PGGCG 11, Chd.
7. Participated and organize Akshay Urja Diwas Celebrations on 19 th august 2017 at PGGCG -11 , Chd.
8. Participated in a Rusa sponsored capacity building workshop / seminar on “ Optimizing Emotional well being” on 15th November 2017 at PGGCG 11, Chd
9. Participated in a Rusa sponsored capacity building workshop / seminar on Research Ethics, Plagiarism and Quality Research Papers on 18th November 2017 at PGGCG -11 ,Chd under the aegis of State Higher education Council ,Chandigarh

- **SEMINAR /LECTURE ORGANIZED :**

1. Organising secretary in a National seminar on “ Recent trend in Interactive sciences : A path to Global Expansion “ at PGGCG 11, Chandigarh on 5th November 2019
2. Organised a lecture on Oil Conservation on Rajiv Gandhi Akshay Urja Diwas

ACHIEVEMENTS :

- Member Board of studies for the Post Graduate course in Botany (2019-2021)
- Setting of question papers for UG/PG programs
- Evaluation process of University UG & PG exams

Member of the referee panel / member of editorial board / reviewer:

- Member of the referee panel of UGC care list approved, springer Journal “Vegetos : An international journal for Plant Sciences and Biotechnology ” for review of manuscripts.
- Member of Editorial board of Peer reviewed Journal “Agricultural Letters”.
- Reviewer of Agricultural Research Communication Centre (ARCC) journals

<https://arccjournals.com/ourReviewers>

Life member of the societies

- Asian PGPR society
- Society for Plant Research
- Indian science congress
- Society for research in biological science (SRBS)
- Agricultural letters

Faculty Profile

Name: Dr. Anju Pehwal
Designation: Assistant Professor
Qualification: M.Sc.(Hons.), Ph.D. Botany
Total Teaching Experience: 11 years
Area of specialisation: Tissue culture and biotechnology
Title of Ph.D thesis: "Synthetic seeds and orchid conservation: A study *in vitro*".



1. Participated in One Day Capacity Building Workshop on " InstitutionalLeadership" sponsored by RUSA under the Aegis of Department of Higher Education, Chandigarh Administration, held on 19th March 2016.
2. Participated in RUSA sponsored Capacity Building Workshop on " Digital Economy and Cyber Security held at PGGCG-11, Chandigarh under the aegis ofState Higher Education Council, Chandigarh, held on 20th Jan 2017.
3. Participated in organising Akshay Urja Diwas celebrated on 19th Aug 2017, heldat PGGCG-11, CHD, Sponsored by: Chandigarh Renewable Energy, Science and Technology, promotion Society(CREST), Chandigarh Administration.
4. Participated in RUSA sponsored Workshop on Sustainable and Harmonious Development in India: Issue and Challenges held at PGGCG-11, CHD,under the aegis ofState Higher Education Council Chandigarh,on 24th January 2018.
5. Participated in RUSA sponsored Capacity Building Workshop on Recent Trends in Science and Technology held at PGGCG-11, CHD,Under the aegis of StateHigher Education Council, CHD,on 28th Feb 2018.
6. Participated in International Workshop on "Shock waves in Science, Engineering & Medicine" held at PGGCG-11, Chandigarh on 23rd and 24thFeb., 2018.
7. Participated in RUSA sponsored Capacity Building Workshop on "Ethics in Public Life" organised by Department of Philosophy and P. G. Department of Public Administration, PGGCG-11, CHD, Under the aegis of State Higher Education Council Chandigarh, held on 19th march, 2018.
8. Participated as organizational Committee for Akshay Urja Diwas Celebrations at PGGCG-11, Chandigarh on 20th August 2018.
9. Participated in RUSA sponsored Faculty Development/Capacity BuildingWorkshop/ Seminar on Hygiene Management Among Adolescents ,held at PGGCG-11, CHD, under the aegis of State Higher Education Council, on 12th- 13th September, 2018.
10. Attended 7 days NSS Camp held under the theme" Swachh Bharat , Saksham Bharat" from 16th October 2018 to 22 Oct 2018 and Got certificate 'C'.
11. Participated in RUSA sponsored Faculty Development/ Capacity Building Workshop/ Seminar on " Dynamics of Interpersonal Behaviour held at PGGCG-11, Chandigarh under the aegis of State Higher Education Council, Chandigarh on 27th November 2018.
12. Participated in an Orientation Workshop for Teachers on 23rd Feb, 2019, at new public school, Sector 18 B, Chandigarh. Organised by, Department of Environment, Chandigarh Administration and Yuvsatta

(youth for peace)-anNGO.

13. Presented Poster " Applications of Nanomaterials in human welfare " on One Day National Seminar on Recent Trends in Interactive Sciences: A Path to Global Expansion, held on November 05, 2019. Hosted at PGGCG- 11, Chandigarh.

14. A tended seven days Faculty Development Programme" Education and Pedagogy in the Times of Digital Humanities on 09.01.2020 to 15.01.2020, organised by IQAC department of philosophy and Psychology, at PGGCG- 11 Chandigarh. in association with UGC-HRDC, PU, Chandigarh and under the aegis of RUSA.

15. Participated in one Day workshop on "Medicinal Plants and Their Cultivation" held on 6th Feb ,2020. Sponsored by: Departments of Environment, Chandigarh Administration.

16. Attended online training programme on : Community Based Disaster Management for Northern States organised by Public Administration, Punjab in collaboration with National institute of disaster management, Ministry of Home Affairs, Govt of India from 29.09.2020 to 01.10.2020.

17. Attended National webinar on Environment ,Development and Covid- 19:Some reflections from Indian Perspectives on July 29, 2020, organised by Post Graduate Government College for Girls-42, Chandigarh.

18. Attended two days International webinar on " Redrawing the Domestic Paradigm: Family Bonding, Gender concerns & Health Issue amidst Covid-19 "organised by PGGC-11, Chandigarh on 16th & 17th /july,2020.

BIO-DATA



Dr. Amit Jakhal

M. Sc. (Hons.), Ph. D.

EDUCATIONAL QUALIFICATIONS:

M.Sc. (Hons.) Botany	Panjab University, Chandigarh.	2003
N.E.T.	(CSIR-UGC)	2003

Ph.D. RESEARCH:

Ph.D. pursued at Mycology Laboratory, Department of Botany, Panjab University, Chandigarh.

Topic of Research: Taxonomic Investigations on Lichens of Garhwal Himalayas.

Field of Specialization: Taxonomy of Lichens.

Duration: April 21, 2004 to April 24, 2009.

ADDITIONAL QUALIFICATION:

One-year Diploma Course in Basic Computer Applications (E-Commerce) from SSI, Chandigarh.

WORKING EXPERIENCE:

Position	Institution	Classes taught	Duration
Assistant Professor (Botany)	Gandhi Memorial National (P.G.) College, Ambala Cantt, Haryana	Undergraduate	20.07.2009 to 22.04.2010
			06.08.2008 to 07.03.2009
Assistant Professor (Botany)	Post Graduate Govt. College, Sector 11, Chandigarh	Undergraduate	19.08.2010 to 28.02.2012
Assistant Professor (Botany)	Post Graduate Govt. College for Girls, Sector 11, Chandigarh	Undergraduate	29.02.2012 to till date
		Post graduate	

PUBLICATIONS:

- Amit Jakhal (2018). Epiphytic Lichen
Flora of Garhwal Himalaya. New
Horizons XV: 29-39
- New Horizons (Journal of
MCMDAV College,
Chandigarh
- ISSN: 2277-5218

WORKSHOPS/CONFERENCES ATTENDED:

- ✕ Workshop on “Conserving Flora and Saving Environment” (March 24, 2002) held at Department of Botany, Panjab University, Chandigarh.
- ✕ 91st Session of Indian Science Congress Association (January 3-7, 2004), held at Chandigarh.
- ✕ National Seminar on ‘New Horizons in Life Sciences’ (September 2-3, 2005), held at Narsinghpur (M. P.).
- ✕ Training Programme on ‘Modern Technology in Horticultural crops’ (May 15-19, 2006), held at Horticulture Training Institute, Karnal.

- ✘ National Symposium “Germplasm Evaluation: Present Trends” (January 23–25, 2006), held at Punjabi University, Patiala,
 - ✘ National Conference on “Biodiversity Related International Conventions” (March 8–10, 2006), University of Delhi, Delhi.
 - ✘ National Seminar on “Water Conservation – Need of the Hour” (September 28–29, 2007), held at Gandhi Memorial National (P.G.) College, Ambala Cantt., Haryana.
 - ✘ National Symposium on “Recent Advances in Phycology: From molecule to Ecosystem” (Nov. 14–16, 2007), Panjab University, Chandigarh.
 - ✘ Training Programme on Commercial Cultivation of Spices and Flower’s crops (November 24–28, 2007), held at Horticulture Training Institute, Karnal.
 - ✘ 2nd Chandigarh Science Congress “CHASCON” (March 14–15, 2008) held at Panjab University, Chandigarh.
 - ✘ National Seminar on “Recent Envirotrends” (November 16–17, 2008), D.A.V. College (Lahore), Ambala City, Haryana.
 - ✘ State level Seminar on “Relevance of Basic Sciences” (March 6, 2009), held at Gandhi Memorial National (P.G.) College, Ambala Cantt., Haryana.
 - ✘ National Seminar on “Biodiversity: The Essence of Life” (March 4, 2011), held at Government College, Sector 1, Panchkula.
 - ✘ National Seminar on “Global Warming and its Impacts on Biodiversity” (November 8–9, 2011), held at Gandhi Memorial National (P.G.) College, Ambala Cantt., Haryana.
 - ✘ XVI Annual Conference of Association of Biology Teachers (May 12, 2013), held at DAV College, Sector 10, Chandigarh.
 - ✘ National Symposium on “Emerging Trends in Botanical Sciences” (February 17–18, 2014), held at Punjabi University, Patiala.
 - ✘ Online Training Programme on Online Training Programme on Community Based Disaster Risk Management (CBDRM) for Northern States (Part I) organized by Mahatma Gandhi State Institute of Public Administration, Punjab in collaboration with National Institute of Disaster Management, Ministry of Home Affairs, Government of India from 29.09.2020 to 01.10. 2020.
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CURRICULUM VITAE



Dr. Shikha Sharma

email- sharmashikha682@gmail.com

contact. no. 9646625919

CAREER OBJECTIVE

- To seek learning opportunities by working in a competitive environment in Botany field and to maximize the organization's potential by adding value to it.
- Ph.D. from Department of Botany, Panjab University, Chandigarh (**under UGC Meritorious Fellowship from 2010-2015**).
Worked on the topic "Screening of some pharmaceutically important medicinal plants of commerce from Chandigarh".

ACADEMIC QUALIFICATION

Examination	Institute	Board/Univ.	Year of Passing	Marks obtained	Percentage (%)
Ph. D.	Panjab University	Panjab University Chandigarh	2016	-	-
M.Phil. (Gold Medalist)	Panjab University	Panjab University Chandigarh	2009	469/600	78.1
M.Sc. (Hons.)	Panjab University	Panjab University Chandigarh	2008	1426/2000	71.3
B.S c.	Govt. PG College. Hamirpur	Himachal Pradesh University. Shimla	2006	1460/2000	73

	(H.P.)				
10+2	Him Academy Public School. Hamirpur (H.P.)	H.P.B.S.E	2003	370/500	74
Matric	J N V Hamirpur (H.P.)	C.B.S.E	2001	353/500	70.6

TEACHING EXPERIENCE

2017 onwards : **6 years as Assistant Professor (contractual Faculty), Botany P.G. Govt. College for Girls Sec. 11 Chandigarh, India**

PUBLICATIONS

1. **Sharma S.**, Richa and Harsimran. 2017. Phytochemical and anatomical screening of *Eclipta prostrata* L.-an important medicinal herb from Chandigarh. Journal of Medicinal Plant Studies. 5 (2): 255-258.
2. Richa, Harsimran, K. and **Sharma, S.** 2015. Phytochemical investigations and anatomical study of two species of *Calotropis* from Chandigarh. International Journal of Pharmaceutical Sciences and Research. 6(4): 1452-1459.
3. Richa, **Sharma, S.** and Sharma, M.L. 2014. Phytochemical investigations and anatomical study of three species of *Sida*. Biolife. 2(2): 622-629.
4. Richa, Sharma, N.K. and **Sharma, S.** 2014. Plants based drugs used for diabetes by the people of Himachal Pradesh (India). Journal of Ethnobiology and Traditional Medicine. Photon. 123: 917-921.
5. **Sharma S.**, Richa, Geeta and Geetika 2013. Phytochemical and anatomical screening of *Boerhaavia diffusa* Linn- an important medicinal herb from N.W. India. International Journal of Multidisciplinary Research. 1(1): 1-4.
6. Rajbir, K., Kumar, A., Richa, **Sharma, S.**, Kumar, S., Rao, P. 2012. Investigation of Major and Trace elements in some medicinal plants using PIXE. International Journal of PIXE. 22: 113-119.

7. Sangar S., **Sharma, S.**, Vats V.K., Mehta, S.K., Singh K 2019. Biosynthesis of silver nanocrystals, their kinetic profile from nucleation to growth and optical sensing of mercuric ions. Journal of Cleaner Production 228: 294-302.
8. Thakur, V., Guleria, A., Kumar, S., **Sharma S.**, Singh K. 2021. Recent advances in nanocellulose processing, functionalization and applications: a review. Material Advances 2: 1872-1895.

CONFERENCES ATTENDED

International:

- Presented paper in **International Conference on Physical Sciences and Life Sciences** held on 5th-6th March, 2013 at Bangkok, Thailand.

National:

- Participated in **“Workshop on Medicinal Plants and Their Cultivation”** held on 6th Feb. **2020** organized by Post Graduate Department of Botany & Environment Society- “PRAKRITI”, Post Graduate Government College for Girls Sector 11 Chandigarh.
- Participated in Capacity building Workshop on **“Recent Trends in Science and Technology”** held at Post Graduate Government College for Girls Sector 11, Chandigarh Under the aegis of State Higher Education Council, Chandigarh on 28th Feb. **2018**.
- Participated as Member organizational committee for Akshay Urja Diwas Celebration held on 20th Aug. **2018** organized by Environment Society- “PRAKRITI”, Post Graduate College for Girls, Sector 11, Chandigarh.
- Attended the International Workshop in **“Shock Waves in Science, Engineering & Medicine”** held at Post Graduate College for Girls, Sector 11, Chandigarh on 23rd & 24th Feb. **2018**.
- Oral Presentation in International Conference on **“Translational Research in Life Sciences (TRLS-2018)”** on the topic **Phytochemical Screening of Some Pharmaceutically Important Wild Medicinal Plants form Chandigarh** held at Department of SAIL/CIL, Panjab University, Chandigarh during July 5-7, **2018**.
- Participated as Member organizational committee for Akshay Urja Diwas Celebration held on 20th Aug. **2017** organized by Environment Society- “PRAKRITI”, Post Graduate College for Girls, Sector 11, Chandigarh.

PERSONAL DETAILS

Name : Shikha Sharma

Status : Married

D.O.B : 5th May 1986

Father's Name : Sh. Subhash Chander Sharma

Address : House No. 199, Sector 38A, Chandigarh.

Email Id : sharmashikha682@gmail.com

Contact no. : +919646625919

ACADEMIC ACHIEVEMENTS

- **Gold Medalist** in M. Phil. 2009
- **UGC Meritorious Fellowship** holder (2010-2015).
- Cleared State Level Eligibility Test (**SET**) 2008.
- Cleared M.Phil/ Ph.D. Entrance Test 2008.

DATE:

PLACE: Chandigarh

(Shikha Sharma)

Faculty Development Programmes

Sr.No.	Name of the faculty	FDP	Date
1.	Dr. Madhumita Bhattacharjee	Skill Development Programme On Online Tools: 2020 organised by Society For Research In Biological Science In Association With Government P G College Bazpur, Us Nagar, Uttarakhand & SS College, Shahjahanpur, UP.	27.07.2020 to 31.07.2020
2.	Dr. Madhumita Bhattacharjee	2-days online National Workshop entitled "Online Teaching-Learning using LMS module" organized by Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT) of MHRD	17.07.2020 to 18.07.2020
3.	Dr. Amit Jakhal	CBDRM (Community based Disaster Risk Management) Training programme for Northern States (Part I) organized by Mahatama Gandhi State Institute of Public Administration, Sector 26, Chandigarh	29.09.2020 to 1.10.2020
4.	Dr. Anurita Sharma	Six day virtual national executive development programme on "New trends in higher education & emergence of smart teachers" organized by IQAC, Centre for capacity building and Karbros, Coimbatore, Tamil Nadu	25.06.2021 to 30.06.2021
5.	Dr. Anurita Sharma	One Week Online National Faculty Development Program organized by Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on	14.07.2021 to 20.07.2021

		Teachers and Teaching (PMMMNMTT) of Ministry of Education with Grade A+	
6.	Dr. Madhumita Bhattacharjee	One Week Online National Faculty Development Program organized by Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi under the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) of Ministry of Education with Grade A+	14.07.2021 to 20.07.2021
7.	Dr. Anurita Sharma	7-weeks 7-days workshop on PCMA leadership talks organized by Punjab Commerce & Management Association	30.05.2021 to 10.05.2021
8.	Dr. Anurita Sharma	6-days course on Poultry organized by Central Poultry Development Organization	21.03.22 to 26.03.22

Windrow Composting Unit

Windrow Composting is another method of recycling the waste and management of the solid waste. The unit was inaugurated in the college on **9th March, 2019** by Prof. (Dr.) Anita Kaushal, Principal of the college. Organic waste and its management is a global concern, and in Chandigarh it amounts to almost 70% of the total waste generated. Windrow composting is a recent and simple biological process, but a versatile method which is being prominently used in Indore and Bangalore. Its main utilization is for stabilization of organic matter and its conversion into valuable soil thereby improving its physical properties. It reduces risks of odor, decreases soil and water pollution and maintains optimum Carbon and Nitrogen ratio (C:N). All food waste (100%) from the college food-service operations is collected in windrow composting plant and compost is generated. This compost is used on college land including landscaping, maintenance of lawns and raising of flower beds making it an organic college. It helps restoration of environmental by reducing its degradation and making the campus fully organic.



Windrow Composting Unit



PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)

(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

SYLLABI

FOR

B.A. & B.Sc. (GENERAL) FIRST YEAR (SEMESTER SYSTEM)

EXAMINATIONS, 2022-2023

(SEMESTER : FIRST AND SECOND)

i.e

First Semester : *November/December, 2022*
Second Semester : *April/May, 2023*

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BOTANY

SEMESTER-I

First Semester		Time	Theory	Int Assess.	Max Marks
Theory Paper- A	Plant Diversity-I	3 hrs.	36	04	40
Theory Paper-B	Cell Biology	3 hrs.	36	04	40
One practical pertaining to entire syllabus included in both theory papers		3 hrs.	18	02	20
Second Semester					
Theory Paper –A	Plant Diversity-II	3hrs	36	04	40
Theory Paper-B	Genetics	3hrs	36	04	40
One practical pertaining to entire syllabus included in both theory papers		3hrs.	18	02	20
		Total			200

Note: 1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.

2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each Unit. Question No. 1 will carry 12 marks and the rest of 8 questions will be of 6 marks each.

Paper-A: PLANT DIVERSITY-I

Objective: The basic objective of this paper is to make students aware about the diversity in various life forms of plant kingdom. It gives an idea about the most simple group of plants. A systematic study of algae and fungi included in this group would familiarize students not only with structural differentiation but also provide an insight about the heterotrophic and autotrophic modes of nutrition in the plant kingdom. This paper in fact forms the basis of any advance study in Botany.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT – I

Bacteria: Salient features, types and cell structure.

