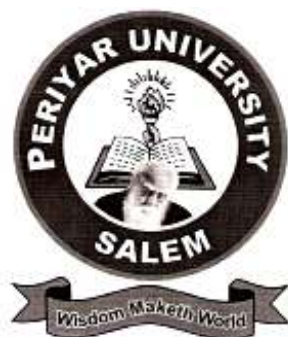


PERIYAR UNIVERSITY

SALEM – 636 011



B.Sc., Botany (Branch – V)

SYLLABUS

CHOICE BASED CREDIT SYSTEM

(candidates admitted from 2008 – 2009 onwards)

Objectives of the course:

This course will enable the students

- To gain knowledge of the importance of plants in conserving food and fuel.
- To acquire skills in drawing by actual observation at its original and natural condition.
- To know the nutritive value of food and maintain 'Health and Care Problems'
- To create awareness in the understanding of extinct plants.
- To create awareness of natural resources and methods of conservation.
- To develop skill in students of growing various horticultural plants thereby to raise a nursery.
- To train in techniques of Vegetative propagation and gardening.
- To motivate for self-employment by knowledging and practicing in the preparation of bio-fertilizers.
- 'earn while learn' can be done with the acquirement of basic knowledge in growing some medicinal plants.
- To gain knowledge for exploration of new plants of unknown value and known plants of unknown value of their secondary metabolites.
- To gain a knowledges of the techniques of producing desirable plants through the study of molecular biology and genetic engineering.

DEGREE OF BACHLOR OF SCIENCE IN BOTANY
BRANCH-V-BOTANY
CBCS PATTERN

1. Eligibility for Admission:

A candidate who has passed Higher Secondary Examination in Academic or vocational stream with Botany under higher secondary board of examination, TamilNadu or an examination accepted as Equivalent thereto by the syndicate subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the B.Sc degree examination of this university after a course of study of three academic years.

2. Duration of the Course:

The course for the degree of Bachelor of Science shall consist of three academic years divided into six semesters.

3. Course of study

The course of study shall comprises instruction in the following subjects according to the syllabus and books prescribed from time to time.

BSc. BOTANY**Choice Based Credit System****(For the Students admitted from the Year 2008 onwards)**

Sem	Part	Course	Code	Inst. Hrs	Credit	Exam Hrs	Marks		
							CI A	EA	TOTAL
I	I	Tamil I		6	3	3	25	75	100
	II	English - I		6	3	3	25	75	100
	III	Core Course I	08UBO01	5	5	3	25	75	100
		Core Course II (practical)	08UBOP01	3	-	-	-	-	-
		First Allied – I	08UZOA01	4	3	3	25	75	100
		First Allied - II (practical)	08UZOAP01	3	-	-	-	-	-
	IV	Env. Stu		1	-	-	-	-	-
		Value Education		2	2	3	25	75	100
II	I	Tamil - II		6	3	3	25	75	100
	II	English - II		6	3	3	25	75	100
	III	Core Course III	08UBO02	5	5	3	25	75	100
		Core Course II (practical)	08UBOP01	3	3	3	40	60	100
		First Allied – III	08UZOA02	4	4	3	25	75	100
		First Allied – II (practical)	08UZOAP01	3	3	3	40	60	100
	IV	Env. stu		1	2	3	25	75	100
		SBEC I	08UBOSE01	2	2	3	25	75	100
III	I	Tamil – III		6	3	3	25	75	100
	II	English – III		6	3	3	25	75	100
	III	Core Course IV	08UBO03	4	5	3	25	75	100
		Core Course V (practical)	08UBOP02	3	-	-	-	-	-
		Second Allied – I	08UCHA01	4	3	3	25	75	100
		Second Allied – II	08UCHP01	3	-	-	-	-	-
	IV	SBEC II	08UBOSE02	2	2	3	25	75	100
		NMEC I	08UBONE01	2	2	3	25	75	100
IV	I	Tamil – IV		6	3	3	25	75	100
	II	English – IV		6	3	3	25	75	100
	III	Core Course VI	08UBO04	6	5	3	25	75	100
		Core Course V (practical)	08UBOP02	3	4	3	40	60	100
		Second Allied-III	08UCHA02	4	4	3	25	75	100
		Second Allied-II (practical)	08UCHAP01	3	3	3	40	60	100
	IV	NMEC II	08UBONE02	2	2	3	25	75	100
V	III	Core Course VII	08UBO05	5	5	3	25	75	100
		Core Course VIII	08UBO06	5	5	3	25	75	100
		Core Course IX (practical)	08UBOP03	3	-	-	-	-	-
		Core Course X (practical)	08UBOP04	3	-	-	-	-	-
		Elective I	08UBOME01	5	5	3	25	75	100
		Elective II	08UBOME02	5	5	3	25	75	100
	IV	SBEC III	08UBOSE03	2	2	3	25	75	100
		SBEC IV	08UBOSE04	2	2	3	25	75	100
VI	III	Core Course XI	08UBO07	5	5	3	25	75	100
		Core Course XII	08UBO08	5	5	3	25	75	100
		Core Course XIII	08UBO09	5	5	3	25	75	100
		Core Course IX (practical)	08UBOP03	3	4	3	40	60	100
		Core Course X (practical)	08UBOP04	3	4	3	40	60	100
		Elective III	08UBOME03	5	5	3	25	75	100
		SBEC V	08UBOSE05	2	2	3	25	75	100
	IV	SBEC VI	08UBOSE06	2	2	3	25	75	100
		Extn. Activities			1				
					140				

SBEC - Skill Based Elective Courses NMEC - Non Major Elective Courses

PERIYAR UNIVERSITY
BSc. BOTANY
Choice Base Credit System
COURSE STUDY

I. SEMESTER:-

1. Language Paper - Tamil I
2. English Paper -I
3. Core Course – I - Major Paper – I, Plant diversity – I, (Algae and Bryophytes)
4. Core course – II – Major Practical – I – Extended to IInd Semester.
5. First Allied Course – I – Allied Zoology – Paper – I
6. First Allied – II – Allied Practical – Extended to IInd Semester.
7. Value Education (Common Paper)

II. SEMESTER:-

8. Tamil - Paper II
9. English Paper II
10. Core Course – III – Major Paper II- Plant diversity II (Fungi, Lichens, Bacteria and Viruses)
11. Core Course II – Major Practical I, Extended from Ist Semester- Paper covering I & II
12. First Allied Course –III – Allied Zoology – Paper II
13. First Allied – II – Allied Zoology practical- Extended from Ist Semester.
14. Environmental Studies (Common Paper)
15. Skill Based Elective Course –I – Mushroom Culture Technology

III SEMESTER:-

16. Tamil - Paper III
17. English Paper III

18. Core Course IV – Major Paper III, Anatomy and Embryology of Angiosperms
19. Core Course V – Major Practical II, Extended to 4th Semester
20. Second Allied I- Allied Chemistry Paper – I
21. Second Allied II – Allied Chemistry Practical - Extended to 4th Semester
22. Skill Based Elective Course II – Horticulture
23. Non-Major Elective Course I – Mushroom Cultivation.

IV SEMESTER:-

24. Tamil - Paper IV
25. English Paper IV
26. Core Course – VI – Major Paper IV – Plant diversity – III, (Pteridophytes, - Gymnosperms & Paleobotany)
27. Core Course Practical V – Major Practical II, Extended from 3rd Semester Papers covering III and IV
28. Second Allied III – Allied Chemistry – Paper II.
29. Second Allied II – Allied Chemistry Practical – Extended from 3rd Semester.
30. Non-Major Elective Course II – Herbal botany.

V SEMESTER:-

31. Core Course – VII – Major Paper V – Morphology & Taxonomy of Angiosperms
32. Core Course – VIII – Major Paper VI – Cytology and Genetics
33. Core Course – IX – Major Practical III – Extended to VIth Semester.
34. Core Course – X – Major Practical IV – Extended to VIth Semester.
35. Elective Course I – Plant biotechnology.
36. Elective Course II – Agricultural Microbiology
37. Skill Based Elective Course III – Micro technique
38. Skill Based Elective Course IV- Seed Technology

VI SEMESTER:-

39. Core Course – XI Major Paper VII – Plant Physiology.
40. Core Course – XII Major Paper VIII – Plant Ecology and Plant Geography
41. Core Course – XIII – Major Paper IX – Plant Protection
42. Core Course IX – Major Practical III – Extended from Vth Semester – Paper covering V & VI .
43. Core Course X- Major Practical IV - Extended from Vth Semester – Paper covering VII, VIII & IX
44. Elective Course III – Medicinal Botany.
45. Skill Based Elective Course V – Plant breeding & Plant utilization as food.
46. Skill Based Elective Course VI – Biofertilizers.

BSc. BOTANY
Choice Based Credit System
For the Students Admitted the Year 2008 onwards
SEMESTER I
CORE COURSE -1
MAJOR PAPER -1- 08UBO01
PLANT DIVERSITY - I ALGAE & BRYOPHYTA

Algae

UNIT - I

General characters Algae. Classification of algae by F.E. Fritsch Habit and Habitats of Fresh water, marine and soil algae. Pigmentation and reserve food in algae.

UNIT - II

Economic importance of Algae - Agar Agar, Carrageenin, SCP, Chlorellin, Algae and sewage disposal, Algae as Food and Fodder.

UNIT - III

A detailed study of the structure, reproduction and life cycle of the following genera; Oscillatoria, Chlamydomonas, Volvox, Chlorella, Ulva.

UNIT - IV

Oedogonium, Caulerpa, Chara, Sargassum, Polysiphonia.

Bryophytes

UNIT - V

General characters of Bryophytes. Classification of Bryophytes by Rothmaler (1951).

A short account on Economic importance of Bryophytes.

A detailed study of the structure, reproduction and life cycles of the following genera: [Excluding development of sex organs & development of Sporophytes.]

Riccia, Anthoceros, Porella and Ploytrichum.

PRACTICAL

A detailed study of the examples cited in the theory syllabus.

To make suitable micro preparations of the type prescribed in Algae and Bryophyte.

To observe and identify microscopic specimens and write illustrated and explanatory notes on them.

Algae

TEXT BOOKS

1. Kumar, H.D, & Singh, H.N (1976) - A Text Book of Algae, Affiliated East West Press Pvt. Ltd., New Delhi.
2. Planiappan. S, (1988) - Algakkal (in Tamil), T.K Publishing House, Chennai.
3. Sharma. O.P (1990) - Text Book of Algae, Tata Mc Graw Hill Publishing Co, Ltd., New Delhi.
4. Pandey, B.B(1993) - A Text Book of Botany - Algae, S. Chand & Co. (P) Ltd, New Delhi.
5. Vashishta, B.R (1993) - Botany for degree students -Algae, S. Chand & Co. Ltd., New Delhi.

REFERENCE BOOKS

1. Smith, G.M (1955) - Cryptogamic Botany (Vol. I-Algae, Fungi & Lichens), Mc Graw Hill Book Co, New York.
2. Trainor, F.A (1978) - Introductory Phycology, John Wiley.
3. Lee, R.E (1980) - Phycology, Cambridge University Press.

4. Kumar, H.D (1990) - Introductory Phycology, Affiliated East West Press (P) Ltd., New Delhi.
5. Kumareasn, V. (1997) - Algae and Bryophytes, Saras Publication, Nagar Coil, India.

