ਤੇਰਾ ਘਰ ਮੇਰਾ ਅਸੀ
ESTD. 1875

GOVERNMENT MOHINDRA COLLEGE PATIALA

(Affiliated to Punjabi University, Patiala)

NAAC ACCREDITED GRADE A+ CYCLE-I

NAAC REACCREDITED GRADE A (CGPA 3.86) CYCLE-II

AISHE CODE: C-22146

INTERNAL QUALITY ASSURANCE CELL (IQAC)

AMARJIT SINGH (PES-I)
Principal

LOVELEEN PARMAR
IQAC Coordinator

MOHAMMAD SOHAIL
IQAC Co-Coordinator

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INTERNAL QUALITY ASSURANCE CELL

IQAC

GOVERNMENT MOHINDRA COLLEGE,

PATIALA

Supporting Documents/Additional Information

Title ***Percentage of students undertaking project work/field work/ Internships (Data for the latest completed academic year)***

Table of Contents:

Govt. Mohindra College, Patiala

Dept. of Botany

To whom it may concern

It is certified that students of B.Sc Medical part III (Sem VI) have done field work for Botany practical- Plant utilization course:

Session	Number of students	Topic of Field work
2022-23	63	Field visit to study source of medicinal plants (10), Fire wood (10), Timber yielding plants, bamboos and local are visit for practical work.

Field reports of all the students were submitted to external examiner.

Subject Teachers: Dr. Ambika Beri
Mr. Harpreet Singh

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Govt. Mohindra College, Patiala
Dept. of Botany

1.3.2 Field work/project work/internship undertaking during the year 2022-23

Session	Project	Number of students	Topic of Field work
2022-23	B.Sc Medical III (Sem VI)	63	Field visit to study source of medicinal plants (10), Fire wood (10), Timber yielding plants, bamboos and local are visit for practical work.

Field reports of all the students were submitted to external examiner.

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BSc Medical Sem-V

Session 2022-23

Sr	Board University Roll No	Roll No	Student Name
1	402702	3201	KIRANDEEP KAUR
2	402773	3202	ANKITA CHOPRA
3	402631	3203	RUBBY
4	402618	3204	SIMRAN MALHOTRA
5	402651	3205	PRABHNOOR KAUR
6	402752	3206	HARMANPREET KAUR
7	402719	3207	JASPREET KAUR
8	402723	3208	JASPREET KAUR
9	402764	3209	BHAWNISH SHARMA
10	402664	3210	NAVNEET KAUR
11	402663	3211	NAVPREET KAUR
12	402617	3212	SIMRANJEET KAUR
13	402741	3213	HIMANI
14	402781	3214	AKASHDEEP KAUR
15	402602	3215	VEERPAL KAUR
16	402768	3216	BABLI
17	402716	3217	JYOTI DEVI
18	402636	3218	RAMANPREET KAUR
19	402744	3219	HARPREET KAUR
20	402652	3220	PRABHLEEN KAUR
21	402837	3221	BHAJANPREET SINGH
22	402762	3222	DEEPTI SINGH
23	402745	3223	HARPREET KAUR
24	402815	3224	KULWINDER SINGH
25	402681	3225	MANPREET KAUR
26	402646	3226	RAJANDEEP KAUR
27	402748	3227	HARPREET KAUR
28	402758	3228	GURINDER KAUR
29	402627	3229	SANJANA
30	402710	3230	KAMALPREET KAUR
31	402820	3231	JIVESH KUMAR
32	402612	3233	SUKHMAN PREET KAUR
33	402666	3234	NAVLEEN KAUR
34	402715	3235	KAJAL
35	402653	3236	POOJA PUROHIT