Algae: General Characters; systematic position, structure and life history of *Oscillatoria* (Cyanophyceae)

Volvox, *Cladophora* (Chlorophyceae); *Vaucheria* (Xanthophyceae).

UNIT-II

Systematic position, structure and life history of *Dictyota* (Phaeophyceae); *Batrachospermum* (Rhodophyceae) and economic importance of algae.

UNIT-III

Fungi: General characters; systematic position, structure and life history of *Albugo* (White rust of crucifers:

Albugo candida), *Rhizopus* and *Saccharomyces*.

UNIT-IV

Systematic position, structure and life history of *Agaricus*, *Ustilago* (Loose smut of wheat: *Ustilago tritici*), *Puccinia* (Black rust of wheat: *Puccinia graminis tritici*), *Colletotrichum* (Red rot of sugarcane: *Colletotrichum falcatum*); general account of Lichens and their economic importance.

Suggested Readings :

1. Alexopoulos, C. J. Mims, C. W. and Blackwell, M. 1996. Introductory Mycology. John Wiley and Sons, Inc. USA.
2. Dube, H.C. 1990. An Introduction to Fungi. Vikas Publishing House Pvt. Ltd., Delhi.
3. Goyal, J. P. Dhand, Neelam and Saini, Aruna. 2011. Foundations of Botany. Trueman Book Company Jalandhar.
4. Pandey, B.P. 2009. Botany for Degree Students. S. Chand & Co. Ltd., New Delhi.
5. Sharma, O.P. 1992. Text Book of Thallophytes, McMillan India Ltd., New Delhi.
6. Sharma, P.D. 1991. The Fungi. Rastogi & Co., Meerut.
7. Smith, G.M. 1971. Cryptogamic Botany. Vol. 1, Algae & Fungi, Tata McGraw Hill Publishing Co. New Delhi.
8. Singh, V. Pandey, P.C. and Jain, D.K. 2012. Text Book of Botany, Diversity of Microbes and Cryptogams. Rastogi Publications, Meerut & New Delhi.
9. Srivastava, H.N. 2013. Pradeep's Botany Vol. I (Diversity of Microbes and Cryptogams), Pradeep Publications, Jalandhar (India).
10. Vishishta, B. R. 1999. Botany for Degree Students. Algae. S. Chand and Company Ltd., New Delhi.
11. Vishishta, B. R. 1999. Botany for Degree Students. Fungi. S. Chand and Company Ltd., New Delhi.

Paper-B: Cell Biology

Objective: This paper deals with the basic structural unit of life i.e. Cell & its organelles. It provides an insight into structural and cytological basis of functional differentiation in plants. Coupled with the study of prokaryotic and eukaryotic diversity of life forms included in Paper-A, the course material of this paper gives an idea about cellular, molecular and biochemical basis of such differentiation.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT – I

Ultrastructure and functions of a typical plant cell and its organelles: Nucleus, Mitochondrion, Plastids, Ribosome, Endoplasmic reticulum, Golgi apparatus, Lysosomes; Structure and functions of cell wall and plasma membrane: fluid mosaic model only.

UNIT-II

Physical structure of chromosome; Giant chromosomes: Polytene and Lampbrush chromosomes; Chromosomal alterations (deletion, duplication, inversion, translocation) and their importance; Variations in chromosome number, (aneuploidy and polyploidy) introduction and their importance.

UNIT-III

Cell divisions: Mitosis and Meiosis in plants and their significance, Synaptonemal complex, DNA: Structure (Watson and Crick model), Nucleosome, types of DNA and role of DNA, Replication of DNA.

UNIT-IV

Structure and concept of gene: One gene-one enzyme hypothesis; Genetic Code: Characteristics, exceptions, Wobble hypothesis; RNA: Structure and types; Transcription and translation; Regulation of gene expression in prokaryotes (Lac operon and Tryptophan operon) and in eukaryotes (a brief account).

Suggested Readings :

1. Alberts, B., Gray, D. Lewis, J. Raff, M., Roberts, K. and Watson, I.D. 1999. Molecular Biology of Cell. Garland Publishing Co., Inc., New York, USA.
2. Bhatia, K.N. and Dhand Neelam. 2013. Cell Biology and Genetics. Trueman Book Company, Jalandhar.
3. Gupta, P.K. 1999. A Text-book of Cell and Molecular Biology. Rastogi Publications, Meerut, India.
4. Kleinsmith, L.J. and Kish, V.M. 1995. Principles of Cell and Molecular Biology (2nd edition). Harper Collins College Publishers, New York, USA.
5. Lodish, H., Berk, A., Zipursky, S.L. Matsudaira, P., Baltimore, D. and Darnell, J. 2000. Molecular Cell Biology. W.H. Freeman & Co., New York, USA.
6. Srivastava, H. N. 2013. Pradeep's Botany Vol. II Cell Biology and Genetics, Pradeep Publications, Jalandhar (India).
7. Wolfe, S.L. 1993. Molecular and Cell Biology. Wadsworth Publishing Co., California, USA.

Suggested laboratory exercises for First Semester :

1. Study of morphology of various genera included in algae and fungi.
2. Study of Crustose, Foliose and Fruticose types of Lichen thalli.
3. Histopathological study of White rust of crucifers, Loose smut of wheat, Black rust of wheat and Red rot of sugarcane.
4. To study cell structure from onion leaf peels; demonstration of staining and mounting method.
5. Preparation of temporary slides to show different stages of mitosis from root tips of *Allium cepa* and *A.sativum*.
6. Preparation of temporary slides to show different stages of meiosis from floral buds of *Allium/Brassica*.

Max. Marks	:	20
Practical	:	18
Internal Assessment	:	02
Time	:	3 hrs

Guidelines for Botany Practical Examination:

- | | | |
|----|--|----|
| 1. | Identify and write illustrated morphological note on specimens A and B. | 05 |
| 2. | Prepare a squash mount of specimen C to show the stage of cell division visible in the slide and show it to the examiner. Identify it giving at least one reason. Draw the stage of cell division and show it to the examiner. | 05 |
| 3. | Identify and the slides D and E giving at least two reasons for each. | 04 |
| 1. | Practical Note-book | 02 |
| 2. | Viva-voce | 02 |

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BOTANY

SEMESTER – II

Paper-A: Plant Diversity-II

Objective: The basic objective of this paper is to make the students aware about the diversity in various life forms of plant kingdom. It gives an idea about how different life forms have evolved from simpler to complex ones. A sequential study ranging from Bryophytes (the amphibians of plant kingdom) and then to Pteridophytes- the first vascular land plants, would enable students to have a broad prospective of evolutionary trends in plant kingdom.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT – I

Bryophyta: General characters; systematic position, structure, reproduction and life cycle of *Marchantia* and *Riccia* (Hepaticopsida) excluding developmental stages.

UNIT-II

Systematic position, structure, reproduction and life cycle of *Anthoceros* (Anthocerotopsida) and *Funaria* (Bryopsida) excluding developmental stages.

UNIT-III

Pteridophyta: General characters; systematic position, structure, reproduction and life cycle of *Rhynia* (Psilophytopsida) and *Selaginella* (Lycopsida) excluding developmental stages.

UNIT-IV

Systematic position, structure, reproduction and life cycle of *Equisetum* (Sphenopsida) and *Pteris* (Pteropsida) excluding developmental stages.

Suggested Readings

1. Goyal, J. P. Dhand, Neelam and Saini, Aruna 2011. Foundations of Botany. Trueman Book Company Jalandhar.
2. Pandey, B.P. 2009. Botany for Degree Students. S. Chand & Co. Ltd., New Delhi
3. Puri, P. 1980. Bryophyta. Atma Ram & Sons, Delhi.
4. Sharma, O.P. 1990. Text Book of Pteridophyta, McGraw Hill Publishing Co., New Delhi.
5. Singh, V. Pandey, P.C. and Jain, D.K. 2012. Text Book of Botany, Diversity of Microbes and Cryptogams. Rastogi Publications, Meerut & New Delhi.
6. Smith, G.M. 1971. Cryptogamic Botany. Vol. II, Bryophytes and Pteridophytes, Tata McGraw Hill Publishing Co., New Delhi.
7. Srivastava, H.N. 2013. Pradeep's Botany Vol. I (Diversity of Microbes and Cryptogams), Pradeep Publications, Jalandhar (India).
8. Vishishta, B. R. 1999. Botany for Degree Students. Bryophyta. S. Chand and Company Ltd., New Delhi.

Paper-B : Genetics

Objective: This paper deals with various aspects of hereditary trends observed in successive generations. It provides an insight into genetic basis of such evolutionary trends in plants. Coupled with the study of variations in life forms included in Paper A, the course material of Paper B provides an idea about the important role that genetics plays in structural and functional differentiation of plants.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Mendelism : Mendel's experiments and results, Mendel's Laws of Dominance, Segregation and Independent assortment; Linkage: complete and incomplete linkage, linkage groups, linkage maps, importance of linkage, cytological interpretation of Mendelism.

UNIT-II

Non-allelic Gene Interactions: Dominant and recessive epistasis, supplementary genes, complementary genes, quantitative or polygenic inheritance, duplicate genes. Allelic gene interactions: Incomplete dominance, codominance, multiple alleles, pleiotropic genes.

UNIT-III

Chromosome theory of heredity, parallelism between chromosome and Mendelian factors, Sex linked inheritance; Characteristics and examples (Haemophilia, colour-blindness); Cytoplasmic or extranuclear inheritance: mitochondrial and plastid DNA; plastid inheritance in *Mirabilis*, mitochondrial inheritance in Yeast.

UNIT-IV

Genetic variations: Continuous and Discontinuous; Mutations: characteristics, types, importance, factors affecting mutations; Mutagens: Physical and chemical, mechanism of gene mutations; DNA damage and repair: Types of damage (Single base change and structural distortion), types of repair system in prokaryotes and eukaryotes.

Suggested Readings :

1. Atherly, A.G., Girton, J.R. and McDonald, J.F. 1999. The Science of Genetics. Saunders College Publishing, Fort Worth, USA.
2. Bhatia, K. N. and Dhand Neelam 2013.. Cell Biology and Genetics. Trueman Book Company, Jalandhar.
3. Gupta, P.K. 1999. Genetics. Rastogi Publications, Meerut, India.
4. Russel, P.J. 1998. Genetics. The Benjamin/Cummings. Publishing Co. Inc., USA.
5. Snustad, D.P. and Simmons, M.J. 2000. Principles of Genetics, John Wiley & Sons, Inc., USA.
6. Srivastava, H. N. 2013. Pradeep's Botany Vol. II Cell Biology and Genetics, Pradeep Publications, Jalandhar (India).
7. Stent, G.S. 1986. Molecular Genetics. CBS Publications.

Suggested laboratory exercises for Second Semester:

1. Study of morphology of various genera mentioned in Bryophyta and Pteridophyta.

2. I. Preparation of permanent stained slides of :

<i>Marchantia</i>	(V.S. Thallus)	<i>Selaginella</i>	(T.S. Stem)
<i>Riccia</i>	(V.S. Thallus)		
<i>Anthoceros</i>	(V.S. Thallus)	<i>Equisetum</i>	(T.S. Aerial stem passing through internode)
<i>Funaria</i>	(T.S. Stem)	<i>Pteris</i>	(T.S. Petiole and leaflet)

II. Study through permanent slides:

Marchantia

- i) L.S. Antheridiophore
- ii) L.S. Archegoniophore
- iii) L.S. Mature sporogonium

Riccia

L.S. Mature sporogonium

Anthoceros

- i) T.S. Thallus passing through antheridia
- ii) T.S. Thallus passing through archegonia
- iii) L.S. Mature sporogonium.

Funaria

- i) L.S. Male receptacle
- ii) L.S. Female receptacle
- iii) L.S. Capsule
- iv) Primary protonema

Selaginella

L.S. Sporangiferous spike

Equisetum

- i) L.S. Strobilus
- ii) T.S. Strobilus

Pteris

Mature prothallus

3. Problems related to Mendalism and gene interactions.

Guidelines for Botany Practical Examination:

Max. Marks	:	20
Practical	:	18
Internal Assessment	:	02
Time	:	3 hrs

1. Cut T.S., stain and make a permanent mount of specimen A. Identify, draw its labelled diagram and 06 show the slide to the examiner.
 2. Problem related to Mendalism or gene interaction (to be announced by the examiner). 04
 3. Identify the slides B and C giving at least two reasons for each. 04
 4. *Viva-voce* & Practical Note-book. 2+2= 04
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PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)

(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

SYLLABI

FOR

**B.A. & B.Sc. (GENERAL) SECOND
YEAR (SEMESTER SYSTEM)
EXAMINATIONS, 2022-2023**

(SEMESTER : THIRD AND FOURTH)

i.e

**Third Semester : November/December,
2022
Fourth Semester : April/May, 2023**

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BOTANY

B.Sc. (GENERAL) SECOND YEAR (3rd and 4th Semester) EXAMINATION, 2022-2023

Third Semester	Time	Theory	Int Assess.	Max Marks
Theory Paper-A: Diversity of Seed Plants and their Systematics-I	3 hrs.	36	04	40
Theory Paper-B: Structure, Development and Reproduction in Flowering Plants-I	3 hrs	36	04	40
One practical pertaining to entire syllabus included in both theory papers	3 hrs.	18	02	20
 Fourth Semester				
Theory Paper-A: Diversity of Seed Plants and their Systematics-II	3 hrs.	36	04	40
Theory Paper-B: Structure, Development and Reproduction in Flowering Plants-II	3 hrs	36	04	40
One practical pertaining to entire syllabus included in both theory papers	3 hrs.	18	02	20
Total				200

Note:

1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.
2. There will be a two theory papers (A & B) in each semester. Each paper will consist of 9 questions. Question No. 1 will be compulsory and will consist of 8 parts (one mark each) comprising 4 MCQ and the rest 4 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A & B. The remaining 8 questions in papers A & B shall include two questions from each unit. Candidates shall be required to attempt one question from each Unit. Question No. 1 will carry 8 marks and the rest of 8 questions will be of 7 marks each.

BOTANY

B.Sc.(General) Third Semester (Examination December, 2022)

THEORY PAPER- A: DIVERSITY OF SEED PLANTS AND THEIR

SYSTEMATICS- I

Objective: This paper deals with highly advance and evolved group of plants with naked seeds i.e. Gymnosperms. The course work of this paper gives a fair idea about the general features, economic importance and study of fossil as well as living gymnosperms.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc. Students will be taken for field excursions to various hill stations/forests to familiarize them with the flora of the area covering various plant forms.

UNIT-I

General characteristics and economic importance of gymnosperms; differences between gymnosperms and angiosperms; differences between manoxylic and pycnoxylic wood.

UNIT-II

Fossil gymnosperms : Geological time Scale, Brief account of fossils, their formation and types (excluding details).

Lyginopteris: Introduction, external structure of stem; internal structure of primary stem, root and leaf; reproduction.

Williamsonia: Introduction, external morphology; internal structure; reproductive organs, male and female flowers.

UNIT-III

Structure, reproduction (male and female strobilus; structure of ovule; development of male and female gametophytes; pollination, fertilization, development of embryo and structure of seed) and life cycle of Cycas.

UNIT-IV

Structure, reproduction (male and female strobilus; structure of ovule; development of male and female gametophytes; pollination, fertilization, development of embryo and structure of seed) and life cycle of:

- a) Pinus
- b) Ephedra

Suggested Reading:

1. Bhatnagar, S.P. and Moitra, A. Gymnosperms, New Age International Limited, New Delhi, 1996.
2. Chopra, G.L. Text book of Gymnosperms, S. Nagin, Delhi, 1976.
3. Dhand, N. Systematics of Spermatophyta. Trueman Publications, Jalandhar, 2012
4. Pandey, B.P. College Botany, Vol. II. S. Chand & Company Ltd., New Delhi, 1994.
5. Singh, V., Pande, P.C. and Jain, D.K. A Text Book of Botany: Diversity and Systematics of Seed Plants, Rastogi Publications, Meerut, 2013.
6. Sporne, K.R. The Morphology of Gymnosperms, Hutchinson & Co (Publishers) Ltd., London, 1965.
7. Srivastava, H.N. Diversity of Seed Plants and their Systematics, Vol. III. Pradeep Publications, Jalandhar, 2014.

PAPER –B: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-I

Objective: This paper deals with the basic body plan and diversity in flowering plant forms. The course work of this paper covers vegetative and reproductive morphology of these plants and will familiarize the students with plants bearing the enclosed seeds.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

The basic body plan of a flowering plant.

Diversity in plant form in annuals, biennials and perennials.

Root system: Tap root and adventitious root system and their various types; structural and anatomical modifications for storage, respiration and reproduction.

UNIT-II

Stem : Modifications of aerial and underground stem.

Leaf: Venation, phyllotaxy, simple and compound leaves, functions and modifications; internal structure (dicot and monocot leaves).

UNIT-III

Flower : As a modified shoot, functions; structure of anther and pistil; structure and development of male and female gametophytes.

UNIT-IV

Double fertilization and its significance; different types of ovules and embryo-sacs.

Suggested Readings :

1. Bhojwani, S.S. and Bhatnagar, S.P. The Embryology of Angiosperms, 5th edition. Vikas Publishing House Pvt. Ltd., Delhi, 2009.
2. Goyal J.P. and Saini, A. Angiosperms: Structure Development and Reproduction, Trueman Book Co. Jalandhar & New Delhi, 2006.
3. Pandey, S.N., Chadha, A. Plant Anatomy and Embryology, Vikas Publishing House Pvt. Ltd., Delhi, 1996.
4. Singh, V. Plant Anatomy and Embryology of Angiosperms, Global Media Publications, Delhi 2010.
5. Singh, V., Pande, P.C. and Jain, D.K. A Text Book of Botany: Structure Development and Reproduction in Angiosperms, Rastogi Publications, Meerut, 2013.
6. Srivastava, H.N. Structure, Development and Reproduction in Flowering Plants, Vol. IV. Pradeep Publications, Jalandhar, 2014.

Suggested laboratory exercises:

1. *Cycas*:
 - i) Habit, armour of leaf bases on the stem, young and old foliage leaves, scale leaves, male cone, megasporophyll, seed.
 - ii) Preparation of permanent stained slides of *Cycas* (T.S. leaflet, rachis and coralloid root).
2. *Pinus*:
 - i) Dwarf shoot; Male cone; Female cones (first year, second year and third year); Seed.
 - ii) Preparation of permanent slide of T.S. needle and pollen grains.
 - iii) Study through permanent slides :
 - a) L.S. male cone
 - b) L.S. female cone
 - c) L.S. ovule
3. *Ephedra*:
 - i) Habit and structure of male and female cones
 - ii) Preparation of permanent slide of T.S. stem (young).
 - iii) Study through permanent slides:
 - a) L.S. female cone
 - b) L.S. male cone

4. Modifications of **root, stem and leaf**.
5. Study through preparation of permanent slides :
 - i) V.S. dicot leaf
 - ii) V.S. monocot leaf

Guidelines for Botany Practical Examination:

Max. Marks:	20
Practical:	18
Int. Assessment:	2
Time:	3 hours

- | | |
|---|-------|
| 1. Cut T.S. of specimen A. Make its permanent stained slide. Identify, draw its well labeled diagram and show it to the examiner. | 6 |
| 2. Identify, write illustrated morphological note on specimen B (from gymnosperms) and C from root/stem/leaf modifications. | 4 |
| 3. Identify slides D and E giving at least two reasons. | 4 |
| 4. Practical note book and Viva-voce | 2+2=4 |

BOTANY

B.Sc. (GENERAL) Fourth Semester (Examination May, 2023) PAPER-A:

DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-II

Objectives: This paper deals with highly advanced and evolved group of plants i.e. Angiosperms. The study of gradual transition from seedless plants to seed plants would make students familiar with origin of structural and functional complexity in plant kingdom. The systematics part of this paper is in fact backbone of the study of Botany. Without having knowledge of taxonomy and species concept, no further research work can be pursued. The identification, nomenclature and classification of the concerned plants make the first step of any research work in Botany.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc. Students will be taken for field excursions to various hill stations/forests to familiarize them with the flora of the area covering various families of flowering plants.