Bryophytes

TEXT BOOKS

1. Parihar, N.S (1967) - An Introduction Embryophyta, Vol I - Bryophyta. Central Book Depot, Allahabad.
2. Gupta, S.K. (1978) - Introductory Botany Vol II - Bryophyta and Gymnosperms. KedarNath Ram Nath Publisher, Meerut.
3. Ashok Bendre & Ashok Kumar (1983-84) - A Text Book of Practical Botany, Vol. I, Rastogi Publications, Shivaji Road, Meerut, India.
4. Palaniappan, S (1988) - Bryophyta (in Tamil), T.K Publishing House, Chennai.
5. Vashishta, B.R. (1983) - Botany for degree student -Bryophyta, S. Chand & Co, New Delhi.

REFERENCE BOOKS

1. Chopra, G.L (1968) - A Class Book of Bryophyta Hari Singh & Bros. Jnlunder.
2. Prem Puri (1981) - Bryophytes-morphology, growth and differentiation. Atma Ram & Sons, New Delhi.
3. Rashid, A (1998) - An Introduction to Bryophyta Vikas Publishin (P) Ltd., New Delhi.

BSc. BOTANY
Choice Based Credit System
For the Students Admitted the Year 2008 onwards
SEMESTER II
CORE COURSE - III 08UB002
MAJOR PAPER - II
PLANT DIVERSITY - II (FUNGI, LICHENS, BACTERIA AND
VIRUSES)

Fungi

UNIT -I

A study of the general characteristics and mode of life of fungi.

Classification of fungi (C.J. Alexopoulos 1962). Economic importance of Fungi.

UNIT - II

A study of the occurrence, structure, reproduction, life cycle and significance of the following genera:

Albugo, Saccharomyces, Penicillium, Neurospora and Peziza.

UNIT - III

A study of the occurrence, structure, reproduction and life cycle of the following genera: Puccinia, Polyporus and Fusarium. An account on Mycorrhizae.

Lichens, Viruses

UNIT - IV

Lichens: General characteristics, occurrence, classification, structure, reproduction and economic importance.

Viruses: General characters of plant Viruses, General account of Bacteriophages, cyanophages and mycophages. Mycoplasma (PPLO). Reproduction of T-Phage.

Bacteria

UNIT- V

Bacteria - morphology, structure, growth, nutrition, photosynthetic and Chemosynthetic Bacteria. Reproduction in bacteria. Economic importance of bacteria.

PRACTICALS

1. A detailed of the examples cited in the theory part.
2. A general study of various types of Lichens.
3. To make suitable micro preparations of the types prescribed in Fungi and Lichens.
4. To observe and identify microscopic specimens and write illustrated and explanatory notes on them.

TEXT BOOKS

1. Alexopoulos, C.J, (1962) Introductory Mycology. John Wiley.
2. Vashista, B.R. (1969) Botany for Degree students. Part II. Fungi. S. Chand and Co.
3. Srivastava, J.P. (1970) An introduction of Fungi, Central Book Depot, Allahabad.
4. Dube., H.C. A Text Book of Fungi, Bacteria and Viruses, Vikas Publishing houses (P) Ltd., 1978.
5. Purohit, S.S. Viruses, Bacteria and Mycoplasma. Agro Botanical Publishers, Bikaner, India.
6. Sharma, O.P. Text Book of Fungi. Tata McGraw Hill Publishing Co., New Delhi.

REFERENCE BOOKS

1. Siström, W.R, (1962) Microbial life. Holt, Rinehart & Winston.
2. Misra, A. and Agarwal, R.P. (1970) Lichens, A Preliminary Text, Oxford & IBH Publishing Co.
3. Webster, J. (1970) Introduction to Fungi. Cambridge University Press.
4. Ainsworth, G.C and Alfred, S. (1973) The Fungi (An advanced Treatise) Academic Press, New York.
5. Biswas, S.B. and Biswas, A, (1976) An introduction to viruses, Vikas Publishing House Pvt. Ltd.
6. Pelzer, J, Chan, E.C, and Krieger, R. Microbiology Tata McGraw Hill, 1998, New Delhi.

BSc. BOTANY
Choice Based Credit System
For the Students Admitted the Year 2008 onwards
SEMESTER - II
SKILLED BASED ELECTIVE COURSE - I - 08UBOSE01
MUSHROOM CULTURE TECHNOLOGY

UNIT I

Introduction - history - scope of edible mushroom cultivation - Types of edible mushrooms available in India - *Volvariella volvacea*, *Pleurotus citrinopileatus*, *Agaricus bisporus*.

UNIT II

Pure culture - preparation of medium (PDA and Oatmeal agar medium) sterilization - preparation of test tube slants to store mother culture - culturing of *Pleurotus* mycelium on petriplates, preparation of mother spawn in saline bottle and polypropylene bag and their multiplication.

UNIT III

Cultivation Technology : Infrastructure: substrates (locally available) Polythene bag, vessels, Inoculation hook, inoculation loop, low cost stove, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bag, Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana leaves. Factors affecting the mushroom bed preparation - Low cost technology, Composting technology in mushroom production.

UNIT IV

Storage and nutrition : Short-term storage (Refrigeration - upto 24 hours) Long term Storage (canning, pickles, papads), drying, storage in salt

solutions. Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins.

UNIT V

Food Preparation

- Types of foods prepared from mushroom; Soup, Cutlet, Omelette Samosa, Pickles, Curry.
- Research Centres - National level and Regional level.
- Cost benefit ratio - Marketing in India and abroad, Export Value.

REFERENCES:

1. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
2. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018.
3. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.
4. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II.

BSc. BOTANY
Choice Based Credit System
For the Students Admitted the Year 2008 onwards
SEMESTER - III
CORE COURSE - IV
MAJOR PAPER III -08UBO03
ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS

Anatomy

UNIT - I

Meristems : Classification, distribution, structure function.

Theories : Tunica – Corpus and quiescent centre.

Simple permanent tissues : Parenchyma, Collenchyma, Sclerenchyma. (fibres and sclereids)

UNIT - II

Complex tissues : Xylem – tracheids, vessels, Xylem fibres and xylem parenchyma. Secondary Xylem, Annual rings, Heart wood and sap wood.

Phloem : Sieve elements, companion cells, phloem fibre and phloem parenchyma. Secondary phloem.

Stomatal types : Ranunculaceous, Cruciferous, Caryophyllaceous, Rubiaceous and Gramineaceous.

UNIT - III

Primary and secondary structure of dicot stem. Anomalous secondary growth in stems of Bignonia, Boerhaavia and Nyctanthes.

Primary and secondary structure of dicot root.

Primary structure of monocot stem and root. Anomalous secondary growth in Dracaena. Structure of Dicot and Monocot leaf. Nodal anatomy – Uni, tri and multilacunar node.

Embryology of Angosperms

UNIT - IV

Structure and development of anther. Development of male gametophyte. Ultrastructure of pollen grain.

Types of ovules. Nucellus. Development of female gametophyte : Monosporic (Polygonum)

UNIT - V

A brief account on pollination, fertilization and double fertilization.

Endosperm : Nuclear, Cellular, Helobial and Ruminant. Endosperm haustoria.

Development of Embryo in Dicot (Capsella-bursa pastoris).

Polyembryony. Apomixis.

PRACTICALS

1. Study of simple and complex tissues by using permanent slides.
2. Study of primary structure and sectioning of Dicot stem, Dicot root, Monocot Stem and Monocot root.
3. Normal secondary thickening in Dicot stem and root.
4. Anomalous secondary structures – Bignonia Boerhaavia, Nyctanthes (Permanent slides)
5. T.S of Anther at various stages of development.
6. Types of ovules (Permanent slides)
7. Stages in Microporogenesis and megasporogenesis.
8. Male gametophyte and female gametophyte (Permanent slides)
9. Embryo mounting (Tridax)

TEXT BOOKS

1. Pandey, B.P. (1978) Plant Anatomy, S. Chand and Co., New Delhi.
2. Vashista, P.C. (1968). A text Book of plant Anatomy.
3. John Jothi Prakash, E. (1987). A Text Book of Plant Anatomy.
4. Bhojwani, S.S and Bhatnagar, S.P. The Embryology of Angiosperms, Vikas Publishing House Pvt. Ltd., New Delhi.
5. Dwivedi. J.N, 1988. Embryology of Angiosperms. Rastogi and Co. Meerut.

REFERENCE

1. Fahh, A. 1982. Plant Anatomy (3rd edition). Pergoman Press, Oxford.
2. Mauselth, J.D. (1988). Plant Anatomy. The Benjamin Cummings Publishing Co. Inc., Mehlo Park, California, USA.
3. Esau, K. 1960. Plant Anatomy, Wiley Eastern Private Limited. New Delhi.
4. Maheswari, P. 1971. An Introduction to the Embryology of Angiosperms. Tata McGraw Hill Publishing Co., Ltd., New Delhi.
5. Swamy, B.G.L., and Krishnamurthy, K.V. From flower to fruit. Tata McGraw. Hill Publishing Company Limited. New Delhi.

BSc. BOTANY
Choice Based Credit System
For the Students Admitted the Year 2008 onwards
SEMESTER - III
SKILL BASED ELECTIVE COURSE - II
08UBOSE02
HORTICULTURE

UNIT - I

Importance and scope of horticulture. Classification of horticultural crops – fruits and vegetables. Types of gardens : formal, informal and kitchen.

UNIT - II

Plant propagation methods : cutting, layering, budding and grafting. Stock – scion relationship in important horticultural crops. Use of plant growth regulators in horticulture : Induction of rooting, flowering, fruit set, fruit development and control of fruit crops.

UNIT - III

Aftercare of plants : weeding, top dressing methods of pruning and topiary. Lawn making : type of lawn grasses and maintenance. Plants suitable for hedges.

UNIT - IV

Floriculture : cultivation of commercial flowers – Rose, Jasmine and Chrysanthemum. Nursery maintenance Cut flowers – flower arrangement, Ikebana.

UNIT - V

A brief knowledge of annual, biennials and perennials with reference to ornamental gardens. Green house, water garden, rockery plants, Bonsai techniques, Hydroponics. Storage of vegetables and fruits.

REFERENCE BOOKS

1. Randhava, G.S, 1973 - Ornamental horticultural in India Today and Tomorrow Printers and Publishers, New Delhi.
2. Yawalkar, K.S. 1961 - Vegetables crops of India - Agri, Horticultural Publishing House, Nagpur.
3. Chauhan, V.S. Vegetable Production in India, Ramprasad Publications - Agra 3.
4. Nayak, K.C. South Indian fruits and their culture P.L. Varadaraj & Co., & Lingichetti Street, Madras.
5. Kunte, Y.N. Introduction to principles of fruit growing - Agri - Horticultural Publishing house Dharmapath, Nagpur.

TEXT BOOKS

1. Kumar, H.D. Introduction to Horticulture.
2. Hariharan, Y. Thotta Kalaiyum Thottaviyalum (Tamil), Bharathidhasan University Publications, Tiruchirappalli.
3. Hand Book of Horticulture, Dr. Chadha - ICAR Publications. 2001.
4. Fundamentals of Horticulture - Edment Senn Andrews 1994 Tata McGraw Hill Publishing Co., Ltd., Delhi.
5. A Hand Book of Tropical Plants & Gardening MacMillan 1989. Scientific Publishers Jodpur.