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36	402686	3238	MANPREET KAUR
37	402769	3237	ARSHDEEP KAUR
38	402754	3239	HARDEEP KAUR
39	402603	3240	VASVI GOEL
40	402740	3241	HIMANI RANI
41	402818	3242	KAMAL KUMAR
42	402648	3243	PRIYANKA SHARMA
43	402696	3244	LAKHWINDER KAUR
44	402709	3245	KANCHAN
45	402642	3246	RAMANDEEP KAUR
46	402625	3247	SARIKA RANI
47	402757	3248	GURJEET KAUR
48	402732	3249	JANVI
49	402693	3250	LOVPREET KAUR
50	402749	3251	HARPREET KAUR
51	402743	3252	HARSHDEEP KAUR
52	402604	3253	VARKHA RANI
53	402767	3254	BAINAT KAUR
54	402659	3255	NITISHA
55	402676	3256	MANVEER KAUR
56	402658	3257	PALVI
57	402669	3258	NANDINI MITTAL
58	402656	3259	PARAMJEET KAUR
59	402671	3260	NAMNEET KAUR
60	402673	3261	MEHAKPREET KAUR
61	402742	3262	HARSHITA KAUR
62	402601	3263	YASMEEN
63	402668	3264	NAVJOT KAUR

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B.Sc III

SYLLABUS

B.Sc. (Botany) Part-III (Semester-V and VI)
(Session 2021-22, 2022-23 and 2023-24)

Semester-V

THEORY

	External Marks	Internal Assessment
Paper-IX: Plant Physiology	40	15 (Attendance: 3 + Assignment: 6 + House Test 6)
Paper-X: Plant Growth, Development and Biotechnology	40	15 (Attendance: 3 + Assignment: 6 + House Test 6

PRACTICAL

Pertaining to Theory Paper-IX Pertaining to Theory Paper -X	40

Total Marks (Semester-V)

Theory	80 Marks
Practical	40 Marks
Internal Assessment Pertaining to Theory Paper-IX & X	30 Marks
Total :	**150 Marks**

Semester-VI

THEORY

	External Marks	Internal Assessment
Paper-XI: Plant Ecology	40	15 (Attendance: 3 + Assignment: 6 + House Test 6)
Paper-XII: Plant Utilization	40	15 (Attendance: 3 + Assignment: 6 + House Test 6

PRACTICAL

Pertaining to Theory Paper -XI **Pertaining to Theory Paper -XII**	40

Total Marks (Semester-VI)

Theory	80 Marks
Practical	40 Marks
Internal Assessment Pertaining to Theory Paper **XI & XII**	30 Marks
Total :	**150 Marks**

Note:

1) The number of teaching hours per week will be three for each theory paper and three for each practical in every semester. In all, there will be 12 teaching hours per week covering both theory and practical requirements. (Six teaching hours for theory and Six teaching hours for practical per week)
2) Practical paper in each semester will be of 3 hours. The timing of practical examination will be 9.00 am to 12.00 noon.

Theory
6 Teaching hrs = 8.5 periods (45 min es
6 Teaching hrs (Practical) = 8.5 peri (45
12 hr = 17 ~~hrs~~ peri
9 + 6 = 15 peri

Paper-XI: PLANT ECOLOGY

Max. Marks: 55 marks
Pass Marks: 35% in Theory and Practical Separately
Theory Paper: 40 marks
Internal Assessment: 15 marks

Total Teaching hours: 45
Time Allowed: 3 Hours

Objective of the paper is to make the students conversant with the basic concepts of Ecology and make them aware of the various Environmental issues.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of syllabus and will carry 6 marks each. Section C will consist of 8 short-answer type questions (8-10 lines) of 2 marks each which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C, which is compulsory.

SECTION-A

1. Concept of ecology and its scope. Environmental factors: climatic, edapic, topographic and biotic, Shelfords law of tolerance.
2. Population ecology: Characteristics, positive and negative interaction, growth forms, carrying capacity, ecotypes and ecads.
3. Community ecology: Community characteristics, frequency, density and abundance, cover, life forms. ecological succession (Hydrosere, Xerosere). Gause principle of competitive exclusion.
4. Structure and concept of ecosystem, ecological pyramids, food chain, food web, ecological energetics, ecological productivity.