UNIT-I

General characters of Angiosperms. Plant nomenclature and International Code of Botanical Nomenclature : Common names and scientific names, principles and rules; taxonomic ranks; type concept (Holotype, Isotype, Syntype, Paratype, Lectotype, Neotype and Topotype); principle of priority, aims and objectives of plant taxonomy.

A brief account of Bentham and Hooker's System of classification, its merits and demerits.

UNIT-II

Terminology pertaining to floral description.

General account and diagnostic features of the following families (excluding economic importance) :

Liliaceae	:	<i>Asphodelus/Asparagus</i>
Gramineae (Poaceae)	:	<i>Triticum</i>
Ranunculaceae	:	<i>Ranunculus</i> and <i>Delphinium</i>
Brassicaceae	:	<i>Brassica</i>

UNIT-III

General account and diagnostic features of the following families (excluding economic importance):

Rutaceae	:	<i>Citrus</i> and <i>Murraya</i>
Malvaceae	:	<i>Hibiscus</i>
Fabaceae	:	<i>Lathyrus</i> , <i>Cassia</i> and <i>Acacia</i>
Umbelliferae (Apiaceae)	:	<i>Coriandrum</i>

UNIT-IV

General account and diagnostic features of the following families (excluding economic importance) :

Compositae (Asteraceae)	:	<i>Helianthus/Ageratum</i>
Asclepiadaceae	:	<i>Calotropis</i>
Solanaceae	:	<i>Solanum and Petunia</i>
Labiatae (Lamiaceae)	:	<i>Ocimum</i>
Chenopodiaceae	:	<i>Chenopodium</i>

Suggested Readings:

1. Chopra, G.L. Angiosperms: Systematic and Life Cycle, Pradeep Publications, Jalandhar, 1987.
2. Dhand, N. Systematics of Spermatophyta, Trueman Publications, Jalandhar, 2012.
3. Maheshwari, J.K. Flora of Delhi, CSIR, New Delhi, 1963.
4. Singh, G. Plant Systematics: Theory and Practice, Oxford and IBH Pvt. Ltd., New Delhi, 1999.
5. Singh, V., Pande, P.C. and Jain, D.K. A Text Book of Botany: Diversity and Systematics of Seed Plants, Rastogi Publications, Meerut, 2013.
6. Srivastava, H.N. Diversity of Seed Plants and their Systematics, Vol. III, Pradeep Publications, Jalandhar, 2006.
7. Vasishta, P.C. Taxonomy of Angiosperms. R. Chand & Co., New Delhi, 1997.

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PAPER-B: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-II

Objectives: This paper deals with structure development and reproduction in flowering plants – the most fascinating group of plants on earth. The course material of this paper deals with internal structure of various plant parts, their growth patterns and abnormalities in structural development. The vast range of variation found in this group of plants provides a platform to students for acquiring basic knowledge of flowering plants which makes a foundation of applied branches like horticulture, floriculture, olericulture and arboriculture.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Tissue systems: Meristematic, shoot apex, root apex; simple and complex permanent tissues, special tissues; internal structure of primary dicot stem & root (*Helianthus*); secondary growth in dicot stem & root (*Helianthus*); internal structure of monocot stem & root (*Zea mays*); differences between dicot stem and monocot stem; differences between dicot root and monocot root.

UNIT-II

Anomalous stem structure in *Boerhaavia*, *Nyctanthes*, *Mirabilis* and *Dracaena*.

Various methods of vegetative propagation; micropropagation, basic technique and its importance.

UNIT-III

Types of pollination, advantages and disadvantages of self and cross-pollination; contrivances for self and cross-pollination, various agencies to bring about cross-pollination, characters of flowers pollinated by different agencies.

UNIT-IV

Seed formation: Development of endosperm and embryo. Fruit development, maturation and parthenocarpy. Significance of seed: Suspended animation; ecological adaptation and dispersal strategies.

Suggested Readings:

1. Esau, K. Anatomy of Seed Plants, 2nd edition, John Wiley & Sons, New York, 1977.
2. Fahn, A. Plant Anatomy, 2nd Edition, Pergamon Press, Oxford, 1974.
3. Goyal J.P. and Saini, A. Angiosperms: Structure Development and Reproduction, Trueman Book Co. Jalandhar & New Delhi, 2006.
4. Singh, V. Pande, P.C. and Jain, D.K. A Text book of Botany: Structure Development and Reproduction in Angiosperms, Rastogi Publications, Meerut, 2013.
5. Srivastava, H.N.. Structure, Development and Reproduction in Flowering Plants, Vol. IV. Pradeep Publications, Jalandhar, 2014.
6. Vasishtha, P.C. A Text book of Plant Anatomy, S. Nagin & Co., Delhi, 1979.

Suggested Laboratory Exercises:

1. Preparation of permanent stained slides to show:
 - a. Anomalous internal structure of stem in *Boerhaavia*, *Nyctanthes*, *Mirabilis* and *Dracaena*.
 - b. T.S. dicot stem & root (*Helianthus*)
 - c. T.S. monocot stem & root (*Zea mays*)
 - d. Types of Placentation

2. Description of flowers in technical terms, drawing F.D., V.S., T.S. ovary, writing F.F. and referenceto their respective families of the genera mentioned in different families in theory syllabus.

Guidelines for Botany Practical Examination

Max. Marks	20
Practical	18
Int. Assess	02
Time	: 3 hours

1. Cut T.S. of specimen A. Make its permanent stained slide. Identify and draw its well labeled diagram and show it to the examiner. 5

2. Describe specimen B or C in technical terms and proper sequence. Draw F.D. and V.S. of flower B or C. Cut T.S. of ovary and V.S. of flower and show them to the examiner. Write F.F. also. Refer specimen B or C to its respective family. 5

3. Identify slides D and E giving at least one reason. 2

4. Practical note book 2

5. Plant Album 2

6. *Viva-voce* 2



PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

SYLLABI

FOR

B.A. & B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM)
EXAMINATIONS, 2022-2023 (SEMESTER :

FIFTH AND SIXTH)

i.e

Fifth Semester : ***November/December, 2022***
Sixth Semester : ***April/May, 2023***

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BOTANY

B.Sc. (General) Botany Fifth and Sixth Semester Syllabus(Examinations, 2022-2023)

Fifth Semester		Time	Theory	Int Assess.	Max Marks
Theory Paper-A:	Plant Physiology-I	3 hrs.	36	04	40
Theory Paper-B:	Plant Ecology	3 hrs	36	04	40
One practical pertaining to entire syllabus included in both theory papers		3 hrs.	18	02	20
Sixth Semester					
Theory Paper-A:	Plant Physiology-II	3 hrs.	36	04	40
Theory Paper-B:	Economic Botany	3 hrs	36	04	40
One practical pertaining to entire syllabus included in both theory papers		3 hrs.	18	02	20
Total					200

Note:

1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100hrs. respectively.
2. There will be two theory papers (A&B) in each semester. Each paper will consist of 9 questions. Question No.1 will be compulsory and will consist of 8 parts (one mark each) comprising 4 MCQ and the rest 4 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each unit. Question No. 1 will carry 8 marks and the rest of 8 questions will be of 7 marks each.

BOTANY
SEMESTER -V

THEORY PAPER- A: PLANT PHYSIOLOGY-I

Objectives: The basic aim of this paper is to familiarize the students with various concepts of functions and metabolism of plants. The course material of this paper would enable the students to correlate structural diversity of various plant forms with functional differentiation and its biological aspects including biological nitrogen fixation and mineral nutrition. In practicals, students will be familiarize with the various experiments pertaining to theory syllabus.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc.

UNIT-I

Plant Water Relations: Importance of water to plant life; physical properties of water; imbibition, diffusion, osmosis, plasmolysis and deplasmolysis, concept of osmotic potential, water potential and pressure potential; absorption of water, active and passive mechanism of water absorption; transport of water, mechanism and theories to explain ascent of sap; transpiration types, mechanism of opening and closing of stomata, mechanism of transpiration, factors affecting transpiration, antitranspirants.

UNIT-II

Mineral nutrition: Hydroponics and its importance; essential macro-and micro elements, essentiality criteria, deficiency symptoms and their role; mineral uptake; mechanism of mineral uptake (active, passive absorption and modern concepts).

UNIT-III

Nitrogen Metabolism: Biological nitrogen fixation; importance of nitrate reductase and its regulation; ammonia assimilation.

Lipid Metabolism: Structure and function of lipids; β – oxidation; saturated and unsaturated fatty acids.

UNIT-IV

Proteins: Classification, role and structure (primary, secondary and tertiary) of proteins.

Basics of enzymology: Discovery and nomenclature; classification, structure, properties, factors affecting enzyme activity, mechanism of enzyme action.

Suggested Readings:

1. Bhatia, K.N. Plant Physiology- A Modern Treatise, Trueman Book Co. Jalandhar, 2015.
2. Hopkins, W.G. Introduction to Plant Physiology. John Wiley & Sons, Inc. New York, U.S.A., 1995.
3. Salisbury, F.B. and Ross, C.W. Plant Physiology (4th Edition) Wadsworth Publishing Co. California, USA, 1992.
4. Srivastava, H.S. Plant Physiology, Bio-chemistry & Bio-technology, Rastogi Publications, Meerut, 2008.
5. Taiz, L. and Zeiger, E. Plant Physiology (5th edition), Sinauer Associates, Inc., Publishers, Massachusetts, USA, 2010
6. Verma, B. Plant Physiology (1st Edition), Athena Academic, St. John Street, London, UK, 2007.

PAPER-B: PLANT ECOLOGY

Objective: The basic objective of this paper is to make students aware about the role of environment in causing structural and functional variation in plants. Since the present day problems of varied nature like pollution, Global Warming etc. are directly or indirectly related to ecology, it is more than desired to provide the students with knowledge of basic concepts of ecology.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Definition, scope, relationship with other sciences.

Plant Environment: Climatic, edaphic, topographic and biotic factors affecting growth and distribution of plants.

UNIT-II

Ecosystem : Concept, structure; abiotic and biotic components; trophic levels, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles of carbon, nitrogen and water.

UNIT-III

Community Ecology: Community characteristics, frequency, density cover, life forms, biological spectrum; ecological succession – Hydrosere and Xerosere.

UNIT-IV

Applied Ecology :

- a) Air, water and soil pollution and their control.
- b) Conservation and management of natural resources.
(renewable and non-renewable)

Suggested Readings

1. Kormondy, E.J. Concepts of Ecology. Prentice-Hall of India Pvt. Ltd., New Delhi, 1996.
2. Odum, E. and Barrett, G.W. Fundamentals of Ecology, Cengage Learning Publisher, 2004.
3. Odum, E.P. Basic Ecology, Saunders, Philadelphia, 1983.
4. Saini A. Ecology and Economic Botany, Trueman Book Co., Jalandhar, 2015.
5. Sharma, P.D. Ecology and Environment, Rastogi Publications, Meerut, 2012.

Suggested laboratory exercises:

Plant Physiology:

1. To determine osmotic pressure of cell sap by plasmolytic method.
2. To demonstrate imbibition pressure using:
 - i) Imbibition pressure apparatus.
 - ii) Plaster of Paris cone.
3. To demonstrate osmosis through animal membrane/potato osmoscope.
4. To demonstrate plasmolysis and deplasmolysis.
5. To demonstrate mechanical and electrical adsorption.
6. To demonstrate the measurement of transpiration using simple potometer.
7. To demonstrate transpiration pull.
8. To study the effect of light intensity, and wind velocity on the rate of transpiration using Ganong's potometer.

9. To compare the rate of transpiration from the two sides of a leaf using :
 - i) Vaseline method
 - ii) Cobalt chloride method
10. To demonstrate the mechanism of opening and closing of stomata.
11. To demonstrate the path of ascent of sap.

Plant Ecology:

1. Study of ecological adaptations in external characters of :
Hydrilla, Potamogeton, Ceratophyllum, Vallisneria, Lemna, Eichhornia Nelumbium, Calotropis, Nerium, Acacia, Zizyphus, Casuarina, Capparis, Asparagus, Ruscus, Opuntia, Euphorbia royleana.
2. To prepare permanent stained slide to show ecological adaptations in the internal structure of the following:
 - a) T.S. stem of *Hydrilla*
 - b) T.S. leaf and petiole of *Eichhornia*
 - c) T.S. leaf and petiole of *Nelumbium*
 - d) T.S. leaf of *Nerium*
 - e) T.S. stem of *Casuarina* and *Capparis*
3. To determine soil pH using pH paper/solution/pH meter.
4. To determine water holding capacity of soil.

Guidelines for Botany Practical Examination

Max. Marks:
20Practical:18
Int. Assess. 02

Time: 3 hours

1. Write material required, procedure and precautions for physiology experiment A (to be announced by the examiner). Perform the experiment, record observations, calculations if any, and results and show the experiment to the examiner. 6
2. Identify and cut T.S. of stem, leaf or petiole (to be announced by the examiner) of specimen B. Make its permanent stained slide and show it to the examiner. Draw its labelled diagram and write its morphological and anatomical characters of ecological importance. 6
3. Practical note-book 3
4. *Viva-voce* 3

BOTANY SEMESTER-VI

PAPER-A: PLANT PHYSIOLOGY-II

Objectives: The main objective of this paper is to familiarize the students with growth and metabolic processes of the plants. It also deals with the plant development, differentiation and their regulatory mechanism along with basic concepts in tissue culture.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students will be familiarize with the various experiments pertaining to theory syllabus.

UNIT-I

Photosynthesis: Significance, historical aspect; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems, cyclic and non- cyclic photophosphorylation; Calvin cycle; C₄ pathway; CAM plants; photorespiration; factors affecting photosynthesis; transport of organic substances: Mechanism of phloem transport, source-sink relationship, factors affecting translocation.

UNIT-II

Respiration: ATP – The biological energy currency; aerobic and anaerobic respiration; Krebs cycle; electron transport mechanism (Chemi-osmotic theory); redox potential; oxidative phosphorylation; pentose phosphate pathway; respiratory quotient.

UNIT-III

Growth and development: Definitions; phases of growth and development; kinetics of growth, factors affecting growth; plant movements; the concept of photoperiodism, physiology of flowering; florigen concept; roles of plant hormones– auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery.

UNIT-IV

Biotechnology: Functional definition; basic aspects of plant tissue culture, its applications and somatic hybridization.

Suggested Readings:

1. Bhatia, K.N. Plant Physiology- A Modern Treatise, Trueman Book Co. Jalandhar, 2015.
2. Bhojwani, S.S. Plant Tissue Culture: applications and Limitations. Elsevier Science Publishers, New York, USA, 1990.
3. Hopkins, W.G. Introduction to Plant Physiology. John Wiley & Sons, Inc. New York, U.S.A., 1995.
4. Salisbury, F.B. and Ross, C.W. Plant Physiology (4th Edition) Wadsworth Publishing Co. California, USA, 1992.
5. Srivastava, H.N. Plant Physiology, Biochemistry & Bio-technology. Pradeep Publication, Jalandhar, 2008.
6. Srivastava, H.S. Plant Physiology, Bio-chemistry & Bio-technology, Rastogi Publications, Meerut, 2008.
7. Srivastava, H.S. and Shankar, N. Plant Physiology and Bio-chemistry, Rastogi Publications, Meerut, 2012.
8. Verma, B. Plant Physiology (1st Edition), Athena Academic, St. John Street, London, UK, 2007.
9. Taiz, L. and Zeiger, E. Plant Physiology (5th edition), Sinauer Associates, Inc., Publishers, Massachusetts, USA, 2010

PAPER-B: ECONOMIC BOTANY

Objective: The basic objective of this paper is aimed to give an insight into plant wealth such as medicinal plants; crop plants; beverages; spices; condiments; sugar; fiber; pulp & oil yielding plants of commercial & economic importance. Both the aspects of this paper give a sound basis of ecology and economic botany so that students can venture into fields like Environmental Biology, Conservation Biology, Forestry, Agriculture, Horticulture and Crop production etc.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Crop production: Area of cultivation, soil requirement, cultivation practices and high yielding varieties of :

- i) Cereals (Wheat, Rice and Maize)
- ii) Fibres (Cotton)
- iii) Vegetables (Potato)

UNIT-II

Crop production: Area of cultivation, soil requirement, cultivation practices and high yielding varieties of :

- i) Fruits (Mango, Grapes, Lemon)
- ii) Sugar-yielding plants (Sugarcane)
- iii) Oil-yielding plants (Groundnut, Mustard)

UNIT-III

Elementary knowledge of the following plants (Botanical names, families, parts used and economic importance) :

- i) Wheat, Maize, Rice, Moong, Gram (Food).
- ii) Teak, Shisham, Deodar, Sal (Timbers).
- iii) Cotton, Jute, Coir, Flax (Fibres).
- iv) Fennel, Coriander, Turmeric, Ginger, Mint, Clove (Spices and Condiments).

UNIT-IV

Elementary knowledge of the following plants (Botanical names, families, parts used and economic importance) :

- i) Bamboo, Eucalyptus (Pulp plants).
- ii) Liquorice, Belladonna, Aconite, Ashwagandha, Arjun, Poppy, Amla (Medicinal plants).
- iii) Tea and Coffee (Beverages).

Forestry: Forest conservation, wood seasoning and its preservation.

Suggested Readings

1. Kochhar, S.L. Economic Botany in Tropics, (4th edition). Macmillan India Ltd., New Delhi, 2012.
2. Saini, A. Ecology and Economic Botany, Trueman Book Co., Jalandhar, 2015.
3. Sharma, O.P. Hill's Economic Botany (Late Dr. A.F. Hill, Adapted by O.P. Sharma). Tata McGraw Hill Co.Ltd., New Delhi, 1996.
4. Simpson B. and Ogorzaly, M. Economic Botany: Plants in our World (3rd edition). McGraw Hill Publisher, 2000.
5. Taiz, L. and Zeiger, E. Plant Physiology (5th edition), Sinauer Associates, Inc., Publishers, Massachusetts, USA, 2010
6. Singh, V., Pande, P.C. and Jain, D.K. Economic Botany, Rastogi Publications, Meerut, 2012.

Suggested laboratory exercises:

Plant Physiology:

1. To demonstrate that chlorophyll is necessary for photosynthesis.
2. To demonstrate that light is necessary for photosynthesis.
3. To demonstrate that CO₂ is essential for photosynthesis.
4. To demonstrate evolution of oxygen during photosynthesis in an aquatic plant.
5. To study the effect of light intensity and CO₂ concentration on the rate of photosynthesis using an aquatic plant.
6. To demonstrate aerobic respiration using flask method.
7. To demonstrate anaerobic respiration in germinating seeds or yeast.
8. To demonstrate the activity of amylase.
9. To demonstrate the activity of catalase in plant tissue (germinating seeds).
10. To demonstrate phototropism.
11. To demonstrate geotropism using clinostat.
12. To test for the presence of starch, proteins, amino acids, and reducing sugars in plant material.

Economic Botany:

Identification and morphology of economically important part/s of crop plants mentioned below:
Cereals (wheat, rice); Fibres (cotton); Vegetables (potato); Fruits (mango, grapes, lemon); sugar-yielding plants (sugarcane) and oil-yielding plants (groundnut, mustard).