BSc. BOTANY
Choice Based Credit System
For the Students Admitted the Year 2008 onwards
SEMESTER - III
NON - MAJOR ELECTIVE COURSE - I
08UBONE01
MUSHROOM CULTIVATION

UNIT I

Introduction - history - scope of edible mushroom cultivation - Types of edible mushrooms available in India - *Volvariella volvacea*, *Pleurotus citrinopileatus*, *Agaricus bisporus*.

Unit II

Pure culture - preparation of medium (PDA and Oatmeal agar medium) sterilization - preparation of test tube slants to store mother culture - culturing of *Pleurotus* mycelium on petriplates, preparation of mother spawn in saline bottle and polypropylene bag and their multiplication.

UNIT III

Cultivation Technology : Infrastructure: substrates (locally available) Polythene bag, vessels, Inoculation hook, inoculation loop, low cost stove, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bag, Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana leaves. Factors affecting the mushroom bed preparation - Low cost technology, Composting technology in mushroom production.

UNIT IV

Storage and nutrition : Short-term storage (Refrigeration - upto 24 hours)
Long term Storage (canning, pickles, papads), drying, storage in salt

solutions. Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins.

UNIT V

Food Preparation

- Types of foods prepared from mushroom; Soup, Cutlet, Omelette Samosa, Pickles, Curry.
- Research Centres - National level and Regional level.
- Cost benefit ratio - Marketing in India and abroad, Export Value.

REFERENCES:

5. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
6. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018.
7. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.
8. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II.

SEMESTER – IV
CORE COURSE -VI
MAJOR PAPER-IV- 08UBO04
PLANT DIVERSITY III
(PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY)

Pteridophytes

UNIT I

General characters of Pteridophytes. Classification (Reimer's 1954), Stelar Evolution in Pteridophytes, Sporangial organization – Homospory and Heterospory – Apospory and apogamy.

UNIT II

Detailed study of the following genera : Lycopodium, Selaginella.

UNIT III

Adiantum and Marsilea.

Gymnosperms

UNIT IV

General characters of sporophytes and gametophytes of Gymnosperms. Classification (Pilger and Melchior, 1954) Detailed study of the following genera – Cycas and Pinus.

Paleobotany

UNIT V

Geological time scale. Elementary knowledge of the computation of age of fossil. Nomenclature of fossil plants. Brief study of the following fossils – Lepidodendron, Calamites, Williamsonia.

PRACTICALS

Study of morphology, anatomy and structure of the spore bearing parts and gametophytes of the genera listed in the theory part. Study of fossil slides listed in the theory part.

TEXT BOOKS

1. Vashishta. P.C. 1972 Botany for Degree Students, Vol IV – Vascular Cryptogams (Pteridophyta), S.Chand & Co. Pvt. Ltd.,
2. Vashista. P.C. 1976. Gymnosperms, S.Chand & Co Pvt. Ltd., 1976.
3. Pandey. B.P. 1977. A Text Book of Bryophyta, Pteridophyta and Gymnosperms. K.Nath and Co., Meerut.
4. Parihar. N.S. 1977. An introduction to Embryology. Vol-II. Pteridophyta and Gymnosperms. K.Nath and Co, Meerut.
5. Shukla.A.C. and Mistra S.P 1982 Essentials Palaeobotany, Vikas Publishing House Pvt. Ltd., Delhi.

REFERENCE

1. Smith, G.M. 1935. Cryptogamic Botany. Vol-III, Tata McGraw Hill Publishing Co., New Delhi.
2. Earnes, A.J. 1936. Morphology of Lower Vascular Plants. Tata McGraw Hill Publishing Co., New Delhi.
3. Arnolds, C.A. 1947. An Introduction to paleobaotany, McGraw Hill Book Co., New York.
4. Sporne, K.R. 1977. The Morphology of Angiosperms. B.I. Publications Pvt., Mumbai.
5. Sporne, K.R. 1991. The Morphology of Gymnosperms. B.I. Publications Pvt. Mumbai.
6. Skula, A.C. and Sharma. M. 1992. Plant fossils. A link with the past, Birbal Shani Institute Paleobotany, Lucknow, India.

SEMESTER - IV
NON-MAJOR ELECTIVE - II
08UBONE02
HERBAL BOTANY

UNIT - I

Brief history of medicinal plants. Indian systems of medicines - Siddha, Ayurvedha and Unani systems. Classifications crude drugs, Chemistry of drugs.

UNIT - II

Drugs from roots (Catheranthus and Rauwolfia). Drugs from bark (Cinchona). Drugs from stem of wood (Ephedra).

UNIT - III

Drugs from leaves (Aloe, Atropa, Eucalyptus, Ocimum, Datura and Cassia). Drugs from flower, (Eugenia). Drugs from fruits and seeds (wood apple and Coriander, Trigonella). Under ground stem (Ginger).

UNIT -IV

A brief account of drugs acting on the central nervous system, drugs used in disorders of gastrointestinal tract and cardio vascular drugs.

UNIT -V

Cultivation of medicinal plants in India. Breeding, methods applied to medicinal herbs, plant tissue culture as source of biomedicine. Drug adulteration. Methods of drug evaluation.

REFERENCE BOOKS

1. Dhavan, B.N. 1986, Ayurvedic Research on Medicinal plants in India INSA, New Delhi.

2. Gokhale, S.B.,m C.K. Kokate and A.P. Purohit. Pharmacognosy Nirali Prakashan.
3. S.K. Jain, 1987. A Manual of Ethanobotany. Scientific Publishers - Jodhpur.
4. S.S. Handa & V.K. Kapoor. Pharmacognosy.
5. Agarwal, 1985 Drug Plants in India, Kalyari. Publeshers, Ludhiyana.
6. Madicanal Plants -Jain-2001-National Book Trust- New Delhi.

TEXT BOOKS

1. Arumugan. K.R and N. Murugesh Text Book of Pharmacognosy Sathya publishers.
2. Bhattacharjee, S.K., 1988. Hand book of medicinal plants, Pointer publishers, Jaipur
3. Purohit and vyas, 2004. Medicinal plant cultivation, Agrobios publication. Jodhpur.
4. Wallis. T.E. Text Book of Pharmacognosy C.B.S. Publishers and Distributors.
5. Jain., 2001. Medicinal Plants, National Book Trust, New Delhi.
6. Muligai Maruthuvam (Tamil) 1995 Thirugagnam. Selvi Pathipakam. Trichy.

SEMESTER - V
CORE COURSE - VII
MAJOR PAPER -V-08UB005
MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS

UNIT - I

The plant body (parts)

Root: Types and modifications

Stem: Types: aerial and underground stem modifications.

Leaf: Phyllotaxy, simple and compound leaves, Leaf parts: base, stipule, petiole

UNIT - II

Inflorescence: types - raceme, cyme, (spike, spadix, corymb, Umbel, capitulum (or) head).

Flower: parts and their arrangement.

Fruit: outline of classification

UNIT - III

Taxonomy and its importance. Systems of classification - artificial system (Linnaeus), Natural (Bentham and Hooker's), Phylogenetic system (Engler and Prantle) and Modern system (Takhtajan's 1980). (Only outline of classification with merits and demerits need be indicated).

Binomial Nomenclature. A brief reference of citation of authors, Type concept.

Techniques of herbarium preparation and its uses. Flora and its uses.

UNIT - IV

A detailed study of the following families and their economic importance: Annonaceae, Nymphaeaceae, Capparidaceae, Rutaceae, Leguminosae (sub-families; Fabaceae, Caesalpinaceae, Mimoseae), Myrtaceae, Cucurbitaceae, Apiaceae.

UNIT - V

Asteraceae, Apocynaceae, Asclepiadaceae, Acanthaceae, Verbenaceae, Amaranthaceae, Poaceae.

PRACTICAL:

Study of the morphology of Angiosperms as in the theory part with the help of suitable examples.

Description of plants in technical terms.

Dissection of vegetative and floral parts of plants belonging to the above families.

Field trips to a Hill stations recommended for 3-5 days under the guidance of teachers.

Herbarium (minimum of 20 Herbarium sheets of weeds and common plants of Angiosperms) with the proper field note book shall be submitted at the practical examination.

TEXT BOOKS

1. Gupta, S.K (1978)- Introductory Botany Vol. IV- Taxonomy, Embryology and Economic Botany. Kedar Nath Ram Nath, Meerut.
2. Muneeswaran, A (1986-87) – A Text Book of Botany Birghton Book House, Madras.
3. Pandey, P.B (1989) – Taxonomy of angiosperms (Syastematic Botany), S.Chand & Co. Ltd., Ram Nager, New Delhi.
4. Vashista, P.C (1997) -Taxonomy of Angiosperms, S. Chand & Co., New Delhi.
5. Palaniappan, S. (2000)- Angiospermgalin Vagaippadu (in Tamil), V.K. Published House, Chennai.
6. Palaniappan, S. (2002)- Thavarapura Amaippial (in Tamil), V.K Publishing House, Chennai.
7. Rao, K.N & Krishnamurthy, K.V(1976) Angiosperms, S. Viswanathan, Pvt. Ltd. Madras .

8. Pandey, B.P (1997)- Taxonomy of Angiosperms, S.Chand & Co., (P) Ltd., New Delhi.
9. Singh, V. & Singh, D.K (1983) - Taxonomy of Angiosperms, Rastogi Publication, Meerut.

REFERENCE BOOKS

1. Gangulee, H.C., Das, K.S & Datta, C.T (1964) - College Botany - Vol. I, Basant Panchami, Calcutta.
2. Narayanaswamy. R.V and Rao, K.N. (1976) - Outlines of Botany, S. Viswanathan Printers and Publishers, Chennai.
3. Ashok Bendre and Ashok Kumar (1984) - A Text Book of Practical Botany - Vol.II Rastogi Publications, Shivaji Road, Meerut.
4. Sivarajan, V.V (1993) - Introduction to Principles of Plant Taxonomy, Oxford & IBH Publishing Co., New Delhi.
5. Naik, V.N (1996) - Taxonomy of Angiosperms, Tata McGraw Hill Publishing Co., (P) Ltd., Delhi.
6. Lawrence, G.H.M (1953) - Taxonomy of Vascular Plants, Oxford & IBH Publishes, New Delhi.
7. Mathews, K.M (1987-90) - Flora of Tamil Nadu and Carnatic (1-4 Vols) Rapinat Herbarium, Trichy-1.
8. Hill, A.W (1952) - Economic Botany, McGraw Hill Book Co., New York.
9. Sen, S. (1992) - Economic Botany, New Central Book Agency, Calcutta.

SEMESTER - V
CORE COURSE - VIII
MAJOR PAPER -VI 08UB006
CYTOLOGY AND GENETICS

Cytology

UNIT - I

Ultrastructure of a plant cell, cell wall, plasma membrane, cell organelles – endoplasmic reticulum, golgi complex chloroplast, mitochondria, nucleus, lysosome and ribosomes.