SECTION-B

5. Environmental issues: Brief idea of air, water, noise and soil pollution. Global warming and ozone depletion. International efforts for mitigation of global climate change.
6. Biodiversity: Introduction and Importance of Biodiversity; Elements of Biodiversity; Genetic, species and ecological diversity. Conservation strategies, concept of hot spots, biomes, phytogeographic regions of India, vegetation types (Forests, Grasslands, Desserts and Wetlands).
7. Ecological adaptations in xerophytes, hydrophytes and halophytes.
8. Biogeochemical cycles with particular reference to C, N and P.

RECOMMENDED READINGS

1. Begon, M., Townsend, C.R. & Harper, J.L. 2006. *Ecology: From Individuals to Ecosystems.* (4th Edition) Blackwell Publishers, Australia.
2. Gurevitch, J., Scheiner, S.M. and Fox, G.A. 2006. *The Ecology of Plants* (2nd Edition). Sinauer Associates Inc, Pub. USA.
3. Kormondy, E.J. 1996. *Concepts of Ecology*. Prentice-Hall of India Pvt. Ltd., New Delhi.
4. Mackenzie, A. et al. 1999. *Instant Notes in Ecology*, Viva Books Pvt. Ltd., New Delhi.
5. Mcknney, M.L., Schoch, R.M. & Yonaujak, L. 2007. *Environmental Science: Systems and Solutions* (4th Edition). Johes and Bartl. Pub., USA.
6. Odum, E.P.1983. *Basic Ecology*, Saunders, Philadelphia.
7. Omasa, K. Saji, H., Youssefian, S. and Kondo, N. 2005. *Air pollution and Plant Biotechnology: Prospects for Phytomonitoring and Phytoremediation*. Springer-Verlog, Tokyo, Japan.

SUGGESTED LABORATORY EXERCISES PERTAINING TO THEORY PAPERS: PLANT ECOLOGY AND PLANT UTLIZATION:

Teachers may select plant/material available in their locality/institution.

1. To determine minimum number of quadrats required for study of a grassland.
2. To study the frequency of herbaceous species in grassland and to compare the frequency distribution with Raunkiaer's Standard Frequency Diagram.
3. To estimate Importance Value Index (IVI) for grassland species on the basis of relative frequency, relative density and relative biomass in protected and grazed grassland.
4. To measure the above ground plant biomass in a grassland.
5. To determine Kemp's constant for dicot and monocot leaves and to estimate the leaf area index of a grassland community.
6. To determine diversity indices (Richness, Simpson, Shannon Wiener) in grazed and protected grassland.
7. To estimate bulk density and porosity of grassland and woodland soil.
8. To determine moisture content and water holding capacity of grassland and woodland soil.
9. To study the vegetation structure through profile diagram.
10. To estimate transparency, pH and temperature of different water bodies.
11. To measure dissolved oxygen content in polluted and unpolluted water samples.
12. To estimate salinity of different water samples.
13. To determine the per cent leaf area injury of different leaf samples collected around polluted sites.
14. To demonstrate dust holding capacity of the leaves of different plant species.
15. Food Plants: Study of the morphology, structure and simple micro chemical tests of the food storing tissues in rice, wheat, maize, potato and sugarcane. Microscopic examination of starch in these plants (excepting sugarcane).
16. Fibres: Study of cotton flower, sectioning of the cotton ovules/developing seeds to trace the origin and development of cotton fibres. Microscopic study of cotton and test for cellulose. Sectioning and staining of jute stem showing the location and development of fibres. Microscopic structure. Tests for ligno-cellulose.
17. Vegetable Oils: study of hand sections of groundnut, mustard and coconut and staining of oil droplets with Sudan III and Sudan Black.
18. Field Visits: To study sources of firewood (10 plants), timber-yielding trees (10 trees) and bamboos. A list to be prepared mentioning special features.
19. Spices: Examine Black pepper, cloves, cinnamon (hand sections) and open fruits of cardamom and describe them briefly.
20. Prepartion of an illustrated inventory of 10 medicinal plants and use their in indigenous systems of medicine of allopathy: Write their botanical and common names, parts used and diseases/disorders for which they are prescribed.
21. Beverages: Section of boiled coffee beans and tea leaves to study the characteristic structural features.