Guidelines for Botany Practical Examination

1. Write material required, procedure and precautions for physiology experiment A (to be announced by the examiner). Perform the experiment, record observations, calculations if any, and results and show the experiment to the examiner.
 2. Identify and write illustrated morphological notes on specimens B & C giving their economic importance.
 3. Practical note-book
 4. *Viva-voce*
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Post Graduate Government College for Girls, Sector 11, Chandigarh

List of Alumnae

Department of Botany

S. No	Name of the Alumna	Higher education details (BE.d/PhD)	E.mail/Contact Number	Year of Passing UG / PG from College	Address	Achievement	Placement
1	Priyanka Arora	Student pursuing BEd from kanya gurukul college of education, shadipur julana jind	Priyaarora599@gmail.com	2019	579/18 street no. 4 arya nagar Rohtak, Haryana 124001	Qualified MARCH GATE 2020	Summer intership at CSIR NEIST (2 Months)
2	Swati	(Pupil Teacher/Student) Student pursuing BE.d from Govt. College of Education, Secto 20-D Chandigarh	Swati7021997@gmail.com	2019	House no. 51 Police Complex, Sector=20/ A Chandigarh, Pincode- 160020		
3	Anmol Saini	Student pursuing BE.d from rattan professional education institute,sohana.	sainianmol96@gmail.com	2019	#257 village dadu majra,near guga madi,chandigarh 160014	Qualified MARCH GATE 2020	
4	Shivani Sharma	student pursuing BE.d from HPU	Shivanisharma1921@gmail.com	2019	Village chanehar PO Brang tehsil Sarkaghat distt. Mandi HP 175024	Qualified MARCH GATE 2020	
5	Aishwarya	M.Sc Passout	aishsharma2595@gmail.com	2019	P.O. - Sidhbari tehsil dharamshala District- Kangra, India		
6	Arju	Student pursuing BE.d from govt.college of education,sector 20-D chandigarh	fastinstitute2018@gmail.com		100 phase 3 ravindra enclave Baltana,Punjab		
7	Vimalpreet Kaur	Student pursuing BE.d from swami vivekananda college	vimalpreet41@gmail.com	2019	#101/1 sec 45A chandigarh		
8	Lovejeet Kaur	Student pursuing BE.d from swami vivekananda college	lovejeetsaini21@gmail.com	2019	Ward no. 13, V.P.O- Banur , district S.A.S nagar		

9	Ramanjot Kaur	Student pursuing BE.d from rattan professional education institute,sohana.	ramanjot250@gmail.com	2019	Village hulka, District S.A.S nagar (Mohali)		
10	Nitika Kalia	M.Sc Passout	nitikakalia7@gmail.com	2019	Village Bhagvanpura post office sarol district chamba		
11	Kriti Chhabra	Student pursuing BE.d from kurukshetra university	kritichhabra94@gmail.com	2019	1/314 patel nagar, saharanpur		PGT teacher previously - ryan international school chandigarh currently- pragiansthal school saharanpur salary- 2,76,000 per annum
12	Isha	Student pursuring BE.d from city college of education, Hisar haryana	ishathakral152@gmail.com	2019	152 police line area, hisar haryana		
13	Kishmita Sharma	M.Sc Passout	Kishmitasharma1672@gmail.com	2019	H.No. A13, Kuantum Papers Colony, Saila Khurd, Distt. Hoshiarpur, 144529	Qualified MARCH GATE2019	
14	Diksha	Student (B.Ed.) College of Education, Punjab	Dikshagarg520@gmail.com	2019	385 Near Market Committee Jakhal, Haryana		
15	Preeti Devi	Student (B.Ed.) Awasthi College of Education, Dharamshala	Preeti.thakur1296@gmail.com	2019	Village Nansai P.O. Sidhpur Tehsil Dharampur Distt. Mandi, H.P, 175040		
16	Manisha kumari	M.Sc Passout	Manishakumari.mk291@gmail.com	2019	2246, Sector-24C Chandigarh		
17	Anjali Singh	M.Sc Passout	Anjalisingh14061997@gmail.com	2019	V.P.O. Jaisinghpur Teh- Jaisinghpur, Distt. Kangra Ward no. 8 , H.P.		

18	Harnoor Kaur Sidhu	Student (B.Ed.) Punjab College of education, Chunni Kalan	45sidhunoor@gmail.com	2019	207, Phase-2, Model Town Bathinda, Punjab	Qualified MARCH GATE 2019	
19	Lovedeep Kaur	M.Sc Passout	Lovedeepkaura7@gmail.com	2019	VPO Padhiana, Distt- Jalandhar, Punjab		
20	Kajal Thakur	M.Sc Passout	Kajalthakur95@gmail.com	2019	VPO Rajnagar Tehsil & Distt. Chamba, H.P. 176310		
21	Anju	M.Sc Passout	ammyanju3@gmail.com	2019	3468 sector 23-D chandigarh		
22	Simran	Student (B.Ed.) Chaudhary Ranbir Singh University, Jind	Simranlather001@gmail.com	2019	H.No. 39/29, Gupta colony, Bhiwani road, Jind, Haryana	Qualified MARCH GATE2019	
23	Vani Loona	Student (B.Ed.) From Lala jagarnath college, Jalalabad	Vaniloona97@gmail.com	2019	Adarsh Nagar Street No. 2 Fazilka (Distt.), Punjab		
24	komalpreet kaur	M.Sc Passout	Komalpreet211996@gmail.com	2019	House no. 804 Sector 78 mohali	Qualified MARCH GATE2019	

BSc Medical -III 2017-18 placements

College Roll No.	Name of the student	Placement	Name of the Institute
8533	MEHAK SOOD	Ph.D.	NIPER, Mohali
8534	CHANDNI	Ph.D.	GNDU, Amritsar
8536	KAJAL THAKUR	M.Sc. Chemistry	PGGC, Sector 11, Chandigarh
8537	AMRITPAL KAUR	Ph.D.	Panjab University, Chandigarh
8538	ANKITA	Appointed as Zilledar	Department of Water Resources, Punjab
8539	SHINA AFFRIN	Phone Number not existing, Mail sent	Screenshot of mail attached
8540	AVNI BANSAL	Phone Number not existing, Mail sent	Screenshot of mail attached
8542	AMTOZ KAUR SANDHU	M.Sc. Biotech	SGGS College, Sector 26, Chandigarh
8543	RITU	Bachelor of Law	Panjab University, Chandigarh
8544	NEETU SINGH	Phone Number not existing, Mail sent	Screenshot of mail attached
8547	JYOTI	M.Sc. Zoology	Punjabi University, Patiala
8548	SINTHIA	Appointed as Technical Assistant	Punjab Warehouse Corporation
8549	RAMANDEEP KAUR	Phone Number not existing, Mail sent	Screenshot of mail attached
8550	ABJOT KAUR	Phone Number not existing, Mail sent	Screenshot of mail attached
8553	FARHEEN	M.Sc. Zoology	PGGCG, Sector 11, Chandigarh
8555	SHELLY	Ph.D. Chemistry	Thapar Institute of Engineering & Technology, Patiala, Punjab
8556	ANCHAL	Executive	IDBI Bank
8557	YOGITA	Phone Number not existing, Mail sent	Screenshot of mail attached
8558	SALONI JAGGA	M.Sc. Chemsitry	PGGC, Sector 11, Chandigarh
5561	DISHA DAHIYA	M.A. Hons in English	Panjab University, Chandigarh
8563	ANSHIKA	Assistant Professor (Chemistry)	Dashmesh Girls College, Badal
8564	HIMANI SINGLA	Phone Number not existing, Mail sent	Screenshot of mail attached
8566	NIMRAT KAUR	Phone Number not existing, Mail sent	Screenshot of mail attached
8568	POOJA ARORA	Phone Number not existing, Mail sent	Screenshot of mail attached
8569	VISHAKHA CHAUHAN	Phone Number not existing, Mail sent	Screenshot of mail attached

BSc Medical -III 2018-19 placements

College Roll No.	Name of the student	Placement	Name of the Institute
2519	Jyoti	Phone Number not existing, Mail sent	Screenshot of mail attached
2520	Punam	Phone Number not existing, Mail sent	Screenshot of mail attached
2521	Sonali	PG Diploma in Management	Panjab University, Chandigarh
2522	Jashangeet Kaur	B.Ed.	Panjab University, Chandigarh
2524	Renu Devi	Ph.D. Chemistry	Chandigarh University, Punjab
2525	Manisha Rani	M.Sc. (Chemistry), B.Ed.	Punjabi University, Patiala
2528	BakulBeniwal	M.Sc. (Botany), B.Ed.	(M.Sc.) DAV College, Yamuna Nagar; (B.Ed.) Mansa
2529	Meghna Sharma	B.Ed.	Panjab University, Chandigarh
2530	Tania Dharmani	B.Ed.	Punjabi University, Patiala
2531	Simran	M.Sc. Chemistry	Kurukshetra University, Chandigarh
2532	Nivedita	B.Ed.	Panjab University, Chandigarh
2536	Sweety	Phone Number not existing, Mail sent	Screenshot of mail attached
2539	Anuradha	B.Ed.	Dev Samaj College, Chandigarh
2542	Svinal Chauhan	M.Sc. (Chemistry)	Shimla University, Shimla
2544	Manisha Singh	M.A. English	Panjab University, Chandigarh
2545	Megha Negi	Phone Number not existing, Mail sent	Screenshot of mail attached
2550	Khushbu	Phone Number not existing, Mail sent	Screenshot of mail attached
2551	Kumari Deeksha	Phone Number not existing, Mail sent	Screenshot of mail attached

Number of placement of outgoing students during the year 2020-2021

Year	Name of student placed and contact details	Program graduated from	Name of the employer with contact details	Pay package at appointment
2020-2021	Rashim	MSc Botany	DAV Centenary Public School, Fatehabad	Approx. Rs. 2,64,000/- per annum
2020-2021	Monika Yadav, monikadahiya1997@gmail.com	MSc Botany	Army Public School, Jaipur, 0141-2249168	Approx. Rs. 5,00,000/- per annum

Number of placement of outgoing students during the year 2021-2022

College Roll No.	Name of the student	Placement	Name of the Institute
11715	MARVI GUPTA	M.Sc. Chemistry	PGGCG, Sector 11, Chandigarh
11716	SHREYA	M.Sc. Botany	PGGCG, Sector 11, Chandigarh
11718	MAHIMA	B.Ed.	Swami Vivikanand College of Education, Moonak
11719	DIKSHA JINDAL	B.Ed.	Malwa College of Education, Mansa, Punjab
11721	PRIYA WALIA	B.Ed.	Dev Samaj College of Education, Sector 36, Chandigarh
11722	KIRPAL KAUR	Preparing for IELTS	
11723	PRIYANKA	M.Sc. Zoology	DAV College, Sector 10, Chandigarh
11724	SNEHA	Preparing for Competitive exams	Bright Academy
11725	SHRUTI VERMA	Preparing for IELTS	Proof attached
11726	NEHA	Preparing for Competitive exams	
11729	YACHNA	Working as Primary Teacher	Tarn Taran, Punjab
11730	SALONI THAKUR	M.Sc. Chemistry	DAV College, Sector 10, Chandigarh
11732	ANJALI DEVI	M.Sc. Chemistry	Sri Guru Gobind Singh College, Sector 26, Chandigarh
11733	VANDANA	B.Ed.	Milkha Singh College, Bareta (Mansa) Punjab

11736	DISHU GILL	M.Sc. Chemistry	PGGC, Sector 11, Chandigarh
11737	TAMANNA	M.A. Sociology	Panjab University, Chandigarh
11738	RIYA THAKUR	M.Sc. Botany	-
11739	AANCHAL NEGI	Preparing for Competitive exams	-
11740	BHUMIKA SHARMA	M.Sc. (Hons.) Botany	Panjab University, Chandigarh
11743	SIYA VERMA	M.Sc. Zoology	Chandigarh University, Punjab
11745	YOGITA	M.Sc. Zoology	PGGCG, Sector 11, Chandigarh
11746	KHUSHIE	M.Sc. Zoology	Panjab University, Chandigarh
11747	SONAM CHOTON	CALL NOT LINKED	MAIL SENT
11748	JIGMET ANGMO	Preparing for SSC, Banking	Teacher's Vision, Sector 15, Chandigarh
11749	SONAM CHOROL	CALL NOT LINKED	MAIL SENT
11751	RAMANPREET KAUR	M.Sc. Chemistry	PGGCG, Sector 11, Chandigarh

TIME TABLE – DEPARTMENT OF BOTANY, JANUARY 2017

PERIOD TEACHER	1 8.40-9.35	2 9.35-10.30	3 10.30-11.25	4 11.25-12.20	5 12.20-1.15	6 1.15-2.10	7 2.10-3.05	Total periods
Mrs. Inderveena Sharma				B.Sc. I (Th) 4-6 (R-129)	B.Sc. I (Pr) 1,2,3,4,6 (Lab-I)			17
	B.Sc. II (Pr) 2,3 (Lab-II)							
Dr. Vishal Sharma	B.Sc. III (Pr) 3,5 (Lab-II)		M.Sc.II (Th - Forestry) 4-6 (R-147)		M.Sc. II (Pr - Forestry) 1 (Lab-III)			19
	M.Sc. I (Pr - Pathology) 2 (Lab-III)			B.Sc. III (Th) 1-3 (R-129)	M.Sc.I (Th - Pathology) 4(Lab-III), 5,6(Lab-II)			
Dr. Madhumita Bhattacharjee		B.Sc. II (Th) 4-6 (R-124)	B.Sc. II (Pr) 4,6 (Lab-II)		B.Sc. I (Pr) 1,2,5 (Lab-II)			19
			M.Sc.II (Th - Pl. Res. Uti. & Cons.) 1,2 (R-124)	M.Sc.II (Th - Pl. Res. Uti. & Cons.) 3 (Lab-III)	M.Sc.II (Pr - Pl. Res. Uti. & Cons.) 3 (Lab-III)			
Dr. Anurita Sharma		M.Sc.I (Th - Pteridophytes) 1 (R-147)	B.Sc. II (Pr) 1-5 (Lab-I)		B.Sc. II (Th) 1-3 (R-124)			19
	M.Sc.I (Pr - Pteridophytes) 6 (Lab-III)			M.Sc.I (Th - Pteridophytes) 6 (Lab-III)		M.Sc.I (Th - Pteridophytes) 4 (Lab-III)		
Dr. Harsh Manchanda	B.Sc. III (Pr) 1,2,4 (Lab-I)		B.Sc. II (Pr) 1 (Lab-II)		M.Sc.I (Th - Taxonomy) 1-3 (culture room)			20
	M.Sc.I (Pr - Taxonomy) 3 (Lab-III)			M.Sc.II (Th - Biochem) 4-6 (Culture room)	M.Sc.II (Pr - Biochem) 6 (Lab-III)			
Dr. Anju Pehwal	B.Sc. III (Pr) 1,2,4 (Lab-II) 3,6 (Lab-I)		M.Sc.II (Th - Cytogenetics) 3 (R-124)	M.Sc.II (Th - Cytogenetics) 1,2 (Lab-III)	M.Sc.II (Project Work) 2 (Lab-III)			20
			B.Sc. III (Th) 4-6 (R-129)		M.Sc.II (Pr - Cytogenetics) 5 (Lab-III)			
Dr. Amit Jakhal			B.Sc. I (Th) 1-3 (R-129)	M.Sc. I (Th- Gymnosperms) 1-3 (R-147)	B.Sc. I (Pr) 3,4 (Lab-II)			22
	M.Sc.I (Pr - Gymnosperms) 4 (Lab-III)			M.Sc.I (Th- Repro. Bio.) 4,5 (R-124)	M.Sc.II (Project Work) 2 (Lab-III)			
	M.Sc.I (Pr - Repro. Bio.) 5 (Lab-III)					M.Sc.I (Th- Repro.Bio.) 6 (Lab-II)		

TIME TABLE – DEPARTMENT OF BOTANY, JULY 2017

PERIOD TEACHER	1 9.00-9.55	2 9.55-10.50	3 10.50-11.45	4 11.45-12.40	5 12.40-1.35	6 1.35-2.30	7 2.30-3.25	Total periods
Mrs. Inderveena Sharma			B.Sc. I (Pr) 1,3,4,5,6 (Lab-I)		B.Sc. I (Th) (1-3) R-124	B.Sc. I (Th) (4-6) R-124		16
Dr. Vishal Sharma	B.Sc. II (Pr) 1,6 (Lab II)		B.Sc. III (Th) 4-6 (R-129)	M.Sc.II (Th - Biotech) 1-3 (R-128)	B.Sc. III (Pr) 1,3 (Lab-II)			18
	B.Sc. II (Pr) 4(Lab-II)				M.Sc. II (Pr - Biotech) 2 (PG Lab)			
Dr. Madhumita Bhattacharjee	B.Sc. II (Pr) 5 (Lab-II)		B.Sc. I (Pr) 1-3 (Lab-II)		M.Sc.II (Pr – Genetics) 3 (PG Lab)			18
		B.Sc. II (Pr) 4(Lab-II)		B.Sc. II (Th) 4-6 (R-124)				
		M.Sc.II (Th- Genetics) 1,2,6 (Culture room)						
Dr. Anurita Sharma	B.Sc. II (Pr) 1-3 (Lab-I)		M.Sc.II (Th – Plant Ecology) 4-6 (PG Lab)	M.Sc.II (Pr – Plant Ecology) 5 (PG Lab)				18
	M.Sc.I (Pr – Plant Anatomy) 4 (PG Lab)			M.Sc.I (Th – Plant Anatomy) 1,2,3 (Culture room)				
Dr. Harsh Manchanda			M.Sc.II (Th - Physiology) 4-6 (Culture room)	M.Sc.I (Th - Phycology) 1-3 (Culture room)	B.Sc. III (Pr) 2,5,6 (Lab-I)			18
	M.Sc.I (Pr - Phycology) 3 (PG Lab)				M.Sc.II (Pr - Physiology) 4 (PG Lab)			
Dr. Anju Pehwal	M.Sc.I (Pr & Th – Lab tech.) 6 (PG Lab)			B.Sc. III (Th) 1-3 (R-129)	B.Sc. III (Pr) 3,4,5 (Lab-I)			18+1
		M.Sc.II (Th – Mol.Bio) 4 (Culture room)	M.Sc.II (Th – Mol.Bio) 2,3 (R-147)		M.Sc.II (Pr – Mol.Bio) 1 (PG Lab)			
Dr. Amit Jakhal			B.Sc. I (Pr) 4,5,6 (Lab-II)		B.Sc. I (Th) (1-3) R-126	B.Sc. I (Th) (4-6) R-126		18+1
	M.Sc.I (Pr - Mycology) 2 (PG Lab)				M.Sc.I (Mycology) 4-6 (Culture Room)			
Dr. Shikha Sharma	B.Sc. II (Pr) 2 (Lab-II)		M.Sc. I (Biostats) 1 (PG Lab)	M.Sc.I (Th - Bryology) 4-6 (R-128)	B.Sc. II (Th) 1-3 (R-129)	M.Sc. I (Biostats) 3 (Culture Room)		19
	M.Sc.I (Pr - Bryology) 5 (PG Lab)							
			B.Sc. I (Pr) 2 (Lab-I)					