UNIT - II

Chromosomes – morphology, polytene, giant chromosomes, salivary gland and lamp brush chromosomes. Nucleic acids – DNA and RNA, DNA structure, replication, RNA structure and types. Cell division – amitosis, mitosis and meiosis.

Genetics

UNIT - III

Monohybrid and Dihybrid cross – Mendelian laws – Incomplete dominance, lethal factor, complementary factor and epistasis, multiple factor hypothesis, multiple alleles – blood groups.

UNIT - IV

Linkage, crossing over, mapping of genes on chromosomes, sex linkage – Drosophila (eye colour) and humans (colour blindness), cytoplasmic inheritance (plastid inheritance, male sterility in corn)

UNIT - V

Sex determination in plants, changes in chromosome structure, number and behaviour, polyploidy types. Population genetics, Hardy – Weinburg principle.

PRACTICAL

1. Study of the structure of plant cell organelles and polytene and giant chromosomes from electron micrographs and standard publications.
2. Study of mitosis by squash technique.
3. Simple problems of monohybrid and dihybrid ratios and factor interactions.
4. Construction of chromosome map-3 point test cross.

TEXT BOOKS

1. Rastogi, S.C. 1992 - Cell biology - TATA McGraw Hill publishing Co, New Delhi.
2. Sundararajan, S. 2000 - Cytology, Anmol Publication (P) Ltd., New Delhi.
3. Singh S.P & Tomar B.S 1996 -Cell biology, Rastogi Publication, Meerut.
4. Gupta, P.K. 2000 - Genetics - Rastogi Publication Meerut.
5. Meyyan, R.P. 2000 - Genetics - Saras Publication, Nagercoil.

REFERENCE BOOKS

1. De Robertis, E.D.P & De Robertis, E.M.F., 1980-Cell and Molecular Biology - Holtsauders International Editions, Philadelphia & Tokyo.
2. Nair, P.G.K & Prabhakara Achar, K. 1993 - A Text book of Cell Biology konark publishers, New Delhi.
3. Winchester, A.M. 1958 - Genetics Oxford & FBH Publishing house, New Delhi.
4. Stickberger, M.W. 1976 - Genetics, Mac Millan Publishing Co., Inc., New York.
5. Gardner, E.J & Snusted, D.P.1984 - Principles Genetics, John wiley & Sons, New York.

SEMESTER - V
MAJOR ELECTIVE COURSE - I - 08UB0ME01
PLANT BIOTECHNOLOGY

UNIT - I

Scope and history of plant tissue culture, culture technique – tissue culture media – Ms media preparation, sterilization, explant preparation and inoculation callus induction, organogenesis (embryogenesis)

UNIT - II

Suspension culture, somatic embryogenesis, Artificial seed, Anther and ovule culture haploids in crop improvement, Protoplast isolation, fusion, somatic hybridization

UNIT - III

Microbial genetics, gene regulation – use of microbes as gene transfer vehicles – use of *Agrobacterium tumefaciens*- plasmids – cosmids – use of plasmids and cosmids as vectors – isolation of plasmid DNA.

UNIT - IV

Use of Microbes in industries – Commercial production of enzymes – alcohol, citric acid and vitamins. SCP – SCP from bacteria and SCP from algae. Biofuels-methanogenesis – Biogas – biogas plants – Hydrogenic bacteria.

UNIT - V

Environmental pollution – sewage – Domestic and industrial Sewage – composition of sewage – Biological O_2 demand – Treatment of sewage – primary – secondary and tertiary treatment. Treatment of distillery effluents – paper – leather industries. Reverse of waste water in Agriculture and Horticulture. Conversion waste into compost – importance of compost

TEXT BOOKS

1. Ignachimuthu, S. 1998 - Basic biotechnology, Tata McGraw Hill Publishing Company Ltd., New Delhi
2. Dubey R.C 2001 - A text book of Biotechnology, S. Chand & Co., Ltd., New Delhi.
3. Kumaresan.V. 2001 - Biotechnology, Saras Publications, Nagercoil.

REFERENCE BOOKS

1. Trivedi, P.C. 2000 - Plant Biotechnology, Panima Publishing Corporation, New Delhi.
2. Lewin, B. 2003 - Genes VI, Allied Publishers, Chennai.,
3. Kalyan Kumar.D. 1999 - An Introduction to plant tissue culture, New Central Book Agency, Calcutta.

SEMESTER - V
MAJOR ELECTIVE COURSE - II - 08UB0ME02
AGRICULTURAL MICROBIOLOGY

UNIT - I

General characterization and classification of soils – soil microflora – bacteria, fungi, actinomycetes, algae, protozoa. Rhizosphere and non rhizosphere concept. Role of Rhizosphere microorganisms in improving soil fertility.

UNIT - II

Nitrogen cycle in nature – Biological N₂ fixation. Symbiotic and non-symbiotic bacteria – Rhizobium and Azospirillum – mass multiplication methods and field application.

UNIT - III

Cyanobacteria (BGA) and Azolla mass multiplication and field application. Bio-geochemical role of soil microbes – Carbon cycle – Phosphorous cycle.

UNIT - IV

Decomposers – Role of microorganisms in the decomposition of organic matter – solid waste disposal – composting, biodegradation and bioremediation. Microorganisms in air- sources – types. Microbes in water – waste water treatment and recycling.

UNIT - V

Microbial diseases in crop plants – Bacterial diseases – Bacterial blight of paddy – host, causal agent, symptoms, disease cycle and control measures. Fungal diseases. Red rot of sugar cane, host, causal agent, symptoms, disease cycle and control measures. Viral diseases – Bunchy top of banana – host, causal agent, symptoms, disease cycle and control measures. Recent advances in biopesticides .

TEXT BOOKS

1. Kumaresan. V. 2004 - Biotechnology 2004 - Saras Publication, Nagercoil.
2. Rangaswami, G. & Bhagyaraj, D.J. 1993 Agricultural Microbiology - Prentice Hall of India (P) Ltd., New Delhi.
3. Chandrasekaran. P. 1993 - Nunnyiriyal (Tamil) T.K. Pathipagam, Pudukkottai.
4. Sharam, P. 1996 - Plant Pathology - Rastogi Publications, Meerut.
5. Rangaswami., G. & Mahadevan, A. 2002 - Diseases of crop plant in India - Prentice - Hall of India (P) Ltd. New Delhi.

REFERENCE BOOKS

1. Pelzar M.J Chan, E.C.S. P. Kreig, N.P. 19936 Microbiology Tata MC Graw Hill Publishing Co., Ltd.,
2. Subbarao, N.S. 1999 - Microbiology - Oxford & IBH Publishing Co., (P) Ltd.,
3. Gunasekaran. 1995 - Laboratory manual in Microbiology - New Age International Publications, New Delhi, Bangalore, Madras.
4. Pandey B.P. 1999 - Plant Pathology (Pathogens & Plant disease) S. Chand & Co., New Delhi.
5. Chatterjee P.B. 1997 - Plant Protection Techniques - Bharati Bhawan, Patna.

SEMESTER - V
SKILL BASE ELECTIVE COURSE - III - 08UB0SE03
MICRO TECHNIQUE

UNIT -1

Light microscopy - History - optical principles. Use and care of microscope. A brief survey of different types of microscopes, including Electron Microscope.

Microtechnical processes principles and techniques

- a. Fixation and Fixatives
- b. Staining and Stains.

UNIT -2

Microscopic Preparations.

- a. Temporary
- b. Semi permanent
- c. Permanent.

UNIT -3

Special Techniques

- a. Smearing
- b. Squashing
- c. Macerating and
- d. Wholemounds.

UNIT -4

Microtomy - types of microtomes and their uses.

UNIT -5

Methods for specific materials:

- a. Preparation of stained bacterial smears.
- b. Whole mount of algae and fungi
- c. Sectioning of Bryophyta, pteridophyta and Gymnosperms.
- d. Whole mounts and sectioning of angiosperm materials.

TEXTBOOKS

1. Sas. Joe E, Botanical Microtechnique Oxford and IBH 1964.
2. Purvis M.J, et.al., Laboratory techniques in Botany, Butterworth's, London, 1966.

REFERENCE BOOKS

1. Johansen, D.A, Plant Microtechnique Tata Mc Graw Hill Publishing Company, 1940
2. Duggington, C.L, Practical Microscopy Pitman, London, 1960.
3. Allan Peack H, Elementary Microtechnique, Edward Arnold Publisher Ltd., 1966
4. Pearse, A.G.E, Histochemistry, Theoretical and Applied Churchill Livingstone, 1980.
5. Grey, P, Hand Book of Basic Micro - technique Mc.Graw Hill, 1964.
6. Mc.Clung, C.E., Hand Book of Microscopical Techniques. Hafner, New York, 1961.

SEMESTER - V
SKILL BASED ELECTIVE COURSE - IV - 08UB0SE04
SEED TECHNOLOGY

UNIT - I :

Study of Floral Biology - Types of Pollination, seed formation. Seed morphology and structural details of Dicot (Castor) and Monocot (Paddy) seeds.

Roles and goals of seed technology, importance of quality seeds in agriculture, characteristics of quality seed.

UNIT - II :

Seed sampling - Method of sampling - Seed Purity - Seed Germination - Methods of Seed Germination using paper, Sand or soil - Standard Germination Test.

UNIT - III :

Seed viability - Topographical tetrazolium or T2 test embryo excision method. Seed moisture - Importance - methods of moisture determination basic methods.

UNIT - IV :

Foundation and certified seed production of the following Paddy, bean, groundnut, cotton.

UNIT - V :

Seed certification - objectives - fundamental concepts of seed certification - sources and classes of seed : Breeder's seed, certified seed. Phases of certification - Verification of seed source - field inspection - seed analysis - tagging of seedlings - field standards.

REFERENCES ::

1. Agarwal, R.L. Seed Technology Oxford and IBH Publishing Co. Pvt. Ltd.,
2. Bewley J.D. and Black M (Edn) 1985 – Seed Physiology of development and germination, Plenum Press, New York.
3. Kowslowsky. Seed Biology, Vol. I, Vol. II and Vol. III. Academic Press, New York.

SEMESTER - VI
CORE COURSE - XI
MAJOR PAPER -VII - 08UB007
PLANT PHYSIOLOGY

UNIT - I

Absorbtion of water and minerals. Transpiration: types, mechanism of stomatal movement. Factors affecting transpiration. Guttation. Role of macro and microelements.

UNIT - II

Photosynthesis: Photosynthetic pigments, Emerson's enhancement effect, and Photoelectron transport and photophosphorylation.

Calvin cycle. CAM cycle. Factors affecting photosynthesis.

UNIT - III

Respiration: Aerobic and anaerobic respiration Glycolysis, Kreb's cycle, Electron transport system, Oxidative phosphorylation. Factors affecting respiration.

UNIT - IV

Nitrogen metabolism: Sources of nitrogen, nitrogen fixation, reductive amination and transamination, Protein synthesis.

UNIT - V

Growth: Plant growth regulators-auxins, gibberellins, cytokinins, ethylene, abscissic acid-their physiological effects:

Phototropism and photoperiodism and Senescence.