TIME TABLE – DEPARTMENT OF BOTANY, JANUARY 2018

PERIOD TEACHER	1 9.00-9.55	2 9.55-10.50	3 10.50-11.45	4 11.45-12.40	5 12.40-1.35	6 1.35-2.30	7 2.30-3.25	Total periods
Mrs. Inderveena Sharma			B.Sc. I (Pr) 1,3,4,5,6 (Lab-I)		B.Sc. I (Th) (1-3) R-124	B.Sc. I (Th) (4-6) R-124		16
Dr. Vishal Sharma	M.Sc. I (Pr – Plant Pathology) 2 (PG Lab)			B.Sc. III (Th) 1-3 (R-129)	M.Sc. I (Th) 4-6 Plant Pathology (Culture Room)			17
			M.Sc. II (Th) 4-6 Forestry (R-147)			B.Sc. III (Pr) 2 (Lab-II)		
					M.Sc. II (Pr - Forestry) 1 (PG Lab)			
Dr. Madhumita Bhattacharjee		M.Sc.II (Th – Economic Botany) 1,2 (Culture room)	B.Sc. I (Pr) 1-3 (Lab-II)		M.Sc.II (Pr – Genetics) 3 (PG Lab)			18
				M.Sc.II (Th – Genetics) 4-6 (PG Lab)	M.Sc.II (Pr – Economic Botany) 5 (PG Lab)			
					M.Sc.II (Th – Economic Botany) 6 (PG Lab)			
Dr. Anurita Sharma	B.Sc. II (Pr) 1-3,5 (Lab-I)			B.Sc.II (Th) 4-6 (R-124)	M.Sc.I (Th – Pteridophytes) 1-3 (Culture room)			17
	M.Sc.I (Pr – Pteridophytes) 4 (PG Lab)							
Dr. Harsh Manchanda			M.Sc.II (Th – Biochemistry) 1-3 (Culture room)	M.Sc.I (Th – Plant Taxonomy) 4-6 (Culture room)	B.Sc. III (Pr) 1,3,5 (Lab-I)			18
	M.Sc.I (Pr – Plant Taxonomy) 6 (PG Lab)				M.Sc.II (Pr - Biochemistry) 4 (PG Lab)			
Dr. Anju Pehwal	B.Sc. II (Pr) 1,4 (Lab-I)		B.Sc. III (Th) 4-6 (R-129)		B.Sc. III (Pr) 3,4,5,6 (Lab-I)			20
			B.Sc. I (Pr) 2 (Lab-I)		M.Sc.II (Project Work) 2 (PG Lab)			
Dr. Amit Jakhal	M.Sc.II (Project Work) 4		B.Sc. I (Pr) 4,5,6 (Lab-II)		B.Sc. I (Th) (1-3) R-126	B.Sc. I (Th) (4-6) R-126		20
	M.Sc.I (Pr – Gymnosperms) 3 (PG Lab)					M.Sc.I (Th – Gymnosperms) 1-3 (Culture Room)		
Dr. Shikha Sharma	B.Sc. II (Pr) 2,6 (Lab-II)			M.Sc.I (Th – Reproductive Biology) 1-3 (R-128)	B.Sc. II (Th) 1-3 (R-129)			19
	M.Sc.II (Project Work) 4 (PG Lab)				B.Sc. III (Pr) 4,6(Lab-II)			
	M.Sc.I (Pr – Reproductive Biology) 5 (PG Lab)							

TIME TABLE – DEPARTMENT OF BOTANY, JULY 2018

PERIOD TEACHER	1 9.00-9.55	2 9.55-10.50	3 10.50-11.45	4 11.45-12.40	5 12.40-1.35	6 1.35-2.30	7 2.30-3.25	Total periods
Mrs. Inderveena Sharma			B.Sc. I (Pr) 1,2,3,4,5,6 (Lab-I)		B.Sc. I (Th) 4-6 (R-124)	B.Sc. I (Th) 1-3 (R-124)		18
Dr. Vishal Sharma	B.Sc. II (Pr) 1,3 (Lab II)		B.Sc. III (Th) 1-3 (R-129)	M.Sc.II (Th - Biotech) 1-3 (R-147)	B.Sc. III (Pr) 4,5 (Lab-II)			18
					M.Sc. II (Pr - Biotech) 6 (PG-Lab)			
Dr. Madhumita Bhattacharjee	B.Sc. II (Pr) 4(Lab-I), 5(Lab-II)		B.Sc. I (Pr) 1-3 (Lab-II)		B.Sc. II (Th) 4-6 (129)			19
		M.Sc.II (Th- Genetics) 1,2,6 (Culture room)			M.Sc.II (Pr – Genetics) 3 (PG-Lab)			
Dr. Anurita Sharma	B.Sc. II (Pr) 1,2,6 (Lab-I)			M.Sc.II (Th – Plant Ecology) 4-6 (PG Lab)	M.Sc.II (Pr – Plant Ecology) 5 (PG-Lab)			18
	M.Sc.I (Pr – Plant Anatomy) 4 (PG Lab)				M.Sc.I (Th – Plant Anatomy) 1-3 (Culture room)			
Dr. Harsh Manchanda	B.Sc. II (Pr) 5(lab I), 6(Lab II)		M.Sc.II (Th - Physiology) 4-6 (Culture room)	M.Sc.I (Th - Phycology) 1-3 (Culture room)	M.Sc.II (Pr - Physiology) 4 (PG-Lab)			19
			M.Sc.I (Pr - Phycology) 1 (PG Lab)					
			M.Sc.I (Pr – Lab tech.) 3 (PG Lab)					
Dr. Anju Pehwal			M.Sc.I (Lab tech.) 5 (PG Lab)	B.Sc. II Th 1-3 (R-124)	B.Sc. III (Pr) 2,3,4(Lab I); 6(Lab-II)			19
			M.Sc.II (Th – Mol.Bio) 1-3 (R-147)	B.Sc. III (Th) 4-6 (R-129)	M.Sc.II (Pr – Mol.Bio) 1 (PG-Lab)			
Dr. Amit Jakhal	M.Sc.I (Biology for Chemists) 1,5 (Culture Room)	M.Sc.I (Mycology) 5 (PG-Lab)	B.Sc. I (Pr) 4,5,6 (Lab-II)		B.Sc. I (Th) 4-6 (R-126)	B.Sc. I (Th) 1-3 (R-126)		18+2(M.Sc. Chemistry)
	M.Sc.I (Pr - Mycology) 2 (Lab-III)					M.Sc.I (Mycology) 4,6 (Culture Room)		
Dr. Shikha Sharma	B.Sc. II (Pr) 2 (Lab-II)			M.Sc.I (Th - Bryology) 4-6 (R-128)	B.Sc. II (Th) 4-6 (R-147)			21
	M.Sc. I (Biostats) 5 (PG-Lab)							
	M.Sc.I (Pr - Bryology) 6 (PG-Lab)			B.Sc. II (Th) 1-3 (R-129)	B.Sc. III (Pr) 1,2,3 (Lab-II)			

TIME TABLE – DEPARTMENT OF BOTANY, JAN 2019

PERIOD TEACHER	1 9.00-9.55	2 9.55-10.50	3 10.50-11.45	4 11.45-12.40	5 12.40-1.35	6 1.35-2.30	7 2.30-3.25	Th	Pr	Total periods
Mrs. Inderveena Sharma			B.Sc. I (Pr) 1,2,3,4,5,6 (Lab-I)		B.Sc. I (Th) 4-6 (R-124)	B.Sc. I (Th) 1-3 (R-124)		6	12	18
Dr. Vishal Sharma	M.Sc.I (Th - Pathology) 4 (Lab3)	M.Sc.I (Th - Pathology) 4 (Lab3)	M.Sc.II (Th - Forestry) 1-3 (R-147)	B.Sc. III (Th) 4-6 (R-129)	M.Sc. II (Pr - Forestry) 1 (PG-Lab)			6	13	19+1*
	B.Sc. II (Pr) 6 (Lab II)				B.Sc. III (Pr) 3 (Lab-II)					
	M.Sc.I (Pr - Pathology) 5 (PG Lab)				M.Sc.I (Th - Pathology) 6 (Culture room)					
Dr. Anurita Sharma	B.Sc. II (Pr) 1,2,4,5 (Lab-I)		M.Sc.I (Th - Pteridophytes) 4 (Lab 3)		B.Sc. II Th 4-6 (R-129)			6	13	19+1*
	M.Sc.I (Pr – Pteridophytes) 6 (PG Lab)				B.Sc. III (Pr) 3 (Lab-)					
					M.Sc.I (Th - Pteridophytes) 1,2 (Culture room)					
Dr. Madhumita Bhattacharjee			B.Sc. I (Pr) 1-3 (Lab-II)		B.Sc. III (Pr) 2			6	14	20+1*
		M.Sc.II (Th - Economic Botany) 1,3,5 (Culture room)		M.Sc.II (Th - Genetics) 4-6 (PG Lab)	M.Sc.II (Pr - Genetics) 4 (PG-Lab)					
					M.Sc.II (Pr - Economic Botany) 6 (PG-Lab)					
Dr. Harsh Manchanda	M.Sc.I (Pr - Plant Taxonomy) 1 (PG Lab)			M.Sc.I (Th - Plant Taxonomy) 1-3 (Culture room)	M.Sc.II (Pr - Physiology) 5 (PG-Lab)			7	13	20+1*
	M.Sc.I (Pr – Reproductive Biology) 2 (PG Lab)					B.Sc. III (Pr) 4,6				
			M.Sc.II (Th - Biochemistry) 4-6 (Culture room)	M.Sc.I (Th – Reproductive Biology) 4 (Lab 3)						
Dr. Anju Pehwal	B.Sc. II (Pr) 3,6 (Lab-II)		B.Sc. I (Pr) 5,6 (Lab-II)		B.Sc. III (Pr) 1,4,5 (Lab I)			7	14	21+1*
			B.Sc. III (Th) 1-3 (R-129)	B.Sc. II Th 1-3 (R-129)	M.Sc.I (Th – Reproductive Biology) 3 (Culture Room)					
Dr. Amit Jakkhal	M.Sc.I (Pr – Gymnosperms) 3 (Lab-III)			M.Sc.I (Th - Gymnosperms) 5,6 (Culture Room)	B.Sc. I (Th) 4-6 (R-126)	B.Sc. I (Th) 1-3 (R-126)		9	11	20+1*
	B.Sc. II (Pr) 1,2,5 (Lab-II)						M.Sc.I (Th - Gymnosperms) 4 (Culture room)			
			B.Sc. I (Pr) 4 (Lab-II)							
Dr. Shikha Sharma	On maternity leave; her workload has been adjusted by combining two sections of B.Sc. II Theory into one and distributing M.Sc. (Reproductive Biology of Angiosperms) theories & practicals and Project work/Field study report & Seminars amongst other faculty members.									

1* indicates Project work/Field study report & Seminars

TIME TABLE – DEPARTMENT OF BOTANY, JULY 2019

PERIOD TEACHER	1 9.00-9.45	2 9.45-10.30	3 10.30-11.15	4 11.15-12.00	5 12.00-12.45	6 12.45-1.30	7 1.30-2.15	8 2.15-3.00	Total periods
Mrs. Inderveena Sharma			B.Sc. I (Pr) 1,2,3,4,5,6 (Lab-I)		B.Sc. I (Th) (1-3) R-124		B.Sc. I (Th) (2,3) R-		20
					B.Sc. I (Th) (4-6) R-147				
Dr. Vishal Sharma	B.Sc. II (Pr) 6 (Lab II)		M.Sc.II (Th - Biotech) 3 (PG Lab)	M.Sc.II (Th - Biotech) 1-3 (PG Lab)	B.Sc. III (Pr) 1,2,4 (Lab-I)				21
	B.Sc. II (Pr) 4(Lab-II)	B.Sc.III Th (1-3)			M.Sc. II (Pr - Biotech) 3 (PG Lab)				
Dr. Madhumita Bhattacharjee		B.Sc. II (Pr) 4 (Lab-II)	B.Sc. I (Pr) 1-3 (Lab-II)			M.Sc.II (Th- Cytogenetics) 4 (Culture room)	M.Sc.II (Th- Cytogenetics) 4(Culture room)		21
	B.Sc. II (Pr) 2 (Lab-II)		B.Sc. II (I h) 4-6 (R-129)	M.Sc.II (Pr – Cytogenetics) 6 (PG Lab)					
		M.Sc.II (I h- Cytogenetics) 1,3,5 (Culture room)							
Dr. Anurita Sharma		M.Sc.I (Th – Plant Anatomy) 6 (Culture room)		M.Sc.II (Th – Plant Ecology) 4-6 (PG Lab)	M.Sc.I (Th – Plant Anatomy) 3 (Culture room)				21
	B.Sc. II (Pr) 1,3,5 (Lab-I)								
	M.Sc.I (Pr – Plant Anatomy) 4 (PG Lab)			M.Sc.I(Th-Plant Anatomy) 1-3 (Culture room)	M.Sc.II (Pr – Plant Ecology) 2 (PG Lab)				
Dr. Harsh Manchanda		M.Sc.II (Th - Physiology) 2,4 (Culture room)	M.Sc.II (Th - Physiology) 1,2(Culture room)	M.Sc.I (Th - Phycology) 4-6 (Culture room)	B.Sc. III (Pr) 4,5,6 (Lab-II)				21
	M.Sc.I (Pr - Phycology) 3 (PG Lab)				M.Sc.I (Th - Phycology) 2 (Culture room)				
	M.Sc.II (Pr - Physiology) 1 (PG Lab)								
Dr. Anju Pehwal	M.Sc.I (Pr – Lab tech.) 2 (PG Lab)				B.Sc. III (Pr) 1,2,3 (Lab-I)			EVS (1,3,4)	26
	M.Sc.I (Th – Lab tech.)(6) (Culture Room)	B.Sc. III (Th) 4-6 (R-126)	M.Sc.II (Th – Mol.Bio) 4-6 (Culture room)		M.Sc.II (Th – Mol.Bio) 4 (Culture room)	M.Sc.I (Th – Lab tech.)(4,6) (R-124)			
	M.Sc.II (Pr – Mol.Bio) 5 (PG Lab)								
Dr. Amit Jakhal		B.Sc. I (Th) (2,3) R-124	B.Sc. I (Pr) 4-6 (Lab-II)		B.Sc. I (Th) (1-3) R-124	M.Sc.I (Mycology) 1-3 (Culture Room)	M.Sc.I (Mycology) 6 (Culture Room)	EVS (3,4,5)	24+2(CHM)
	M.Sc.I (Pr - Mycology) 1 (PG Lab)				B.Sc. I (Th) (4-6) R-147				
Dr. Shikha Sharma	B.Sc. II (Pr) 1,2,3,4 (Lab-II)		B.Sc. II (Th) 1-3 (R-129)		M.Sc.I (Th – Biostats) (1) (Culture Room)		M.Sc.I (Th- Biostats) (1,2) (Culture Room)	EVS (6)	24
					M.Sc.I (Th- Bryology) 4-6 (Culture Room)		M.Sc.I (Th - Bryology) 3 (Culture Room)		

	M.Sc.I (Pr - Bryology) 5 (PG Lab)		B.Sc. III (Pr) 3 (Lab-II)			
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TIME TABLE – DEPARTMENT OF BOTANY, JAN 2020

PERIOD TEACHER	1 9.00-9.45	2 9.45-10.30	3 10.30-11.15	4 11.15-12.00	5 12.00-12.45	6 12.45-1.30	7 1.30-2.15	Total periods
Mrs. Inderveena Sharma			B.Sc. I (Pr) 1,2,3,4,5,6 (Lab-I)		B.Sc. I (Th) 1-6 (R-124)			18
Dr. Vishal Sharma	M.Sc.II (Research Project) 4 (Culture room)	B.Sc. III (Th) 4-6 (R-129)	M.Sc.II (Th- Forestry) 2,3,6 (Culture room)		M.Sc. II (Pr - Forestry) 1 (Lab-III)			21
	M.Sc.I (Th - Pathology) 5 (Lab-III)							
	M.Sc.I (Pr - Pathology) 1 (Lab-III)			M.Sc.I (Th - Pathology) 1-3 (Lab-III)	B.Sc. III (Pr) 2,3 (Lab-II)			
Dr. Anurita Sharma	B.Sc. II (Pr) 1,2,3,4,5 (Lab-I)		B.Sc. II (Th) A 1-3 (R-129)	M.Sc.I (Th - Pteridophytes) 4-6(Culture room)	M.Sc.I (Th - Pteridophytes) 5(Lab-III)	M.Sc.II (Research Project) 4 (Culture Room)		21
	M.Sc.I (Pr - Pteridophytes) 6 (Lab-III)							
Dr. Madhumita Bhattacharjee		M.Sc.II (Th- Economic Botany) 1-2 (Culture room)	B.Sc. I (Pr) 1-3 (Lab-II)		M.Sc.II (Th - Genetics) 4-6 (Lab-III)	M.Sc.II (Th - Genetics)4, (Th- Economic Botany)6 (Lab-III)		21
			M.Sc.II (Research Project) 4 (Culture room)	M.Sc.II (Th- Economic Botany) 4 (Lab-III)				
		M.Sc.II (Pr - Genetics) 3 (Lab-III)			M.Sc.II (Pr - Economic Botany) 5(Lab-III)			
Dr. Harsh Manchanda	M.Sc.I (Pr - Plant Taxonomy) 3 (Lab-III)			M.Sc.II (Th - Biochemistry) 1-3 (Culture room)	M.Sc.II (Pr - Biochemistry) 2 (Lab-III)			21
	M.Sc.II (Research Project) 4 (Culture room)	M.Sc.I (Th - Plant Taxonomy) 4,5 (Lab-III)	M.Sc.I (Th - Plant Taxonomy) 4 (Culture room)		B.Sc. III (Pr) 1,4,5 (Lab-II)			
			M.Sc.II (Th - Biochemistry)5		M.Sc.I (Th - Plant Taxonomy) 6 (Culture room)			
Dr. Anju Pehwal	B.Sc. II (Pr) 4,6 (Lab-II)		B.Sc. II (Th)B 4-6 (R-129)	B.Sc. III (Pr) 1,2,3,4 (Lab-I)			21	
	M.Sc.II (Research Project) 1 (Culture room)	B.Sc. III Th 1-3 (R-129)				M.Sc.I (Th - Reproductive Biology) 5,6 (Culture Room)		
Dr. Amit Jakhal	M.Sc.I (Pr - Gymnosperms) 2 (Lab-III)				B.Sc. I (Th) 1-6 (R-129)	M.Sc.I (Th - Gymnosperms) 1-3 (Culture Room)		21
	M.Sc.II (Research Project) 1 (Culture room)	M.Sc.II (Research Project) 5 (Culture room)	B.Sc. I (Pr) 4-6 (Lab-II)					
	M.Sc.I (Th - Gymnosperms) 4 (Lab-II)							
Dr. Shikha Sharma	B.Sc. II (Pr) 1,2,3 (Lab-II)		B.Sc. II (Th) B 1-3, A 4-6 (R-128)		M.Sc.I (Th - Reproductive Biology) 1-3			21

		M.Sc.II (Research Project) 4 (Culture room)			(Culture Room)		
					B.Sc. III (Pr) 6 (Lab-II)		
					M.Sc.I (Pr – Reproductive Biology) 4 (Lab-III)		

TIME TABLE – DEPARTMENT OF BOTANY, JULY 2020

PERIOD TEACHER	1 9.00-9.45	2 9.45-10.30	3 10.30-11.15	4 11.15-12.00	5 12.00-12.45	6 12.45-1.30	7 1.30-2.15	Total periods
Dr. Vishal Sharma	B.Sc. II (Pr) 1,2,4,5			M.Sc.II (Th - Biotech) 1-3		B.Sc. III (Pr) 1,5		21
				B.Sc. III (Th) 4-6	M.Sc. II (Pr - Forestry) 3			
Dr. Anurita Sharma	B.Sc. II (Pr) 1,2,3,5		B.Sc. I (Pr) 2	M.Sc.I (Th – Plant Anatomy) 1-3	M.Sc.II (Pr - Ecology) 6			21
	M.Sc.I (Pr – Plant anatomy) 4			M.Sc.II (Th – Ecology) 4-6				
Dr. Madhumita Bhattacharjee		M.Sc.II (Th - Cytogenetics) 1-3	B.Sc. I (Pr) 1-3			B.Sc. III (Pr) 2,5,6		21
			B.Sc. II (Th) 4-6		M.Sc.II (Pr - Cytogenetics) 4			
Dr. Harsh Manchanda			M.Sc.II (Th - Physiology) 1-3	M.Sc.I (Th - Phycology) 4-6	B.Sc.I (Th – Paper A) 4-6	B.Sc. III (Pr) 3,4,6		21
	M.Sc.I (Pr - Phycology) 5				M.Sc.II (Pr - Physiology) 1			
Dr. Anju Pehwal	M.Sc.I (Pr – Biostats & Lab.Tech) 3			B.Sc. III (Th) 1-3	M.Sc.I (Th - Biostats & Lab.Tech) 4,6	B.Sc. III (Pr) 1,2,3,4		23
		M.Sc.I (Th - Biostats & Lab.Tech) 1	M.Sc.II (Th – Mol.Bio.) 4-6		M.Sc.II (Pr – Mol.Bio.) 5			
Dr. Amit Jakhal			B.Sc. I (Pr) 1,3,4,5,6		B.Sc. I (Th – Paper B) 1-6	M.Sc. I (Th- Mycology) 1-3		22+1 Chem
	M.Sc.I (Pr - Mycology) 2							
Dr. Shikha Sharma	B.Sc. II (Pr) 1,3,4		B.Sc. II (Th) 1-3		B.Sc. I (Th – Paper A) 1-3	M.Sc.I (Th- Bryology) 4-6		23
			B.Sc. I (Pr) 4-6					

	M.Sc.I (Pr – Repro. Bio.) 1	B.Sc. I (Pr) 2				
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ONLINE TIME TABLE – DEPARTMENT OF BOTANY, MARCH 2021

PERIOD TEACHER	1 9.30-10.15	2 10.15-11.00	3 11.00-11.45	4 11.45-12.30	5 12.30-1.15	6 1.15-2.00	7 2.00-2.45	Total
Dr. Vishal Sharma		B.Sc. III (Th) A 1-3, B 4-6 (R-129)	M.Sc.I (Pr - Pathology) 1 (Lab-III)	M.Sc.II (Th- Forestry) 4-6 (Lab-III) M.Sc.I (Th-Pathology) 1-3 (Lab-III)	M.Sc.II (Research Project & Seminar) 2 (Lab-III)			14
Dr. Anurita Sharma		B.Sc. II (Pr) 1 (Lab-II)	B.Sc. II (Th) A 1-3 (R-126) M.Sc.I (Pr – Pteridophytes) 6 (Lab-III)	M.Sc.I (Th - Pteridophytes) 4-6 (CR)	M.Sc.II (Research Project & Seminar) 6 (Lab-III)	M.Sc.II (Research Project & Seminar) 6 (CR)		10
Dr. Madhumita Bhattacharjee			M.Sc.II (Th – Genetics) 4-6 (CR) M.Sc.II (Th- Economic Botany) 1- 3 (CR)		M.Sc.II (Research Project & Seminar) 4 (Lab-III) M.Sc.II (Pr - Genetics) 3 (Lab-III) M.Sc.II (Pr - Economic Botany) 5 (Lab-III)	M.Sc.II (Research Project & Seminar) 4 (Lab-III)		10
Dr. Harsh Manchanda			M.Sc.I (Pr - Plant Taxonomy) 3 (Lab-III)	M.Sc.II (Th - Biochemistry) 1-3 (CR)	B.Sc. I (Th) B 1-3 (R-130) M.Sc.I (Th - Plant Taxonomy) 4-6 (CR)	M.Sc.II (Pr - Biochemistry) 2 (CR) M.Sc.II (Research Project & Seminar) 1 (CR)		12
Dr. Anju Pehwal		B.Sc. III Th B 1-3, A 4-6 (R-124)	B.Sc. II (Th) B 4-6 (R-126) M.Sc. II (Pr - Forestry) 3 (Lab-I)		B.Sc. III (Pr) 1,2 (Lab-I) M.Sc.I (Th – Reproductive Biology) 3 (Lab-I)	M.Sc.II (Research Project & Seminar) 3 (CR)		14
Dr. Amit Jakhal		M.Sc.I (Pr – Gymnosperms) 2 (Lab-III) M.Sc.II (Research Project & Seminar) 5 (Lab-III)	B.Sc. I (Pr) 1, 4 (Lab-I) M.Sc.II (Research Project & Seminar) 5 (Lab-III)		B.Sc. I (Th) A 1-3, B 4-6 (R-126)	M.Sc.I (Th - Gymnosperms) 1-3 (Lab-III)		14
Dr. Shikha Sharma		B.Sc. II (Pr) 5 (Lab-II)	B.Sc. II (Th) B 1-3, A 4-6 (R-129)		M.Sc.II (Research Project & Seminar) 1 (CR)	M.Sc.I (Th – Reproductive Biology) 4 (Lab-III)		14

					B.Sc. I (Th) A 4-6 (R-130)	M.Sc.I (Pr – Reproductive Biology) 5, 6 (Lab-III)		
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ONLINE TIME TABLE – DEPARTMENT OF BOTANY, AUGUST 2021

PERIOD TEACHER	1 9.00-9.45	2 9.45-10.30	3 10.30-11.15	4 11.15-12.00	5 12.00-12.45	6 12.45-1.30	7 1.30-2.15	Total periods
Dr. Vishal Sharma		B.Sc. III (Th) Sec A 1-3	M.Sc.II (Th - Biotech) 1-3		B.Sc. III (Pr) 2			11
		B.Sc. III (Th) Sec B 4-6			M.Sc. II (Pr - Biotech) 1			
Dr. Anurita Sharma	B.Sc. II (Pr) 3		B.Sc. I (Pr) 3	M.Sc.I (Th – Plant Anatomy) 1-3	M.Sc.II (Pr - Ecology) 2			11
	M.Sc.I (Pr – Plant anatomy) 5			M.Sc.II (Th – Ecology) 4-6				
	M.Sc.I (Pr - Phycology) 6							
Dr. Madhumita Bhattacharjee	B.Sc. II (Pr) 1		B.Sc. II (Th) Sec A 1-3	M.Sc.II (Th - Cytogenetics) 1-3	M.Sc.II (Pr - Cytogenetics) 6			11
			B.Sc. II (Th) Sec B 4-6					
Dr. Harsh Manchanda		M.Sc.II (Th - Physiology) 1-3		M.Sc.I (Th - Phycology) 4-6		B.Sc.I (Th) Sec A 1-3		11
	M.Sc.I (Pr – Biostats & Lab.Tech) 4				M.Sc.II (Pr - Physiology) 5			
Dr. Anju Pehwal		B.Sc. III (Th) Sec A 4-6	M.Sc.II (Th – Mol.Bio.) 4-6		M.Sc.I (Th - Biostats & Lab.Tech) 2,3			13
		B.Sc. III (Th) Sec B 1-3			M.Sc.II (Pr – Mol.Bio.) 4			
					B.Sc. III (Pr) 5			
Dr. Amit Jakhal			B.Sc. I (Pr) 2		M.Sc. I (Th- Mycology) 4-6	B.Sc.I (Th) Sec B 1-3		11
	M.Sc.I (Pr - Mycology) 1					B.Sc.I (Th) Sec A 4-6		
Dr. Shikha Sharma			B.Sc. II (Th) Sec B 1-3		M.Sc.I (Pr- Bryology) 1			13
					B.Sc.I (Th)	M.Sc.I		

			B.Sc. II (Th) Sec A 4-6			Sec B 4-6	(Th- Bryology) 1,5,6	
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TIME TABLE – DEPARTMENT OF BOTANY, FEBRUARY 2022

PERIOD TEACHER	1 9.00-9.45	2 9.45-10.30	3 10.30-11.15	4 11.15-12.00	5 12.00-12.45	6 12.45-1.30	7 1.30-2.15	Total periods		
Dr. Vishal Sharma		B.Sc. III (Th) Sec A 1-3	M. Sc.II(Seminar and Project)-4	M.Sc.I (Th – Plant Pathology) 1,2		M.Sc.I (Th – Plant Pathology) 5		20		
		B.Sc. III (Th) Sec B 4-6			B.Sc. III (Pr) 1,6		M.Sc.I (Pr – Plant Pathology) - 4			
					M.Sc. II (Pr - Forestry)-3					
Dr. Anurita Sharma	B.Sc. II (Pr) 2,3,6		B.Sc. II (Th) Sec A 1-3	M. Sc.II (Seminar and Project)-5	M.Sc.I (Th – Pteridophytes) 3			19		
		M.Sc.I (Th – Pteridophytes) 1,5	B.Sc. II (Th) Sec B 4-6		M.Sc.I (Pr) – Pteridophytes- 1					
Dr. Madhumita Bhattacharjee		M.Sc.II (Th – Plant Res, Utili & Cons) 5	B.Sc. I (Pr) 4,6		M.Sc.II (Pr - Genetics & Plant breeding) 1			17		
			M. Sc.II (Seminar and Project)-5	M.Sc.II (Th – Genetics & Plant breeding) 1-3	M.Sc.II-(Th Plant Res, Utili & Cons)-4,6	M. Sc .II (Pr- Plant Res, Utili & Cons) 2				
Dr. Harsh Manchanda		M.Sc.II (Th - Biochemistry) 1- 3	B.Sc. I (Pr) 2,3			B.Sc.I (Th) Sec A 1-3		20		
	M.Sc.I (Pr - Angiosperm Morpho, Taxo and Phylo) 4			M.Sc.I (Th - Angiosperm Morpho, Taxo and Phylo) 4-6	M.Sc.II (Pr - Biochemistry) -5					
			M. Sc.II(Seminar and Project)-6							
Dr. Anju Pehwal		B.Sc. III (Th) Sec A 4-6	M.Sc.II (Th - Forestry)1-3		B.Sc. III (Pr) 2,3,4,5		M. Sc.II(Seminar and Project)-2	18		
		B.Sc. III (Th) Sec B 1-3								
Dr. Amit Jakhal			B.Sc. I (Pr)-1,3,4,5		M.Sc. I (Th- Gymnosperms) 5,6	B.Sc.I (Th) Sec B 1-3		21		
			M.Sc. I (Th- Gymnosperms) 2	M. Sc.II (Seminar and Project)-6		B.Sc.I (Th) Sec A 4-6				
	M.Sc.I (Pr - Gymnosperms) -6									
Dr. Shikha	B.Sc. II (Pr)		B.Sc. II (Th)	M. Sc.II(Seminar	M.Sc.I (Pr – Reproductive Biology of Angiosperms)			22		

Sharma	1,4,5	Sec B 1-3	and Project)-4	2		M.Sc.I (Th- Reproductive Biology of Angiosperms)
		B.Sc. II (Th) Sec A 4-6			B.Sc.I (Th) Sec B 4,5,6	
					M.Sc.I (Th- Reproductive Biology of Angiosperms) 3	

TIME TABLE – DEPARTMENT OF BOTANY, AUGUST 2022

PERIOD TEACHER	1 9.00-9.45	2 9.45-10.30	3 10.30-11.15	4 11.15-12.00	5 12.00-12.45	6 12.45-1.30	7 1.30-2.15	Total periods
Dr. Vishal Sharma		B.Sc. III (Th) Sec A 1-3 (R-129)	M.Sc.II (Th - Biotech) 1-3 (PG Lab)			M.Sc.I (Pr - Mycology) 1 (PG Lab)		21
		B.Sc. III (Th) Sec B 4-6 (R-129)	B.Sc. I (Pr) 4 (Lab-2)		M.Sc. II (Pr - Biotech) 3 (PG Lab)			
Dr. Anurita Sharma		B.Sc. II (Pr) 2,3 (Lab-1)	B.Sc. I (Pr) 5 (Lab-2)	M.Sc.I (Th – Plant Anatomy) 1-3 1,3(R-128),2(R-130)	M.Sc.II (Pr - Ecology) 4 (PG Lab)			19
		M.Sc.I (Pr – Plant anatomy) 6 (PG Lab)		M.Sc.II (Th – Ecology) 4-6 (PG Lab)	B.Sc. III (Pr) 5 (Physio) (Lab-1)			
Dr. Madhumita Bhattacharjee		B.Sc. II (Pr) 4,5 (Lab-1)	B.Sc. II (Th) Sec A 1-3 (R-129)	M.Sc.II (Th - Cytogenetics) 1-3 (PG Lab)	M.Sc.II (Pr - Cytogenetics) 6 (PG Lab)			21
			B.Sc. II (Th) Sec B 4-6 (R-129)	B.Sc. I (Pr) 5 (Lab-2)	B.Sc. III (Pr) 1 (Physio) (Lab-1), 2 (Eco) (Lab-2)			
Dr. Harsh Manchanda		M.Sc.II (Th - Physiology) 1-3 (PG Lab)	B.Sc. I (Pr) 1,2,3,6 (Lab-2)		M.Sc.I (Th - Phycology) 6 (R-130)	B.Sc.I (Th) Sec A 1-3 (R-129)		23
		M.Sc.I (Pr - Phycology) 4 (PG Lab)		M.Sc.I (Th - Phycology) 4,5 (R-130)				
		M.Sc.II (Pr - Physiology) 5 (PG Lab)						
Dr. Anju Pehwal		B.Sc. III (Th) Sec A 4-6 (R-126)	M.Sc.I (Th – Biostats & Lab.Tech) 1-3 (R-130)		M.Sc.II (Pr – Mol.Bio.) 1 (PG Lab)		23	
					M.Sc.I (Pr - Biostats & Lab.Tech) 4 (PG Lab)			
		B.Sc. III (Th) Sec B 1-3 (R-126)	M.Sc.II (Th – Mol.Bio.) 4,6 (R-130)		B.Sc. III (Pr) 3,6 (Lab-1)			
					M.Sc.II (Th – Mol.Bio.) 5 (PG Lab)			

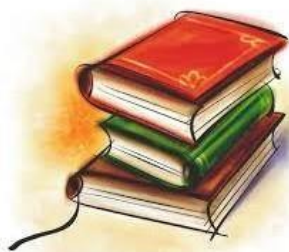
Dr. Amit Jakhal		M.Sc. I (Th- Mycology) 1-3 (R-130)	B.Sc. I (Pr) 1,2,3,4,5,6 (Lab-1)		M.Sc.I (Pr - Mycology) 1 (PG Lab)	B.Sc.I (Th) Sec B 1-3 (R-126)	M.Sc.I (Pr - Mycology) 1 (PG Lab)	23
						B.Sc.I (Th) Sec A 4-6 (R-129)		
Dr. Shikha Sharma		B.Sc. II (Pr) 1,3,4,6 (Lab-2)	B.Sc. II (Th) Sec B 1-3 (R-128)		M.Sc.I (Pr- Bryology) 2 (Lab-2)		23	
			B.Sc. II (Th) Sec A 4-6 (R-128)			B.Sc.I (Th) Sec B 4-6 (R-126)		M.Sc.I (Th- Bryology) 3,5,6 (Lab-2)

POST GRADUATE GOVERNMENT COLLEGE FOR GIRLS

SECTOR 11, CHANDIGARH

DEPARTMENT OF BOTANY

DEPARTMENTAL LIBRARY BOOKS



ALMIRAH 01

Sr. No.	Book Issue No	No. on Reg	Stock Reg. Pg.No	Author Name	Book Name
1	7362	218	9	B.S Meyer, D.B Anderson, C.A Swanson	Laboratory Plant Physiology
2	23058	217	9	B.S Meyer, D.B Anderson, C.A Swanson	Laboratory Plant Physiology
3	26251	216	9	Leonard Machlis And John G.Torrey	Plants In Action
4	15580	387	16	T.Wallace	The Diagnosis Of Mineral Deficiencies In Plants
5	2502	183	8	W.O.James	Plant Respiration
6	23736	354	15	Emil Truog	Mineral Nutrition Of Plants
7				S.N. Pandey B.K. Sinha	Returned To College Library (Written Off)
8	10692	316	13	Howard B.Sprague	Hunger Sings in Crops
9	11889	233	10	B.S Meyer, Donald B. Anderson, Richard H.Bohning	Introduction Of Plant Physiology
10	3271	230	10	Edwin C.Miller	Plant Physiology
11	2584	361	15	Merion Thomas, S.L Ranson, J.A Richardson	Plant Physiology
12	34356	486	20	M.B Wilkins	Physiology Of Plant Growth And Development
13	1268TBL	529	22	Robert M.Devlin	Plant Physiology
14	7370	232	10	B.S Meyer, D.B Anderson	Plant Physiology
15	979TBL	534	22	Bernerd S.Meyer, Donald B.Anderson	Plant Physiology
16	3241	409	17	B.S Meyer, D.B Anderson	Plant Physiology
17	5021	123	5	James F.Ferry, Henry S.Ward	Fundamentals of Plant Physiology
18	9310	145	6	Arthur W.Galston	The Life Of The Green Plant
19	9312	389	16	Wallace And S.R.B	Adaptation
20	23712	144	6	Arthur W.Galston	The Life Of The Green Plant
21	17090	96	4	Bernard D.Davis, Leonard Warren	The Specificity Of The Surfaces

22	34150	455	19	P.F Wareing, I.D.J Phillips	The Control Of The Growth And Differentiation In Plants
23	5818	195	8	Paul J.Kramer, Theodore T.Kozlowski	Physiology Of Trees
24	9309	234	10	William D.McElroy	Cellular Physiology And Biochemistry
25	19216	193	8	J.S Kanwar, N.S Randhawa	Micronutrient Research In Soil And Plant In India
26				K.N. Rao T.S. Partha	Returned To College Library (Written Off)
27	2587	357	15	Wayne L.Turner, Victor M.Henry	Growing Plants In Nutrient Solutions
28	16694	39	2	Harry Beevers	Respiratory Metabolism In Plants
29				C.P. Malik	Returned To College Library (Written Off)
30	62001	507	21	Susheela M.Das	Plant Physiology
31	10570	264	11	N.S Parihar	Hormonal Control Of Plant Growth
32	10544	263	11	N.S Parihar	Hormonal Control Of Plant Growth
33	34157	462	19	G.E Fogg	Photosynthesis
34	34172	477	20	H.E Street, W.Cockburn	Plant Metabolism 2nd Edition
35	34167	472	19	Hans Meidner, T.A Mansfield	Physiology Of Stomata
36	2501	393	16	E.C Barton Wright	General Plant Physiology
37	26248	325	13	G.A Strafford	Essentials Of Plant Physiology
38	34174	479	20	M.Richardson	Translocation In Plants
39	9453	397	16	George C.Webster	Nitrogen Metabolism In Plants
40	26245	45	2	W.M.M Baron	Water And Plant Life
41	15581	348	14	H.E Street	Plant Metabolism
42				Stephen J. Wills	Returned To College Library (Written Off)
43	3219	191	8	W.O.James	An Introduction Of Plant Physiology
44	2583	72	3	John Merle Coulter	Plant Physiology Volume II Physiology
45	2599	296	12	Shri Ranjan	Plant Physiology For Under Graduates
46	8180	410	17	Bernard S.Meyer, Donald B.Anderson	Plant Physiology
47	16870	157	7	G.H Haggis	The Elcetrone Microscope In Molecular Biology
48	5719	493	21	Eldon J.Gardner	Principles Of Genetics
49	5856	49	2	S.N Chandrasekaran, S.V Parthasarathy	Cytogenetics And Plant Breeding
50	3225	162	7	J.Huxley, A.Hardy E.B Ford	Evolution As A Process
51	10540	314	13	G.Ledyard Stebbins	Variation And Evolution In Plants