PRACTICALS

[Experiment to be performed and recorded by the student individually]

1. Determination of DPD by using Rheoe leaf / Onion leaf plasmolytic method.
2. Effect of temperature and chemicals on membrane permeability.
3. Determination of water absorbtion and transpiration ratio of twigs.
4. Effect of light intensity on transpiration using Ganong's Potometer.
5. Separation of plant pigments by paper chromatography.
6. Rate of photosynthesis under varying concentration of CO₂ water plants-Wilmott's
7. Effect of intensity of light on O₂ evolution during photosynthesis using Wilmott's bubbler.
8. Measurement of rate of respiration in germinating seeds, flower buds using simple Respiroscope.

Demonstration Experiments:

[Experiments to be demonstrated only but to be recorded by the students]

1. Osmoscope.
2. Dialatometer.
3. Anaerobic respiration. (Mercury Experiment)

TEXT BOOKS

1. Pandey, S.N. 1991 – Plant Physiology, Tata McGraw Hill Publishers (P) Ltd., New Delhi.
2. Verma, V., 1991-A Text Book of Plant Physiology, Emkay Publications, New Delhi.
3. Arumugam, N. (1994) Elements of Biochemistry, Saras Publications, Nagercoil, TamilNadu.
4. Malik, C.P. 1999 – Plant Physiology, Kalyani Publishers, Ludhiyana.
5. Jain, J.L., Fundamentals of Biochemistry, S.Chand and Co., New Delhi.
6. Gill, D.S. 2000 – Plant Physiology, S.Chand and co., New Delhi.

REFERENCE BOOKS

1. Steward, F.C (1904) Plants at Work (A summary of Plant Physiology), Addition – Wertley publishing Co., Inc., Reading, Massachusetts, Pa lo alto, London.
2. Devlin, K.M. (1969) Plant Physiology, Reinehart and Winston and Affiliated East West Press (P) Ltd, New Delhi.
3. Nogle, G.R., and Fritz, G.J., 1982 – Introductory Plant Physiology. Prentice Hall of India Private Ltd.
4. Salisbury, F.B. and Ross, C.W. 1986- Plant Physiology, CBS Publishers and Printers, New Delhi.
5. Jayaraman, J. 1992 – Techniques in Biology. A College level Study, Higginbotham's (Private) Ltd, Chennai.
6. Wilson, K., and Walker, J. (1994) Principles and Techniques of Practical Biochemistry (4th Edn.) Cambridge University Press, U.K.

SEMESTER – VI
CORE COURSE – XII
MAJOR PAPER –VIII - 08UBO08
PLANT ECOLOGY AND PLANT GEOGRAPHY

UNIT-I

Approaches to the study of ecology (Autecology and Synecology). Plant environment: climatic and edaphic factors.

UNIT - II

Ecosystem Concept: Components (Abiotic and Biotic), autotrophic producers and heterotrophic consumers. Biomass. Ecological pyramids. Productivity: primary, secondary and gross, food chain, Food web and energy flow. Pond ecosystem.

UNIT - III

Vegetation - Development of vegetation - migration, ecesis, colonization. Plant succession: Hydrosere and Xerosere. Ecological classification of plants and their correlation to the habitat factors.

UNIT - IV

Applied Ecology: Pollution and its control, Atmospheric pollution: Air Pollution - Particulate matter, chemicals, acid rain, radiation pollution, noise pollution. Soil pollution: Industrial effluents. Agricultural pollution: plant residues, insecticides, pesticides, fungicides and herbicides. Water pollution: domestic waste and sewage.

UNIT-V

Approaches to phytogeography - vegetational types of Tamilnadu: Evergreen, deciduous, scrub and mangrove Approaches to biodiversity, conservation *insitu* and *exsitu* methods. Mega centers of bio diversity.

PRACTICALS

Study of the morphological and structural adaptation of locally available hydrophytes, mesophytes, xerophytes halophytes, parasites and epiphytes to correlate to the particular habitat.

REFERENCE BOOKS

1. Ambasht R.S., 1978 The Book of Plant Ecology, Students friends Co.,.
2. Willings W.D.1964 Plants and Ecosystem, Wasworti Publishing Co.,.
3. Daubenmire R.F,1973 Plant and Environment. John Willey.
4. Gopal, B and Bhardwaj,1979 Elements of Ecology, Vikas Publishing House Pvt. Ltd.
5. Kellman, CM, 1980 Plant Geogrpahy, Methuen.

TEST BOOKS

1. Sharma, P.D1990 Ecology and Environment, Rastogi Publications.
2. Shukla, R.S and Chande I.P.S Plant Ecology and Soli Science, S. Chand 8s Company Ltd.,
3. Vasishta, P.C, 1979 Plant Ecology, Vishal Publication.
4. Verma, V,A 1981 Text Book of plant Ecology, Emkay Publication.
5. Sharama, J.P.2004 Environmental Studies, Laxmi Publications (P) Ltd. New Delhi.

SEMESTER – VI
CORE COURSE – XIII
MAJOR PAPER –IX - 08UBO09
PLANT PROTECTION

UNIT-I

Damage to crops of India by insects, nematodes, rodents fungi, bacteria and viruses- a general outline.

UNIT-II

Types of plant diseases and casual agents. Insect transmission of bacteria and viruses. A general account of preventive measures of plant diseases including plant protection and quarantine measures. Legislations in plant protection, seed certification, weed control.

UNIT-III

Study of symptoms, etiology and control measures of the following diseases: damping off of seedling, bud rot of coconut, black rust of wheat, blast of paddy, smut of maize, red rot of sugarcane, Tikka disease of groundnut, wilt of cotton.

UNIT-IV .

Soft rot of Vegetables, Bacterial blight of rice, canker disease of citrus, ring rot of potato.

UNIT-V

Nature of Plant Virus. Casual organism , symptoms, control measures of Viral diseases:

Tobacco Mosaic, Bunchy top of banana, Mosaic disease of bhendi.

PRACTICAL

1. Collection and study of diseased plant materials.
2. Study of fungal, bacterial and viral diseases mentioned in the syllabus.
3. Demonstration of Koch's postulates.
4. Handling of plant protection appliances (dusters, sprayers, and other appliances.)

TEXT BOOKS

1. Chaidhury and Majid, 1954 Hand Book of plant protection Department of Agriculture, Government press, Shillong, Assam.
2. Mukundan, T.K, Plant protection, Principles and Practice, Asia Publishing house, Bombay.
3. Pyenson, L.L, Elements of plant protection. John Wiley & Sons Ltd., New York.
4. Bap Reddy D, 1968 Plant protection in India Allied publishers,
5. Walker, J.C, Plant pathology McGraw Hill Publishers.
6. Pandey, B.P. A Text book of Plant pathology, S.Chand and Co, New Delhi.

REFERENCE

1. Robbins, W Crafts, S. Raynor, N (1952) Weed control McGraw Hill Book Company Inc., New York.
2. Krishnamurthy, (1963) Control of Pests and disease on Fruit culture in India, I.C & K. Monograph
3. Rangaswami. G, (1972) Disease of crop plants of India Prentice Hall India.
4. Rangasamy. G, (1974) Bacterial plant disease of India Asia Publishing house, Bombay.
5. Singh, R.S. Disease of Vegetables crops, Oxford and IBH Publishing Company, New Delhi.

SEMESTER - VI
ELECTIVE COURSE - III - 08UBOME03
MEDICINAL BOTANY

UNIT - I

Brief history of medicinal plants. Indian systems of medicines - Siddha, Ayurvedha and Unani systems. Classifications crude drugs, Chemistry of drugs.

UNIT - II

Drugs from roots (Catheranthus and Rauwolfia). Drugs from bark (Cinchona). Drugs from stem of wood (Ephedra).

UNIT - III

Drugs from leaves (Aloe, Atropa, Eucalyptus, Ocimum, Datura and Cassia). Drugs from flower, (Eugenia). Drugs from fruits and seeds (wood apple and Coriander, Trigonella). Under ground stem (Ginger).

UNIT -IV

A brief account of drugs acting on the central nervous system, drugs used in disorders of gastrointestinal tract and cardio vascular drugs.

UNIT -V

Cultivation of medicinal plants in India. Breeding, methods applied to medicinal herbs, plant tissue culture as source of biomedicine. Drug adulteration. Methods of drug evaluation.

REFERENCE BOOKS

1. Dhavan, B.N. 1986, Ayurvedic Reseach on Medicinal plants in India INSA, New Delhi.
2. Gokhale, S.B.,m C.K. Kokate and A.P. Purohit. Pharmacognosy Nirali Prakashan.
3. S.K. Jain, 1987. A Manual of Ethanobotany. Scientific Publishers - Jodhpur.
4. S.S. Handa & V.K. Kapoor. Pharmacognosy.
5. Agarwal, 1985 Drug Plants in India, Kalyari. Publeshers, Ludhiyana.
6. Madicanal Plants -Jain-2001-National Book Trust- New Delhi.

TEXT BOOKS

1. Arumugan. K.R and N. Murugesh Text Book of Pharmacognosy Sathya publishers.
2. Bhattacharjee, S.K., 1988. Hand book of medicinal plants, Pointer publishers, Jaipur
3. Purohit and vyas, 2004. Medicinal plant cultivation, Agrobios publication. Jodhpur.
4. Wallis. T.E. Text Book of Pharmacognosy C.B.S. Publishers and Distributors.
5. Jain., 2001. Medicinal Plants, National Book Trust, New Delhi.
6. Muligai Maruthuvam (Tamil) 1995 Thirugagnam. Selvi Pathipakam. Trichy.

SEMESTER – VI
SKILL BASED ELECTIVE COURSE – V - 08UBOSE05
PLANT BREEDING AND PLANT UTILIZATION AS FOOD

Plant Breeding

UNIT – I

Principles and objectives of plant breeding, Plant introduction and acclimatization. Selection methods, plant breeding (pure line, clonal, mass)

UNIT – II

Hybridization : Types and procedure of hybridization. Somatic hybridization : Heterosis, hybrid vigor and exploitation in plant breeding. Anther culture and its role in plant breeding. Role of mutation and polyploidy in plant breeding. Artificial seed production.

Plant Utilization – As Food

UNIT – III

Cereals : A list of major cereals and millets, nutritive value of cereals.

Oryza-origin, distribution, botany, method of cultivation, uses, improved varieties, rice conversion, nutritional value.

Pulses : Major pulse crops of our country, nutritive value of pulses.

Origin, distribution, botany, ecology, cultivation, uses of Red gram and Black gram.

UNIT – IV

Sugar Crop : A list of common sugar yielding plants.

Sugarcane : Origin, distribution, botany, ecology, cultivation, extraction of juice, uses, by-products of sugar industry, improved varieties.

Oil Crop : Classification of vegetable fatty oils and its uses, important fatty oil yielding plants.

Groundnut : Origin, botany of the plant, pod structure, ecology, cultivation, important varieties, oil extraction, uses.

UNIT - V

Fruit Crops : General properties and nutritive value of fruits.

Origin, distribution, ecology, botany and uses of Banana and Papaya.

Vegetables : Types, the importance of vegetables in human diets.

Origin, distribution, ecology and uses of Onion and Potato.