52	16877	313	13	Otto T.Solbrig	Evolution And Systematics
53	9311	318	13	Carl P.Swanson	The Cell
54	11884	259	11	Dr.K Periasamy	Elements Of Evolution ,Cytology, Genetics And Breeding
55	17341	260	11	Dr.K Periasamy (Issue To Nidhi Rana)	Elements Of Evolution ,Cytology, Genetics And Breeding
56	15575	390	16	C.W.Wardlaw	Organisation And Evolution In Plants
57				Herbert Parkes Riley	Returned To College Library (Written Off)
58	16881	323	13	W.Ralph Singleton	Elementary Genetics
59	3294	97	4	C.D.Darlington, A.P.Wylie	Chromosome Atlas
60	22151	332	14	Sharma & Sharma	Cytogenetics, Plant Breeding
61				K. Periasamy	Returned To College Library (Written Off)
62	6617	324	13	M.R.Sahni	Man In Evolution
63	9454	178	8	J.B.S.Haldane	The Biochemistry Of Genetics
64	6902	199	8	H.Kalmus	Variation And Heredity
65	5000	210	9	Richard Swann Lull	Organic Evolution
66	34175	480	20	Lester W.Sharp	Fundamentals Of Cytology
67	15894	338	14	Lester W.Sharp	Fundamentals Of Cytology
68	22320	337	14	Lester W.Sharp	Fundamentals Of Cytology
69	9443	339	14	Lester W.Sharp	Fundamentals Of Cytology
70				G.S Carter	Returned To College Library (Written Off)
71				Girish Chopra	Returned To College Library (Written Off)
72	3228	92	4	C.D.Darlington	Chromosome Botany
73	9452	115	5	C.D.Darlington, L.F.La Cour	The Handling Of Chromosomes
74	16689	279	12	T.S.Ramakrishnan	Diseases Of Millets
75	22143	280	12	R.S.Singh	Plant Diseases
76	19206	365	15	R.S.Vasudeva	Indian Cercosporae
77	19205	353	15	K.S.Thind	Clavariaceae Of India
78	3335	19	1	Sir Edwin J.Butler	Plant Pathology
79	19203	56	3	S.B.Chattopadhyay	Diseases Of Plants
80	16867	180	8	G.T.Ingold	The Biology Of Fungi
81	164G	212	9	Curtis May	Plant Diseases
82	32610	537	22	R.S.Singh	Plant Diseases
83	22548	286	12	D.Bap Reddy	Plant Protection Of India
84	23082	285	12	D.Bap Reddy	Plant Protection Of India
85	34151	456	18	J.F.Southey	Plant Nematology
86	34358	488	20	V.N.Pathak	Essentials Of Plant Pathology
87	34158	463	19	B.E.J.Wheeler	An Introduction To Plant Diseases
88	12068	184	8	F.G.W.Jones & Margaret Hones	Pests Of Field Crops

89	17342	194	8	M.N.Kamat	Introductory Plant Pathology
90	2588	242	10	B.B.Mundkur	Fungi And Plant Disease
91	3338	173	7	Walter S.Hough, A Freeman Mason	Spraying, Dusting And Fumigating Of Plants
92	34164	469	19	B.B.Mundkur	Fungi And Plant Disease
93	22141	239	10	B.B.Mundkur	Fungi And Plant Disease
94	10539	391	16	John Charles Walker	Plant Pathology
95	9451	329	14	J.P.Srivastva	An Introduction Of Fungi
96	360G	70	3	Smith, Baker, Callaway, Martin	Manual Of Clinical Mycology
97	12064	252	11	George Ordish	Man, Crops And Pests In Central America
98	5497	88	4	G.L.Chopra	A Class Book Of fungi
99	9459	154	7	S.D.Garrett	Soil Fungi And Soil Fertility
100	9436	86	4	Sudhir chowdhury	Plant Diseases
101	3307	401	17	E.M. Wakefield	The Observers Book of Common Fungi
102	14881	366	15	G.S. Venkataraman	Vaucheriacea
103	14882	253	11	V.S. Sundaralingam, G.S. Venkataraman	Charophta
104	3136	328	14	D.H. Scot C.T. Ingold	Flowerles Plants
105	26242	327	14	D.H. Scot C.T. Ingold	Flowerles Plants
106	18518	143	6	Maud B.E. Godward	The Chromosomes of the Algae
107	23616	360	15	Gilbert M. Smith	Cryptogamic Botany
108	11894	336	14	Gilbert M. Smith	Cryptogamic Botany
109	11895	419	17	Gilbert M. Smith	Cryptogamic Botany
110	12017	404	17	D.K.S. Chauhan	Algae and Fungi
111	40301	491	20	K.N. Bhatia	Algae
112	40302	492	20	K.N. Bhatia	Algae
113	9457	153	7	V.K. Gupta	An Introduction of Algae
114				B.R. Vashishta	Returned To College Library (Written Off)
115				B.R. Vashishta	Returned To College Library (Written Off)
116	17471	309	13	Saxena & Sarabhai	A Text Book of Botany
117	22964	308	13	Saxena & Sarabhai	A Text Book of Botany
118	11890	307	13	Saxena & Sarabhai	A Text Book of Botany
119	22961	190	8	Jagjit Singh	Systematic Botany
120	23913	188	8	Jagjit Singh	Systematic Botany
121	22962	189	8	Jagjit Singh	Systematic Botany
122	17340	187	8	Jagjit Singh	Systematic Botany

123	10533	111	5	Carola I. Dickinson	British Seaweeds
124	5500	87	4	G.L. Chopra	A Class Book of Algae
125	3222	135	6	G.E. Fogg	The Metabolism of Algae
126	2500	420	17	Gilbert M. Smith	Cryptogamic Botany
127				B.R. Vashishta	Returned To College Library (Written Off)
128	34173	478	20	N.S. Parihar	An Introduction of Embryophyta
129	22956	265	11	Parihar	Bryophyta
130				G.L. Chopra	Returned To College Library (Written Off)
131	3183	89	4	Prof. G.L. Chopra	A Class Book of Bryophyta
132	2597	90	4	Prof. G.L. Chopra	A Class Book of Bryophyta
133	33595	434	18	Charles Baron Clarke	A Review of the Ferns of Northern India
134	3181	262	11	N.S. Parihar	An Introduction to Embryophyta
134 B	34177	482	20	N.S. Parihar	An Introduction to Embryophyta
135				P.C. Vashishta	Returned To College Library (Written Off)
136	68292	587	24	P.C. Vashishta	Pteridophyta Vascular Cryptogams
137	68291	586	24	P.C. Vashishta	Pteridophyta Vascular Cryptogams
138				P.C. Vashishta	Returned To College Library (Written Off)
139	9434	101	5	J.N. Dwivedi	Laboratory Manual of Pteridophyta and Gymnosperm
140	9430	124	5	Adriance S. Foster & Ernest M. Gifford	Comparative Morphology of Vascular Plants
141	2280 TBL	525	22	G.L. Chopra	Gymnosperm
142	3322	422	17	Jagjit Singh	Systematic Botany
143	9456	273	11	Divya Darshan Pant Bharti Mehra	Studies in Gymnospermous Plants Cycas
144	1287	524	22	Dr. B.S. Trivedi & D.K. Singh	Structure & Reproduction of the Gymnosperms
145	22142	359	15	Dr. B.S. Trivedi & D.K. Singh	Structure & Reproduction of the Gymnosperms
146	34159	464	19	P.K. Dublish & D.K. Agarwal	Gymnosperms
147	17332	358	15	Trivedi & Singh	Structure & Reproduction of the Gymnosperms
148	22953	81	4	G.L. Chopra	Gymnosperms
149	22954	82	4	G.L. Chopra	Gymnosperms
150	59221	575	24	Neelam Dhand & Aruna Saini	Applied Botany Plant Pathology & Applied Microbiology

ALMIRAH 02

Sr. No.	Book Issue No	No. on Reg.	Stock Reg. Pg.No.	Author Name	Book Name
1	22334	225	9	R. Misra	Ecology Workbook
2	2498	429	18	Weaver and Clements	Plant Ecology
3	10552	430	18	Weaver and Clements	Plant Ecology
4	34166	471	19	Weaver and Clements	Plant Ecology
5	10543	278	12	Ray Chaudhuri et al	Soils of India
6	5860	254	11	G.S. Puri	Indian Forest Ecology (Vol. I)
7	5859	255	11	G.S. Puri	Indian Forest Ecology (Vol. II)
8	9427	281	12	M.S.V. Rama Rao	Soil Conservation in India
9	16697	283	12	R.K. Robinson	Ecology of Fungi
10	8226	408	17	P.L. Kochhar	Plant Ecology
11	23473	170	7	H.C. Hanson	The Plant Community
12	9313	169	7	Hanson and Churchill	The Plant Community
13	12022	7	1	H.R. Arakeri et al	Soil Management in India
14	7395	363	15	A Tansley	Introduction to Plant Ecology
15					
16	16700	121	5	C. S. Elton	The Ecology of Invasions
17	9429	40	2	H. Bennett	Soil Conservation
18	3251	241	10	J.N. Mitra	Systematic Botany and Ecology
19	66307	543	23	V. Verma	Text Book of Plant Ecology
20	66313	544	23	V. Verma	Text Book of Plant Ecology
21	10560	93	4	W.E. Shewell-Cooper	The ABC of Soils
22	10559	297	12	E.J. Russell	The World of the Soil
23	3227	215	9	W. Leach	Plant Ecology
24	9428	30	2	K.A. Bisset	Bacteria
25	26253	331	14	G. Sirockin and Cullimore	Practical Microbiology
26	10541	284	12	G. Rangaswami	Bacterial Plant Diseases in India
27	3964	208	9	Lucia Z. Lewis	The First Book of Microbes
28	5017	394	16	Stanley E. Wedburg	Microbes and You
29	9435	352	15	Kenneth M. Smith	Plant Viruses
30	3336	192	8	H. Kihara	Fauna and Flora of Nepal
31	25877	509	21	W.C. Steere	The Evolution and Classification of Flowering Plants
32	5814 2222	258 257	11 11	R.J. Pool	Flowers and Flowering Plants
33	3147	290	12	A.B. Rendle	The Classification of Flowering Plants (Vol. I)

34	7377	289	12	A.B. Rendle	The Classification of Flowering Plants (Vol. I)
35	7378	292	12	A.B. Rendle	The Classification of Flowering Plants (Vol. II)
36	5817	291	12	A.B. Rendle	The Classification of Flowering Plants (Vol. II)
37	3148	415	17	A.B. Rendle	The Classification of Flowering Plants (Vol. II)
38	16134	211	9	G.H.M. Lawrence	Taxonomy of Vascular Plants
39	23737	213	9	G.H.M. Lawrence	Taxonomy of Vascular Plants
40	21851	26	2	W.H. Brown	The Plant Kingdom
41					
42	16698	237	10	S.A. Manning	Systematic Guide to Flowering Plants
43	15587	77	4	S.C. Datta	A Hand Book of Systematic Botany
44	17476	107	5	S.C. Datta	A Hand Book of Systematic Botany
45	11891	106	5	A.C. Datta	A Class Book of Botany
46					
47	4361	48	2	C.H. Curtis	Orchids
48	4017	433	18	C.D. Darlington	Portraits of Wild Flowers
49	12014	24	1	S.S. Bhatnagar	A Class Book of Practical Botany (Vol. II)
50	17339	137	6	Gupta Tayal	Taxonomy of Angiosperms
51	3339	27	2	L.H. Bailey	Manual of Cultivated Plants
52	23911	75	3	G.L. Chopra	Angiosperms
53	59241	512	21	G.L. Chopra	Angiosperms
54				P.C. Vashisht	Taxonomy of Angiosperms
55	7119 TBL	510	21	P.C. Vashisht	Taxonomy of Angiosperms
56	8145	519	22	P.C. Vashisht	Taxonomy of Angiosperms
57	8144 TBL	526	22	P.C. Vashisht	Taxonomy of Angiosperms
58				P.C. Vashisht	Returned To College Library (Written Off)
59	8143 TBL	517	22	P.C. Vashisht	Angiosperms Phylogeny and Life History
60	17472	148	6	R.K. Gupta	A Text Book of Systematic Botany
61	9462	147	6	R.K. Gupta	A Text Book of Systematic Botany
62	33597	436	18	R.R. Stewart	The Flora of Ladak Western Tibet
63	33600	439	18	J.D. Hooker	The Flora of British India
64	2601	185	8	J. Singh	Fundamentals of Botany
65	9306	287	12	S.K. Roy	Botany (Vol. I) Angiosperms
66	2598	85	4	G. L. Chopra	Angiosperms
67	3997	432	18	E. Hahnewald	Wild Flowers in Color
68	7392	400	16	C.W. Wardlaw	Morphogenesis in Plants
69	10550	105	5	A.C. Datta	Botany for Degree Students
70	12803	104	5	A.C. Datta	Botany for Degree Students
71	9304	53	3	D.H. Campbell	The Evolution of Land Plants
72	14377	29	2	H.C. Bold	The Plant Kingdom
73	23738	36	2	H.C. Bold	The Plant Kingdom
74	52699	520	22	P. Shukla and S. Mirsa	Taxonomy of Angiosperms
75	34161	466	19	S.S. Bhojwani &	The Embryology of Angiosperms

				S.P. Bhatnagar	
76	66320	538	22	S.S. Bhojwani & S.P. Bhatnagar	The Embryology of Angiosperms
77	66318	550	23	S.S. Bhojwani & S.P. Bhatnagar	The Embryology of Angiosperms
78	7366	412	17	P. Maheshwari	An Introduction to the Embryology
79	57124	518	22	P. Maheshwari	An Introduction to the Embryology of Angiosperms
80	16699	388	16	C.W. Wadlaw	Embryogenesis in Plants
81	15573	11	1	C.R. Austin	Fertilization
82	34176	481	20	S.K. Gupta	Embryology of Angiosperms
83	9432	155	7	Gupta & Varshneya	Embryology of Angiosperms
84	9448	403	17	K.S. Chauhan	Morphology Embryology & Histology
85	34163	468	19	C.R. Arnold	An Introduction to Palaeobotany
86	22965	374	15	P.C. Vashisht	Plant Anatomy
87	11892	61	3	K.S. Chauhan	Systematic Botany, Economic Botany and Plant Geography
88	9450	68	3	K.S. Chauhan	Systematic Botany, Economic Botany and Plant Geography
89	17893	249	10	P.K.K. Nair	Pollen Grains of Western Himalayan Plants
90	2586	347	14	D.H. Scott & F.T. Brooks	Flowering Plants Part I
91	3135	346	14	D.H. Scott & F.T. Brooks	Flowering Plants Part I
92	2498 TBL	513	21	P.C. Vashisht	Angiosperms- Phylogeny
93	6291	514	21	P.C. Vashisht	Angiosperms- Phylogeny
94	7081 TBL	516	22	P.C. Vashisht	Angiosperms- Phylogeny
95	6810	515	21	P.C. Vashisht	Angiosperms- Phylogeny
96	34148	453	19	H.J. Dittmer	Phylogeny and Form in the Plant Kingdom
97	22144	416	17	A.K. Saxena & R.P. Sarbhai	A Text Book of Botany (Vol. II)
98	6697 TBL	532	22	Vashishta	Plant Anatomy
99	15590	134	6	A.S. Foster	Practical Plant Anatomy
100	23043	248	10	A.S. Foster	Practical Plant Anatomy
101	3565	405	17	A.J. Eames & L.H. MacDaniels	Introduction to Plant Anatomy
102				B.Lloyd	Returned To College Library (Written Off)
103				S. Carpender et al	Returned To College Library (Written Off)
104	3957	52	3	A.B. Tibbets	The First Book of Bees
105	3157	167	7	J.B. Hill & H.W. Popp	Botany
106	15583	269	11	J. H. Priestley et al	An Introduction to Botany
107	56778	504	21	A.F. Hill	Economic Botany
108	3632	371	15	R.D. Vidyarthi	Text Book of Botany (Vol. II)

109	3252	114	5	J.F. Dastur	Useful Plants of India and Pakistan
110	2497	112	5	J.F. Dastur	Medicinal Plants of India and Pakistan
111	3313	345	14	A.Schindlmayr	Useful Plants
112	2103	402	17	H.S. Zim	Trees
113	66053	546	23	R. Raina et al	Botany for Civil Services
114	66051	547	23	H. Kapoor	Bio Technology (Entrance Exams)
115	66300	548	23	B.P. Pandey	Botany for Degree Students
116	66301	545	23	B.P. Pandey	Botany for Degree Students
117	17334	76	4	John Merle Coulter & Charles Joseph Chamberlain	Morphology of Angiosperms

ALMIRAH 03

Sr. No.	Book Issue No	No. on Reg.	Stock Reg. Pg.No.	Author Name	Book Name
1	23036	15	1	D.C. Braungart et al	An Introduction to Plant Biology
2				A.J. Brook	Returned To College Library (Written Off)
3	7394	28	2	F.O. Bower	Botany of the Living Plant
4	2581	37	2	F.O. Bower	Botany of the Living Plant
5	23521	139	6	V.A. Greulach & J.E. Adams	Plants an Introduction to Modern Botany
6	5057	174	7	C.C. Hentschel & W.Cook	Biology
7	16695	175	7	C.C. Hentschel & W.Cook	Biology
8	7085	165	7	E.W. Sinnott	Introductio to Botany
9	23617	386	16	P.B. Weisz	Elements of Biology
10	15383	21	1	M.D. Buffaloe	Principals of Biology
11	11896	384	16	P.B. Weisz & M. Fuller	The Science of Botany
12	7102	392	16	L.L. Woodruff	Foundations of Biology
13	2602	295	12	D.E. Rieser	Popular Book of Botany
14	18517	275	11	C.T. Prime	The Young Botanist
15	3253	83	4	J.L. Coulter & C.R. Barnes	A Text Book of Botany (Vol. I) Morphology
16	34354	484	20	G.C. Klingman	Weed Control
17	3321	356	15	H.C. Thompson	Vegetable Crops
18	4058	222	9	R.C. McLean	A Text Book of Practical Botany
19	7397	355	15	W.T. Taylor & R.J. Weber	General Biology
20	15572	319	13	F.C. Steward	About Plants: Topics in Plant Biology
21				H.G. Wells	Returned To College Library (Written Off)
22	35093	498	21	G.Grigson	The Dictionary of English Plant Names
23	2145	9	1	J.Asch	The Story of Plants
24	54684	500	21	G. Usher	A Dictionary of Botany
25	3310	203	9	J. Konynenburg	The Encyclopedia of Garden Pests
26	16880	207	9	E.S. Lenhoff	Tools of Biology
27	26252	5	1	J.H. Rosengren	Biology Teachers Guide
28	9449	108	5	C.L. Duddington	Instructions To Young Botanists
29	5831	122	5	J.Hawson	The Insect World
30	26247	31	2	C.D. Bingham	Rural Biology
31	96G	1	1	R.L. Anand	Punjab Agriculture, Facts and Figures
32				Ward, Lock and Co.Ltd	Returned To College Library (Written Off)
33	9440	221	9	W.L. Muller	Botany-A Functional Approach
34	10537	333	14	M.Skene	The Biology of Flowering Plants