TEXT BOOKS

1. Chauduri, H.K. Elementary Principles of Plant Breeding, 1971- Oxford and IBH Co., New Delhi.
2. Hill, A. (adapted by O.P. Sharma) 1976, Economic Botany, Tata McGraw Hill Publishing Co., Ltd., New Delhi.
3. Govind Prakash and Sharma, S.K. 1979 - Introductory Economic Botany, Jai Prakash Nath & Co., Meerut.
4. Pandey, B.P. Economic Botany, 1980 - S.Chand and Co., New Delhi.
5. Singh, S.P. Lakhi Ram Singh, Srivastava, J.P. 1999 - Plant Breeding, Aman Publishing House, Meerut.
6. Singh, B.D. 2002-Plant Breeding, Kalyani Publishers, Ludhiana.

REFERENCE BOOKS

1. Allard, R.W. 1960, Principles of Plant Breeding. John Willey and Sons, Inc.
2. Kachroo, P.1970, Pulse Crops of India. I.C.A.R. New Delhi.
3. Sambamurthy, A.V.S.S. and Subrahmanyam, N.S. 1989. A Text Book of Economic Botany, Wiley Eastern Ltd., New Delhi.
4. Choudhury, B. 1992. Vegetables. National Book Trust, New Delhi.
5. Ranjit Singh, 1992. Fruits. National Book Trust. New Delhi.
6. Wealth of India (Vol. 1-10), 1992. CSIR, New Delhi.

SEMESTER – VI
SKILL BASED ELECTIVE COURSE – VI -08UBOSE06
BIOFERTILIZERS

UNIT – I

General account about the microbes used as biofertilizer – Rhizobium – isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis.

UNIT – II

Azospirillum, isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms.

Azotobacter – classification, characteristics – crop response to Azotobacter inoculum, maintenance and mass multiplication.

UNIT – III

Cyanobacteria (blue green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.

UNIT – IV

VA-Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.

UNIT – V

Organic farming – Green manuring and organic fertilizers, Recycling of bio-degradable municipal, agricultural and Industrial wastes – biocompost making methods, types and method of vermicomposting – field Application.

REFERENCE BOOK

1. Dubey, R.C., 2005 A Text book of Biotechnology S.Chand & Co, New Delhi.
2. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.
3. John Jothi Prakash, E. 2004. Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
4. Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.
5. Subha Rao, N.S. 2000, Soil Microbiology, Oxford & IBH Publishers, New Delhi.
6. Vayas,S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic Farming Akta Prakashan, Nadiad

**B.SC., BOTANY MAJOR AND ALLIED BOTANY THEORY QUESTION
PAPER MODEL.**

(For the candidates admitted from 2008-09)

B.Sc., Degree Examination, APRIL / NOVEMBER

Semester

Time : 3 hrs.

Max. Marks: 75

Part - A: 10 x 2 = 20

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

(Two questions from each unit)

1&2 From UNIT-I

3& 4- From UNIT-II

5&6-From UNIT-III

7&8 From UNIT-IV

9&10-From UNIT-V

Part - B: 5x5 = 25

(Answer all questions)

All Question carry equal marks

(One question from each unit internal choice)

Each answer should not exceed 200 words.

Q.No. 11.	a (or) B	-	UNIT-I
Q.No. 12.	a (or) B	-	UNIT-II
Q.No. 13.	a (or) B	-	UNIT-III
Q.No. 14.	a (or) B	-	UNIT-IV
Q.No. 15.	a (or) B	-	UNIT-V

Part - C: 3x10 = 30

(Answer any three questions)

All Question carry equal marks

Each answer should not exceed 500 words.

- | | | |
|-----------|---|----------|
| Q.No. 16. | - | UNIT-I |
| Q.No. 17. | - | UNIT-II |
| Q.No. 18. | - | UNIT-III |
| Q.No. 19. | - | UNIT-IV |
| Q.No. 20. | - | UNIT-V |

MODEL THEORY QUESTION PAPER B.SC., DEGREE EXAMINATION
FIRST SEMESTER
BOTANY
PAPER- I - 08UBO01
PLANT DIVERSITY -1 (ALGAE AND BRYOPHYTES)

Time : 3 hrs.

Max. Marks: 75

Part - A: 10 x 2 = 20

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Fresh water alga.
2. Reserve food.
3. Agar - agar.
4. Carrageenin.
5. Hormogonium.
6. Ulva.
7. Nannandrium
8. Air bladder.
9. Rhizoids
10. Columella.

Part - B: 5x5 = 25

(Answer all questions) All Question carry equal marks

(One question from each unit internal choice)

Each answer should not exceed 200 words.

11. (a) Briefly describe the pigmentation in algae.
(or)
(b) List out the characteristic features of Chlorophyceae.
12. (a) Write notes on single cell protein (SCP)
(or)
(b) Explain how algae is used as Sewage disposal material.

13. (a) Describe the Ultra structure of Chlamydomonas.
(or)
(b) Describe the asexual reproduction in Volvox.
14. (a). Explain the cell division in Oedogonium
(or)
(b) Briefly describe the structure of Chara sex organs.
15. (a) Write a short account on Economic importance of Bryophytes.
(or)
(b) Describe the thallus structure in Riccia.

Part -C (3x10 = 30)

Answer any three questions

All Question carry equal marks

Each answer should not exceed 500 words

16. Describe the general characters of various classes of Algae.
17. Write an essay on Economic importance of Algae.
18. Write an essay on structure and reproduction in Ulva.
19. Discuss the life cycle of Saragassum with suitable diagrams.
20. Write an essay on classification of Bryophytes by Rothmaler.

B.SC., BOTANY MAJOR
THEORY QUESTION PAPER MODEL.

(For the candidates admitted from 2008-09)

B.Sc., Degree Examination,

SECOND SEMESTER - PAPER – II -08UBO02

PLANT DIVERSITY -II

(FUNGI, BACTERIA, VIRUSES AND LICHENS)

Time : 3 hrs.

Max. Marks: 75

Part - A: 10 x 2 = 20

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Mushroom.
2. Ascomycetes
3. Conidia
4. Budding
5. Basidiocarp
6. White rust
7. Litmus paper
8. T-Phage
9. Sulphur Bacteria
10. Rhizobium

Part - B: 5x5 = 25

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 200 words

11. (a) Give an account of the useful aspects of Fungi.

(or)

- (b) Give an account of the classification of Fungi proposed by Alexopoulos.
12. (a) Describe the structure and asexual reproduction in *Albugo*.
(or)
(b) Describe structure and reproduction in *Peziza*.
13. (a) Give an account the structure and life cycle of *Fusarium*.
(or)
(b) Write about the structure and fruit body of *Polyporus*.
14. (a) Mention about reproduction in Lichens.
(or)
(b) Write about *Mycoplasma*.
15. (a) Write about Nutrition in Bacteria.
(or)
(b) Mention about Plant Diseases caused by Bacteria.

Part -C (3x10 = 30)

Answer any three questions

All Question carry equal marks

Each answer should not exceed 500 words

16. Give an account of variation in structure and mode of life in Ascomycetes.
17. Write an essay on the structure and reproduction in *Saccharomyces*.
18. Give an account of on the life cycle of a heterosious fungus you have studied.
19. Enuemarate the classification, types, morphology and uses of Lichens.
20. Give an account of the economic importance of Bacteria.

**B.Sc DEGREE EXAMINATION,
(For the candidates admitted from 2008-2009 onwards)**

B.Sc., Botany

THIRD SEMESTER

Paper- III- 08UB003

ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS

Time: Three hours

Maximum 75 marks

Part - A: 10 x 2 = 20

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Describe parenchyma.
2. What are meristems.
3. Explain annual rings.
4. Describe the structure of sieve elements.
5. Describe collateral vascular bundle.
6. What are vessels.
7. Explain velamen tissue
8. Describe an anatropous ovule.
9. what is triple fusion.
10. Explain suspensor.

Part - B: 5x5 = 25

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 200 words

11. a) Write about classification of meristems
(or)
b) Explain transfer cells.

12. a) Give an account on Heart wood and sap wood.

(or)

- b) Write about phloem tissue.

13. a) Bring out the primary structure of stem.

(or)

- b) Write about the internal structure of aerial root.

14. a) Explain Tapetal types.

(or)

- b) Describe the nucellus tissue.

15. a) Write about endosperm haustoria.

(or)

- b) Explain Dicot embryo.

Part -C (3x10 = 30)

Answer any three questions

All Question carry equal marks

Each answer should not exceed 500 words

16. Give an account on sclerenchma, fibres and sclereids.
17. Write about Xylem.
18. Write an essay on nodal anatomy.
19. Explain the structure & development of male gametophyte.
20. Write about endosperm.

**B.Sc DEGREE EXAMINATION,
(For the candidates admitted from 2008-2009 onwards)**

Fourth Semester

B.Sc., Botany

Paper- IV - 08UB004

PLANT DIVERSITY III

(PTERIDOPHYTES, GYMNOSPERMS, PALAEO BOTANY)

Time: Three hours

Maximum 75 marks

Part - A: 10 x 2 = 20

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Describe actinostele.
2. What is apospory? Explain with an example.
3. Example ligule.
4. Briefly write about surface – living gametophyte in Lycopodium.
5. Write any one system of classification for Gymnosperms.
6. Explain manoxylic wood in Gymnosperms.
7. Write notes on the root system of Cycas.
8. Describe bordered pits in Pinus wood.
9. How will you name a fossil plant.
10. Write about the petiole of Botryopteris.

Part - B: 5x5 = 25

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 200 words

11. a) Bring out the salient features of Pteridophytes.
(or)
b) Explain transfer cells.

12. a) Describe the various types of Steles in Lycopodium.
(or)
b) Describe the Sorus in Adiantum.
13. a) Write about male cones of Gymnosperms.
(or)
b) Describe the female cones of Gymnosperms.
14. a) Explain the internal structure of Normal root of Cycas. How it differs from Coralloid root.
(or)
b) Describe the old stem of Pinus.
15. a) Describe the stem of Calamites.
(or)
b) Explain the stem of Lepidodendron.

Part -C (3x10 = 30)

Answer any three questions

All Question carry equal marks

Each answer should not exceed 500 words

16. Write an essay on Stelar evolution in Pteridophytes.
17. Describe morphological features of Adiantum sporophyte
18. Describe the gametophyte of Gymnosperms.
19. Describe the internal structure of Cycas rachis & leaflet.
20. Write an essay on Williamsonia.

B.Sc., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., Botany

SIXTH SEMESTER

PAPER - V – (08UB005)

MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS

Time : Three Hours

Maximum : 75 Marks

PART - A (10 x 2 = 20)

Answer ALL the questions.

All question carry equal marks.

Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Any two underground roots.
2. Decompund leaf.
3. Heterophylly.
4. Gynandrophore.
5. Cremocarp.
6. Fruit of Asclepiadaceae.
7. Linnaeus.
8. Herbarium.
9. Synandrous stamens
10. Any two dry indehiscent fruits.

PART - B (5 x 5 = 25)

Answer ALL the questions.

All question carry equal marks.

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Modifications of tap root.

(or)

- (b) Any four types of stipules.

12. (a) Give any four types of phyllotaxy. Illustrate.
(or)
(b) Explain Head inflorescence.
13. (a) What is Gynostegium. Explain
(or)
(b) Sub families of Nymphaeaceae.
14. (a) Give a brief account of identifying characters of Rutaceae.
(or)
(b) Give an example for a modern classification and briefly comment on its importance.
15. (a) Types of androecium in Cucurbitaceae.
(or)
(b) Artificial system of classification.

PART - C (3 x 10 = 30)

Answer any Three questions.

All question carry equal marks.

Each answer should not exceed 500 words.

16. Give an account of aerial stem modifications.
17. Enumerate the types of racemose inflorescence and explain.
18. Write about the family Poaceae.
19. Explain the range of floral structure.
20. Give an account of Bentham and Hooker's classification with merits and demerits.

B.Sc., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., Botany

FIFTH SEMESTER

PAPER VI - CYTOLOGY AND GENETICS - (08UB006)

Time : Three Hours

Maximum : 75 Marks

PART - A (10 x 2 = 20)

Answer ALL the questions.

All question carry equal marks.

Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1. What is Plasmodesmata?
2. Define Cristae.
3. What are the components in a nucleotide?
4. What is synopsis?
5. What are alleles?
6. What is phenotype?
7. Define Crossing over.
8. What is linkage?
9. Define nullisomic.
10. What is polyploidy?

PART - B (5 x 5 = 25)

Answer ALL the questions.

All question carry equal marks.

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Explain the fluid mosaic model of plasma membrane.

(or)

- (b) Describe the ultrastructure of chloroplast?

12. (a) Write short notes on polytene chromosome.
(or)
(b) Write a brief account on double helix structure of DNA.
13. (a) Describe the Mendel's law.
(or)
(b) What do you know about epistasis?
14. (a) What is crossing over? Explain its significance.
(or)
(b) Explain cytoplasmic inheritance with an example.
15. (a) Describe briefly on the types of polyploidy.
(or)
(b) Write short notes on the changes in chromosome structure?

PART - C (3 x 10 = 30)

Answer any Three questions.

All question carry equal marks.

Each answer should not exceed 500 words.

16. Write an account on the structure and function of nucleus.
17. Describe the process of meiosis I.
18. Discuss - Multiple alleles.
19. What is gene map? Explain with an example?
20. Write an account on sex determination in plants.

B.Sc., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., Botany

SIXTH SEMESTER

PAPER VII - PLANT PHYSIOLOGY - (08UB007)

Time : Three Hours

Maximum : 75 Marks

PART - A (10 × 2 = 20)

Answer ALL the questions.

All question carry equal marks.

Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Osmosis.
2. Trace elements.
3. Quantosomes
4. Emerson enhancement effect.
5. Fermentation.
6. ATP and NADP
7. Nitrogen fixing cyanobacteria.
8. Denitrification.
9. Phototropism.
10. Senescence.

PART - B (5 × 5 = 25)

Answer ALL the questions.

All question carry equal marks.

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Explain the process of transpiration through hydathodes.
(or)
(b) Give the role of macro elements.

12. (a) Draw the photophosphorylation schematically.
(or)
(b) Write notes on the factors affecting photosynthesis.
13. (a) Draw the Kreb's cycle schematically.
(or)
(b) Explain oxidation phosphorylation.
14. (a) Draw schematically the nitrogen cycle.
(or)
(b) Explain reductive amination and transamination.
15. (a) What are the physiological role of gibberellins?
(or)
(b) Write an account on photoperiodism.

PART - C (3 x 10 = 30)

Answer any Three questions.

All question carry equal marks.

Each answer should not exceed 500 words.

16. Explain the mechanism of absorption of water.
17. Describe the calvin cycle.
18. Explain the process of Glycolysis.
19. Write an essay on protein synthesis.
20. Write an account on the role of auxins in plant growth.

B.Sc., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)
B.Sc., Botany
SIXTH SEMESTER
PAPAR - VIII - 08UBO08
PLANT ECOLOGY AND PLANT GEOGRAPHY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Rainfall
2. Autecology
3. Food web
4. Ecosystem
5. Migration
6. Colonization
7. Air Pollution
8. Acid rain
9. Bio-diversity
10. Scrub vegetation

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Write briefly about the effect of wind on plants.

(or)

- (b) Define thermoperiodism.

12. (a) How grazing by animals influence vegetation?
(or)
(b) Illustrate the pyramid of biomass.
13. (a) What are phylloclades? Mention their ecological importance.
(or)
(b) What is aquatic plant community? Give three types of it.
14. (a) Describe about noise pollution.
(or)
(b) Described about agricultural pollution.
15. (a) What is evergreen forest? Give examples.
(or)
(b) Explain any one theory describing plant distribution on earth.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Give an account of the effects of temperature on plants.
17. Describe in details, the structure of a model ecosystem.
18. Explain the adaptations of Xerophytes.
19. Give an account on the causes and control measures of water pollution.
20. Write an essay about the Mangrove and scrub vegetation in Tamilnadu.

B.Sc., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., Botany
SIXTH SEMESTER
PAPAR - XI - 08UB009
PLANT PROTECTION

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

Explain briefly on the following in 1 or 2 sentences.

Draw diagrams wherever necessary.

1. Any two rodents name.
2. Indirect Pest
3. Acquisition feeding period
4. Pandemic
5. *Glomerella tucumanensis*
6. Alternate host
7. Translucent spots
8. Kresek stage
9. Leaf puckering
10. *Pentalonia nigronervosa*

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

Briefly explain with necessary diagrams wherever needed.

11. (a) Any two disease caused by nematodes.
(or)
(b) Insect damages to crops

12. (a) Insect transmission of bacteria.

(or)

(b) Eradication.

13. (a) But rot of coconut.

(or)

(b) Maize smut.

14. (a) Bacterial soft rot of vegetables.

(or)

(b) Ring rot of potato

15. (a) Bunchy top of banana.

(or)

(b) Bhendi mosaic.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Give an account of the fungal damages to crop in India.

17. Give a brief account about preventive measures in plant diseases.

18. Write about the causal agent, disease spread, symptoms and control measures of paddy blast.

19. Explain citrus canker disease and its control measures.

20. Give an account of Tobacco mosaic disease.

CORE PRACTICALS
QUESTION PAPER PATTERN FOR MAJOR PRACTICAL
EXAMINATIONS

[Practical Papers - Model for I Year]

CORE - MAJOR PRACTICAL - 1 - 08BOP01

(For Theory Papers I, II)

Time : 3 hrs.

Maximum: 60 Marks

Practical : 50 Marks

Record : 10 Marks

1. Cut transverse section of A, B and C. Stain and mount in glycerin.
Identify giving reason. Draw diagrams. Leave the slides for valuation.
(21)
2. Draw diagrams and write notes of interest on D, E, F, and G. (16)
3. Name the genus, group and morphology of given part of H, I and J.
(Diagrams not Necessary) (9)
4. Identify and write notes on economic importance of K and L. (4)

CORE PRACTICALS
QUESTION PAPER PATTERN FOR MAJOR PRACTICAL
EXAMINATIONS

[Major Practical Papers - Model for II Year]

Core - Major Practical – II – 08UB0P02

(For Theory Papers II, III)

Time : 3 hrs.

Maximum: 60 Marks

Practical : 50 Marks

Record : 10 Marks

1. Cut transverse sections of A, B and C. Stain and mount in glycerin. Identify giving reasons. Draw diagrams. Leave the slides for valuation. (24)
2. Make a suitable micropreparation of D. Identify giving reasons. Draw diagrams. Leave the slides for valuation. (6)
3. Dissect and mount any one of the stages of the given material E. (Diagram and notes not necessary) (4)
4. Name the genus, group and morphology of given part of F and G. (6)
5. Write notes on H, I, J, K and L (10)

KEY

- A. Angiosperm – Anatomy – Vegetative part.
- B. Pteridophyte – Anatomy – Vegetative part.
- C. Gymnosperm - Anatomy – Vegetative part.
- D. Reproductive part – Pteridophyte (or) Gymnosperm.
- E. Embryo – dicot – Tridax

F&G. Macroscopic – Pteridophyte (or) Gymnosperm.

H, I, J, K and L. Permanent slides (Anatomy, Embryology, Pteridophytes, Gymnosperms, Fossil slides)

CORE PRACTICALS
QUESTION PAPER PATTERN FOR MAJOR PRACTICAL
EXAMINATIONS

[Major Practical Papers - Model for III Year]

CORE - MAJOR PRACTICAL - III - 08UB0P03

(For Theory Papers V, VI)

Time : 3 hrs.

Maximum: 60 Marks

Practical : 40 Marks

Herbarium : 10 Marks

Record : 10 Marks

1. Refer A and B, to their respective families. Point out the characters on which the identification is based at each level. (Diagrams not necessary) (8)
2. Make acetocarmine preparation of C (Squash) (any one stage) draws diagrams. (4)
3. Describe D in Technical terms. Draw diagrams of the floral parts only. Construct the floral diagram. Give the floral formula. (5)
4. Construct chromosome map with the data provided (5)
5. Solve the given genetic problems E and F. (6)
6. Spot at sight G and H (Name of the Genus and the Family) (4)
7. Write the name of the Genus, species, Family and morphology of the useful parts of I and J. (8)

CORE PRACTICALS
QUESTION PAPER PATTERN FOR MAJOR PRACTICAL
EXAMINATIONS

[Practical Papers - Model for III Year]

CORE - MAJOR PRACTICAL - IV - 08UBP04

(For Theory Papers VII, VIII, and IX)

Time : 3 hrs.

Maximum: 60 Marks

Practical : 50 Marks

Record : 10 Marks

1. Outline the procedure, apparatus and materials required for investigating the physiological problem. A, assigned. Set up the experiment. Tabulate the data obtained and report the results. Leave the set up for valuation . (16)
2. Based on morphological and anatomical characters, assign, B and C to their respective probable habitats. Draw suitable diagrams. Submit slides for valuation. (16)
3. Draw and comment on the set up D (6)
4. Identify the causal organism of the diseased material K. draw diagrams. Describe the symptoms and list the control measures. (12)

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)
BOTANY
SECOND SEMESTER
SKILL BASED ELECTIVE COURSE - I - 08UBOSE01
MUSHROOM CULTURE TECHNOLOGY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. What is Mushroom cultivation.
2. Define Mushroom
3. What is sterilization
4. What is pure culture.
5. Define inoculation loop
6. Define Low cost technology
7. What is vitamins
8. What is short term storage
9. Define Pickles
10. Define export value.

PART-B (5 x 5 = 25)

Answer ALL the questions:

All questions carry equal marks

Briefly explain with necessary diagrams wherever needed.

11. (a) Briefly explain history of mushroom

(or)

- (b) Give an account on *Pleurotus citrinopileatus*.

12. (a) Write about preparation of PDA medium
(or)
(b) Explain preparation of mother spawn in Saline bottle.
13. (a) Write short notes on
i) Culture rack
ii) Inoculation hook
(or)
(b) Give an account on mushroom bed preparation.
14. (a) Write short notes on.
i) Proteins
ii) Carbohydrates
(or)
(b) Describe about long term storage.
15. (a) Write about Samosa
(or)
(b) Give an account on National Research Centers.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Write an essay on types of edible mushrooms available in India.
17. Describe detailed account on preparation of test tube slants to store mother culture.
18. Write short notes on
i. Paddy straw
ii. Maize straw
19. Write an essay on amino acids and mineral elements nutrition .
20. Write an essay on cost benefit ratio marketing in India.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)
BOTANY
THIRD SEMESTER
SKILL BASED ELECTIVE COURSE - II - 08UBOSE02
HORTICULTURE

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Importance of horticulture
2. Kitchen garden
3. Budding
4. Cutting methods
5. Topiary
6. Weeding
7. Cut flowers
8. Ikebana
9. Rockery
10. Water garden

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Give an account about scope of horticulture.
(or)
(b) Classify horticulture crops.