35	5820	274	11	B. M. Pugh	Production of Field Crops in India
36	12063	71	3	G.H. Caswell	Agricultural Entomology in the Tropics
37	16623	240	10	T.K. Mukundan	Plant Protection
38	16621	55	3	G.V. Chalam & J. Venkataswarlu	Agricultural Botany in India (Vol.I)
39	12078	219	9	E. Schuler	Gardens of the World
40	14883	380	16	H.C.D. de Wit	Plants of the world
41	13105	379	16	W.C. White	Flowering Trees of the Caribbean
42				M.S. Randhawa	Returned To College Library (Written Off)
43				M.S. Randhawa	Returned To College Library (Written Off)
44				A.M. Winchester	Returned To College Library (Written Off)
45	8272	247	10	S.Newton	A Thousand Years of Japanese Gardens
46				B.E. Nicholson	Returned To College Library (Written Off)
47	17091	383	16	P.B. Weisz & Fuller	The Science of Botany
48	892	299	12	V. Swenson	Trees
49	4099	220	9	A.C. Moore	The Grasses
50	9439	282	12	M.S. Randhawa	Beautiful Trees and Gardens
51	5011	227	10	J.H McFarland et al	Garden Bulbs in Colour
52	4098	226	10	D.J. Foley	Garden Flowers in India
53	15588	414	17	M.A. Rau	Illustrations of West Himalayan Flowering Plants
54				J. Organ	Returned To College Library (Written Off)
55				Charles McCann	Returned To College Library (Written Off)
56	33612	451	19	E.Smith	A Grammar of Botany
57	10538	209	9	M.E. Leeburn	Garden Lilies
58	2600	330	14	W.G. Sheat	Propagation of Trees Shrubs and Conifers
59	9460	110	5	B.S. Dodge	Plants that Changed the World
60	10546	245	10	R.D. Meikle	Garden Flowers
61	16701	413	17	R.D. Meikle	British Wild Flowers
62				A.L. Dustan	Returned To College Library (Written Off)
63	5008	362	15	H. Teuscher	Window Box Gardening
64	15579	272	11	S.A. Pearce	Flowering Shrubs and Trees
65	19196	268	11	B.P. Pal & S. Krishnamurti	Flowering Shrubs
66	4014	236	10	C. Marsden	Grow Cacti
67				Charles McCann	Returned To College Library (Written Off)
68	9425	35	2	S.A. Brown	Compost Flower Growing
69	1018	23	1	E.Battler & S. Millard	Some Beautiful Indian Trees
70				Odhams Press Ltd	Returned To College Library (Written Off)
71	3963	57	3	M.B. Cormak	The First Book of Trees
72	7384	113	5	J.F. Dastur	Useful Plants of India and Pakistan
73	15788	294	12	M.S. Randhawa	Flowering Trees

74	17325	344	14	V. Swarup	Garden Flowers
75	6284	288	12	E.V. Rensselaer	Seed Mosaics, Chipped Glass & Plant Materials
76	5012	243	10	H.K. Krauss	Geraniums for Home and Kitchen
77	15653	342	14	H.Santapau	Common Trees
78	15585	341	14	H.Santapau	Common Trees
79	23749	340	14	H.Santapau	Common Trees
80	10557	43	2	J.Bergier	The Secrets of Living Matter
81				V. Stevenson	Returned To College Library (Written Off)
82	10556	350	14	W.E. Shewell-Cooper	The ABC of Fruit Growing
83	9426	395	16	S.R. Williams	Compost Fruit Growing
84	4103	293	11	H.W. Rickett	Botany for Gardeners
85				N.L. Bor & Raizada	Returned To College Library (Written Off)
86	4015	67	3	E.H.M.Cox & P.A. Cox	Modern Shrubs
87	3242	4	1	Adriance & Brison	Propagation of Horticultural Plants
88	15577	80	4	Percy Thrower	In Your Green House
89	19074	10	1	Hurtwood & S. Jellicoe	The New Small Garden
90	8821	271	11	B.P. Pal	Beautiful Climbers of India
91	63316	508	21	M.Edwards	Plants for Water Gardens
92				L.H. Bailey	Returned To College Library (Written Off)
93	7349	50	2	A.Osbon & Edwards	The Complete Book of Gardening
94	12971	164	7	B.Hollinsworth	Her Garden Was her Delight
95				A.G.L. Hellyer	Returned To College Library (Written Off)
96	11899	172	7	A.W. Harler	The Gardens in the Plains
97	15768	181	8	Thames & Hudson	Garden Guide
98				R.P.L. Straughan	Returned To College Library (Written Off)
99	12070	132	6	B.V. Fitzgerald	Nature Lovers
100	12970	163	7	H.H. Hume	Azaleas, Kinds and Culture
101	3308	158	7	R.L. Hudson	The Pruning Handbook
102	7046	156	7	Peter Coats	A Book of Gardens
103	9308	95	4	Ministry of Agriculture, Fisheries and Food	Domestic Preservation of Fruits and Vegetables
104	3254	44	2	T.K. Bose	Gardening in India
105				F.W. Allerton	Returned To College Library (Written Off)
106	34152	457	18	W.E. Shewell-Cooper	The ABC of Herbs, Salads and Tomato
107	58213	528	22	V.Swarup	Garden Flowers
108	5009	396	16	S. Wright	A New World for Children
109	10554	426	18	S.Schuler	1001 House Plant Questions
110	10567	91	4	W.E. Shewell-Cooper	The ABC of Flower Growing
111	4123	406	17	G.F. Gardiner	Pictorial Plant Propagation
112	5560	59	3	R.W. Cumming et al	Contemporary Perennials
113	19190	256	11	B.P. Pal	The Rose in India
114	2801	343	14	G.A. Stewens	Climbing Roses

115	4104	244	10	McFarland-Pyle	How to grow roses
116				G.H. Browning	Returned To College Library (Written Off)
117	2503	46	2	H. J. Bonham et al	Aids to Botany
118	10385	41	2	K.S. Bains	Gardening
119	5828	367	15	R.D. Vidyarthi	Vanaspati Shastra
120	5829	370	15	R.D. Vidyarthi	Vanaspati Shastra
121	34359	427	18	G.S. Paliwal	Sachitra Vanaspati Vigyan Kosh
122	14376	171	7	E.D. Hanson	Animal Diversity
123	394 G	69	3	C.K. Arey	Science Experiences for Elementary Schools
124	9446	382	16	Wilson & Loomis	Botany
125	705G	161	7	H.J. Fuller	The Plant World
126	13095	126	6	Fuller and Tippo	College Botany
127	7393	128	6	Fuller and Tippo	College Botany
128	16132	127	6	Fuller and Tippo	College Botany
129	6762	130	6	Fuller and Tippo	College Botany
130	11885	146	6	Gangulee Das & Datta	College Botany (Vol.I)
131	23918	304	13	Saxena & Sarbhai	A Text Book of Botany
132	9441	305	13	Saxena & Sarbhai	A Text Book of Botany
133	5808	306	13	Saxena & Sarbhai	A Text Book of Botany
134	12015	62	3	D.K. S. Chauhan	Angiosperms Vol III
135	15586	116	5	J.S. Douglas	Hydroponics
136	3559	166	7	A.F. Hill	Economic Botany
137	3182	267	11	Parihar	An Introduction to Embryophyta –II Pteridophytes
138	34170	475	19	AGL Hellyer	Shrubs in Colour
139	35091	531	22	Alexopoulos & Bold	Algae Fungi
140	66344	542	23	Srivastava	Plant Physiology Biochem & Biotech
141	61925	573	23	E.P. Odum	Ecology
142	68658	576	24	M.C. Dash & S.P. Dash	Fundamentals of Ecology
143	68700	577	24	Pandey	Economic Botany
144	68656	578	24	S.L. Kochhar	Economic Botany in Trop
145	68654	579	24	Odum & Gray W Barrett	Fundamentals of Ecology
146	67696	580	24	Bhattnagar & Moitra	Gymnosperms
147	67919	581	24	SVS Rana	Biotech Theory of Practice
148	68180	582	24	Raghavan	Developmental Biology of Flowering Plants
149	68191	583	24	Plummer	Introduction to Practical Biochemistry
150	67924	584	24	Singh & Jain	Taxonomy of Angiosperms
151	68295	588	24	P.C. Vashisht, Sinha & Anil Kumar	Botany for Degree Students
152	68296	589	24	P.C. Vashisht, Sinha & Anil Kumar	Botany for Degree Students
153	68869	591	25	Wilson & Walker	Biochemistry & Mole. Biology
154	67859	592	25	Lovish, Berk, Kaiser, Krieger, Scott, Bretscher, Ploegh, Matsudaira	Molecular Cell Biology (6 th Edition)
155	68868	590	24	Wilson & Walker	Biochemistry and Mole. Biology
156	68192	585	24	S.K Sawhney Randirs	Introductory Practical Bio-Chemistry

List of Reference Books for M.Sc. Available in the Departmental Library

Row I Flora and Encyclopedia

Sr. No.	Book No.	No. on Reg.	Stock Reg. Pg.No.	Author	Name of the Book
1				L.H. Bailey	Returned To College Library (Written Off)
2				L.H. Bailey	Returned To College Library (Written Off)
3				L.H. Bailey	Returned To College Library (Written Off)
4	33607	446	18	J.D. Hooker, C.B.	The Flora of British India, Vol. III
5	33608	447	18	J.D. Hooker, C.B.	The Flora of British India, Vol. IV
6	33609	448	18	J.D. Hooker, C.B.	The Flora of British India, Vol. V
7	33610	449	18	J.D. Hooker, C.B.	The Flora of British India, Vol. VI
8	33611	450	18	J.D. Hooker, C.B.	The Flora of British India, Vol. VII
9	33605	444	18	J.D. Hooker, C.B.	The Flora of British India, Vol. I
10	33606	445	18	J.D. Hooker, C.B.	The Flora of British India, Vol. II
11	33603	442	18	D. Brandis	The Forest Flora of North West & Central India
12	33599	438	18	H.Collett	Flora Simlensis
13	33598	437	18	D.Brandis	Indian Trees
14	12982	159	7	C.J. Hylander & E.F. Johnston	Wild Flower Book
15	33604	443	18	D. Brandis	Illustraion of the Forest Flora of North West & Central India
16	34171	476	20	Arthur Helleyer	Garden to Visit in Britain
17				X. Hamlyn	Returned To College Library (Written Off)

18	63320	554	23	Monty Don	The Complete Gardener
19	5919G	553	23	Chhatar Singh Rajnish Wattas Harjit Singh Dhillon	Trees of Chandigarh
20	17089	495	21	Lorus & Margery Miline	Living Plants of the World
21	63321	551	23	C.K. Rao	Flora
22	63322	552	23	C.K. Rao	Flora

Row II-Physiology and Biochemistry

Sr. No.	Book No.	No. on Reg.	Stock Reg. Pg.No.	Author	Name of the Book
1	57035	505	21	Albert Lehniger	Principles of Biochemistry
2	56623	503	21	Albertis et al	Molecular Biology of the Cell
3	66345 66346	541 549	23 23	P.K. Gupta	Cell and Molecular Biology (2 Copies)
4	34162	467	19	E.J. Ambrose & B.M. Easty	Cell Biology
5	15879	2	1	L.J. Audus	Plant Growth Substances
6	33602	441	18	F.B. Salisbury C. Ross	Plant Physiology
7	13229	20	1	K.M. Bykov	Text Book of Physiology
8	11888	411	17	B.S. Meyer et al Anderson	Introduction to Plant Physiology
9	1267			Robert M. Devlin	Plant Physiology
10	12023 22330	38 34	2 2	J.T. Bonner	Morphogenesis (2 Copies)
11				Noggle & Fritz	Returned To College Library (Written Off)
12	17088	326	14	P.B. Salisbury	The Flowering Process
13	54687	502	21	M.B. Wilkins	Advances in Plant Physiology
14	9458	17	1	J.T. Bonner	Principles of Plant Physiology
15	9438	74	3	O.F. Curtis & D.G. Clark	Introduction to Plant Physiology
16	54686	501	21	J.H. Dodds & L.W. Robbertis	Elements in Plant Tissue Culture
17				James S. Wells	Returned To College Library (Written Off)
18	34160	465	19	Emil Troug	Mineral Nutrition of Plant

19	66330	539	22	N.S. Subrahmanyam & A.V.S.S. Sambamurthy	Ecology
20				P.D. Sharma	Returned To College Library (Written Off)
21	61999	506	21	R.C. Grewal	Medicinal Plants
22	57224	571	23	A.F. Hill	Economic Botany
23	15889	8	1	R.W. Allard	Principles of Plant Breeding
24	15895	176	8	H.I. Smith	Method of Plant Breeding
25	34168	473	19	Sinnot Dunn	Principles of Genetics
26	37126	499	21	E.J. Gardener	Genetics
27	8195G	494	21	S.K. Bhattacharjee	Handbook of Aromatic Plants

Row III-Anatomy & Vascular Plants

Sr. No.	Book No.	No. on Reg.	Stock Reg. Pg.No.	Author	Name of the Book
1	5806	228	10	C.R. Metcalfe & L.Chalk	Anatomy of Dicotyledons Vol. I
2	5807	229	10	C.R. Metcalfe & L.Chalk	Anatomy of Dicotyledons Vol. II
3	34149	454	19	K. Esau	Plant Anatomy
4	5805	120	5	K. Esau	Anatomy Of Seed Plants
5	7371	118	5	Eames & MOC. Daniels	Introduction to Plant Anatomy
6	7363	22	1	H.C. Bold	Morphology of Plants
7	15892	117	5	Arthur J. Eames	Morphology of Angiosperms
8	33601	440	18	Y.S. Murty, B.M. Johri	Advances in Plant Morphology
9a	9305	322	13	Arthur J. Eames	Morphology of Vascular Plants (Lower Group)
9b	34156	461	19		
9c	15891	119	5		
10	3341	6	1	C.A. Arnold	An Introduction to Palaeobotany
11	10547	335	14	S.M. Smith	Cryptogamic Botany
12	56775	527	22	S.M. Smith	Cryptogamic Botany
13	10534	64	3	V.J. Chapman	The Algae
14	16622	65	3	V.W. Cochrane	Physiology of Fungi
14b	23531	66	3	V.W. Cochrane	Physiology of Fungi
15	9437	33	2	J.F.T. Brookds	Plant Disease
16	3337	168	7	F.D. Heald	Manual of Plant Disease
17	G985			H.C. Gwyne-Vaughan and B.Barnes	The Structure and Development of Fungi
18	5858	98	4	J.G. Dickson	Disease of Field Crops
19	33596	435	18	E.J. Butler	Fungi & Disease in Plant
20	9444	3	1	C.J. Alexopoulous	Introduction Mycology
21a	16133	140	6	J.C. Gilman	A Manual of Soil Fungi (3 Copies)
21b	15589	142	6		
21c	17474	141	6		

Row IV-Embryophytes

Sr. No.	Book No.	No. on Reg.	Stock Reg. Pg.No.	Author	Name of the Book
1a	22145	103	5	H.I. Dittmer	Phylogeny & form in the Plant Kingdom (4 Copies)
1b	23066	102	5		
1c	10568	100	4		
1d	10213	99	4		
2	17094	58	3	E.L. Core	Plant Taxonomy
3	34357	487	20	N.P. Chowdhury	The Pteridophyte Flora of Upper Gangetic Plain
4	2499	421	17	G.M. Smith	Cryptogrammic Botany Vol. I
5	2588 a 34154 b	242 459	10 19	K.R. Sporne	The Morphology of Pteridophytes (2 Copies)
6	25507	536	22	N.S. Parihar	An Introduction to Embryophyta-Pteridophytes
7				N.S. Parihar	Returned To College Library (Written Off)
8	25880	535	22	E.V. Watson	The Structure and life of Bryophytes
9	2582	84	4	I.M. Coulter, C.R. Barns & Others	A Text Book of Botany-Morphology
10	10548	418	17	G.M. Smith	Introduction to Embryophyta Vol. II. Bryophytes and Pteridophytes
11	32453	523	22	C.J. Chamberlain	Gymnosperms
12a	3128	94	4	J.M. Coulterm C.J. Chamberlain	Morphology of Gymnosperms (2 Copies)
12b	10549	63	3		
13	15582	351	15	K.R. Sporne	The Morphology of Gymnosperms
14	10535	364	15	C.T. Prime	The Young Botanist (A Practical Book)
15	23530	312	13	E.W. Sinnott & K.S. Wilson	Botany Principles & Problems
16a	23735	317	13	J.E. Sass	Botanical Microtechnique (3 Copies)
16b	5833	320	13		
16c	17473	315	13		
17	5815	125	5	H.J. Fuller	The Plant World
18	7087	321	13	A.Stauffer	Introductory Biology
19	5020	136	6	Eldon J.Gardener	The Principles of General Biology
20	10553	138	6	V.A. Greulach & J.E. Adams	Plant-An Introduction to Modern Botany

21	7369	131	6	F.E. Fristch	Structure & Reproduction of the Algae
22	21857	311	13	E.W. Sinnott, K.S. Wilson	Botany Principles and Problems
23	16803	246	10	Nelson	The Living Organisms
24	926	205	9	James Laver	The Young Collections

Row V- General Books

Sr. No.	Book No.	No. on Reg.	Stock Reg. Pg.No.	Author	Name of the Book
1				Mrs. Loudon's	Returned To College Library (Written Off)
2				Mrs. Loudon's	Returned To College Library (Written Off)
3	15576	160	7	Royton	Collectors of Alpines
4	4900	206	9	Lobeck	Geomorphology
5	34355	485	20	H.T. Hartmann	Plant propagation Principles and Practices
6a	10542	302	13	Sham et al	Fruit Culture (2 Copies)
6b	10726	301	13		
7	11897	224	9	R.C. Mclean et al	Text Book of Theoretical Botany Vol. I
8	11898	223	9	R.C. Mclean et al	Text Book of Theoretical Botany Vol. II
9	23734	129	6	H.J. Fuller O. Tippto	College Botany
10	19200	51	3	R.N. Chopra et al	Poisonous Plants of India Vol. I
11				R.W. Schery	Returned To College Library (Written Off)
12	68276	556	23	S.P. Khullar	An Illustrated Fern Flora For The West Himalayas
13	68277	555	23	S.P. Khullar	An Illustrated Fern Flora For The West Himalayas
14	68381	558	23	Bernard Goffinett & Shaw	Bryophyte biology
15	68659	570	23	R.S. Shukla	A Text Book of Plant Ecology
16	60907	572	23	R.S. Ambasht	A Text Book of Plant Ecology
17	66306	574	23	V. Verma	A Text Book of Plant Ecology
18	68380	557	23	Vander and Goffenett poorten	Introduction to Bryophyte
19	68196	560	23	Chopra and Kumar	Biology of Bryophyte
20	68102	559	23	A.Rashid	An Introduction to Bryophyte
21	68287	562	23	B.R. Vashishta , A.K. Sinha,	Botany for Degree Students- Bryophyte
22	68103	561	23	A.Rashid	An Introduction to Pteridophyta
23	68293	563	23	P.C. Vashishta A.K. Sinha, Anil Kumar	Botany for Degree Students- Pteridophyta

Journals

Indian Journal of Bio-Technology Jan' 17 CSIR

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List of Biochemistry Books for M.Sc. (Second Year) in the College Library

Sr.No.	Name of the Book	Author
1	Text Book of Biochemistry	D.M. Vasudevan & S.Sreekumari
2	Molecular Biology	S.C. Rastogi
3	Molecular Biology of Gene	Watson et al
4	Molecular Biology	Lodish, Berk, Scott
5	Comprehensive Practical in Biochemistry	Yadav, Deshmukh, Kamble
6	Practical Manual of Biochemistry	S.P. Singh
7	An Introduction to Practical Biochemistry 68191	David Plumber
8	Essentials of Biochemistry	U. Satyanarayana & U. Charkapani
9	Biochemistry	J.C. Blackstock
10	Principles of Biochemistry	White, Handler & Smith
11	Laboratory Manual of Practical Biochemistry	S. Shankara
12	Text Book of Biochemistry	Dr. A.V.S.S. Rama Rao
13	Harper's illustrated Biochemistry	Murray, Grannes & Rodwell
14	Practical Biochemistry	V.K. Malhotra
15	Essentials of Molecular Biology	Malacririski
16	A Text Book of Biochemistry	Harbans Lal Gupta
17	A Text Book of Biochemistry	Harbans Lal Gupta
18	A Text Book of Biochemistry	Devlin
19	Fundamentals of Biochemistry	A.C. Deb
20	Principles of Biochemistry	Lehringer
21	Biochemistry	Campbell & Farell
22	Biochemistry Illustrated	Campbell, Smith