12. (a) Briefly explain the methods of grafting.
(or)
(b) Briefly explain the layering methods.
13. (a) Write notes on weeding.
(or)
(b) Write notes on fungicide in ornamental plants.
14. (a) How will you make dry flowers? Comment on its uses?
(or)
(b) Discuss the maintenance of nursery.
15. (a) Write notes on rockery.
(or)
(b) Write notes on hydroponics.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. What are the types of gardens? Critically discuss its designs.
17. Write an essay on the growth hormones and the applications of them in horticulture.
18. Give the details of various types of lawn and a note on their aesthetic values.
19. Describe the cultivation methods of commercial flowers with two examples.
20. Discuss the role, maintenance and use of vegetable and fruit crops.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)
B.Sc., BOTANY
FIFTH SEMESTER
SKILL BASED ELECTIVE COURSE - III - 08UBOSE03
MICRO TECHNIQUE

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Resolution
2. Write any two examples for stains.
3. Temporary Microscopic Preparation.
4. FAA
5. Maceration
6. Smear Technique
7. Uses of Rotary Microtome
8. Describe the principles of Microtomy.
9. Bacterial staining
10. Whole mount.

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Explain the working principle of a compound microscope
(or)
(b) Write an account on fixation.
12. (a) Give an account of semi permanent microscopic preparation.
(or)

- (b) Describe the various dehydrating agents used in microtechnique.
13. (a) Write an account on special techniques.
(or)
(b) Write an account on smearing.
14. (a) How would you prepare a whole mount of Algae?
(or)
(b) Describe the method of mounting the material on the microscope?
15. (a) Name the various types of microtomes. Explain the advantages of microtome.
(or)
(b) State the reasons for the formation of a curved ribbon.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Describe the structure and working principle of Transmission Electron Microscope.
17. Describe the various steps involved in permanent microscopic preparation.
18. Explain the onion root-tip squash preparation procedure.
19. Give an account of Rotary microtome.
20. Give an account on the preparation of whole mount of fungi.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)
B.Sc., BOTANY
FIFTH SEMESTER
SKILL BASED ELECTIVE COURSE - IV - 08UBOSE04
SEED TECHNOLOGY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Define cross pollination
2. Breeder's seed
3. Seed vigour
4. What is germination percentage?
5. Foundation seed
6. Define seed yield
7. Roguing
8. Define seed rate
9. Supplementary pollination
10. What is seed clearing

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Mention the characters of self-pollinated crops
(or)
(b) Write short notes on isolation of seed crops.

12. (a) What are the requirements for germination tests?
(or)
(b) Give an account on seed viability?
13. (a) Give an account on hybrid seed production.
(or)
(b) How would you test moisture content of a seed?
14. (a) Briefly explain the Tetrazolium Test.
(or)
(b) Write short notes on isolation of seed crops.
15. (a) Explain the different methods of seed drying.
(or)
(b) What are all the classes of seeds.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Write an essay on the principles of seed production in self pollinated crops.
17. What is seed dormancy? Discuss in detail about techniques for breaking dormancy of seeds?
18. Briefly write about the certified seed production of cotton.
19. Give an account on the seed vigour and its importance.
20. Write the procedure of field inspection on different stages of seed production of paddy.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., BOTANY

SIXTH SEMESTER

SKILL BASED ELECTIVE COURSE -V - - 08UBOSE05

PLANT BREEDING AND PLANT UTILIZATION AS FOOD

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. IARI
2. Clone
3. Emasculation
4. Artificial seed
5. Bran Oil
6. Use of Black gram
7. Beet root
8. Coconut oil
9. Psidium
10. Citrus

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Write about plant introduction.

(or)

- (b) How Plants are acclimatized to one region?

12. (a) Write about Somatic hybridization.
(or)
(b) Write about the role of anther culture in Plant Breeding.
13. (a) List out some Millets and their uses.
(or)
(b) List out some major pulse crops of our country.
14. (a) Give an account of Byproducts of sugar industry.
(or)
(b) Give an account of classification of Oils.
15. (a) Write about leafy vegetables.
(or)
(b) Write about root vegetables.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Write about the principles and objectives of Plant Breeding.
17. Write about the role of mutations and Polyploidy in Plant Breeding.
18. Write about the origin, distribution, cultivation and uses of rice.
19. Give an account of the origin, botany, pod structure, extraction and uses of Ground nut.
20. Write about the origin, distribution, cultivation and uses of Potato.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)
B.Sc., BOTANY
SIXTH SEMESTER
SKILL BASED ELECTIVE COURSE -VI - - 08UBOSE06
BIOFERTILIZER

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Nitrogen fixing organism.
2. YEMA Medium
3. Blending
4. Mention any two species of Azospirillum
5. BGA
6. Azolla
7. VAM
8. Phosphate mobilization
9. Green manure
10. Vermicompost

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Give an account on soil microorganisms.

(or)

- (b) Briefly explain nitrogen – fixing organism.

12. (a) How will you isolate *Azospirillum* from paddy roots?
(or)
(b) What are the carriers used for inoculum production of *Azospirillum*?
13. (a) Explain the characteristics of Blue green algae.
(or)
(b) Write an account on morphological characteristics of *Azolla*.
14. (a) Give an account on taxonomy of VAM fungi.
(or)
(b) Write short notes on phosphate mobilization.
15. (a) Discuss the mass cultivation of *Azospirillum* biofertilizer.
(or)
(b) List out the field applications of *Rhizobium* biofertilizer.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Describe the isolation, identification and mass cultivation of *Rhizobium*.
17. Discuss the method of mass cultivation of *Azospirillum*
18. Give a detailed account on method of applications of BGA in rice field.
19. How will you isolate VAM fungi Rhizosphere soils? Explain in detail
20. Define biofertilizer? Give an outline of the various microbes, which are used as biofertilizer.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., BOTANY
MAJOR ELECTIVE COURSE -I
FIFTH SEMESTER - 08UBOME01
PLANT BIOTECHNOLOGY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Explant
2. Inoculation chamber
3. Liquid culture
4. Androgenesis
5. Plasmids
6. Transgenic plants
7. BOD
8. Microbiological characteristics of sewage
9. Aerobic digestion of biomass
10. Different source of energy

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

(One question from each unit with internal choice)

Each answer should not exceed 200 words.

11. (a) Write an account on the sterilization techniques

(or)

- (c) Write an account on the significance and uses of haploids.

12. (a) Write short notes on somatic hybridization.
(or)
(b) What do you know about the culture of the protoplast.
13. (a) Write notes on cosmid and plasmid vectors.
(or)
(b) Writes notes on introns and exons.
14. (a) Write about eutropication.
(or)
(b) Define biomass and mention its amount in various sources.
15. (a) Define petroplants and give examples.
(or)
(b) Algal hydrocarbons.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Write an essay on the production of haploids.
17. Write an essay on the importance of hybrids in tissue culture.
18. Describe in brief the recombinant DNA Technology. What are the various biological tools required for it.
19. Explain the non-biological process of biomass conversion.
20. Give an account of treatment of effluents from paper and leather industries.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., BOTANY
MAJOR ELECTIVE COURSE -II
FIFTH SEMESTER - 08UBOME02
AGRICULTURAL MICROBIOLOGY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

Explain briefly on the following in 1 or 2 sentences.

1. Clay
2. Soil microflora
3. Neutralism
4. Predation
5. Rhizosphere
6. Non-symbiotic nitrogen fixing organisms
7. Ammonification
8. Phosphorus cycle
9. Blast of Paddy
10. Tobacco mosaic virus

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

Briefly explain with necessary diagrams wherever needed.

11. (a) Write an account on general characters of soil.
(or)
(b) Explain the significance of soil fertility.

12. (a) Define mutualism and commensalism.
(or)
(b) Write short notes on antagonism.
13. (a) Write briefly on nitrogen fixation process.
(or)
(b) Discuss the method of mass inoculum production of *Azospirillum*.
14. (a) Briefly explain the carbon cycle.
(or)
(b) Write short notes on sulfur cycle.
15. (a) Discuss the methods of inoculum production of *Azolla*.
(or)
(b) Give an account on tikka disease of groundnut.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Discuss the classification of soil.
17. Give a detailed account on competition and parasitism.
18. How will you isolate *Rhizobium* from root nodules? Explain in detail.
19. Write an essay on Nitrogen cycle.
20. Describe the biopesticides.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., BOTANY
MAJOR ELECTIVE COURSE -III
SIXTH SEMESTER - 08UBOME03
MEDICINAL BOTANY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

Explain briefly on the following in 1 or 2 sentences.

1. Siddha
2. Ayuervadha
3. Reserpine
4. Ephedrin
5. Ocimum
6. Eucalyptus Oil
7. Psychoactive drug
8. Nux vomica
9. Cardio vascular drugs
10. Biomedicine

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

Briefly explain with necessary diagrams wherever needed.

11. (a) Briefly discuss about Unani system of medicine.
(or)
(b) Discuss the history of medicinal plants.

12. (a) Discuss the drugs obtain from roots.
(or)
(b) Discuss the drugs obtain from barks.
13. (a) What are the medicinal uses of Datura plant?
(or)
(b) Briefly explain the uses of Aloe.
14. (a) What are the drugs used for central nervous system?
(or)
(b) How will you cure the gastrointestinal disorders by using plant drugs?
15. (a) Briefly explain breeding methods applied in medicinal herbs.
(or)
(b) What are the drug adulteration?

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Explain the classification of crude drugs and chemistry of drugs.
17. Briefly discuss the method of extraction of drugs from roots.
18. (i) Drugs from flower
(ii) Drugs from Fruits and seeds
19. Explain the drugs acting on the central nervous system.
20. Discuss the cultivation methods of medicinal plants in India.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

BOTANY
NON-MAJOR ELECTIVE COURSE -I
THIRD SEMESTER - 08UBONE01
MUSHROOM CULTIVATION

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

All questions carry equal marks

Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. What is Mushroom cultivation.
2. Define Mushroom
3. What is sterilization
4. What is pure culture.
5. Define inoculation loop
6. Define Low cost technology
7. What is vitamins
8. What is short term storage
9. Define Pickles
10. Define export value.

PART-B (5 x 5 = 25)

Answer ALL the questions:

All questions carry equal marks

Briefly explain with necessary diagrams wherever needed.

11. (a) Briefly explain history of mushroom

(or)

- (b) Give an account on *Pleurotus citrinopileatus*.

12. (a) Write about preparation of PDA medium
(or)
(b) Explain preparation of mother spawn in Saline bottle.
13. (a) Write short notes on
i) Culture rack
ii) Inoculation hook
(or)
(b) Give an account on mushroom bed preparation.
14. (a) Write short notes on.
i) Proteins
ii) Carbohydrates
(or)
(b) Describe about long term storage.
15. (a) Write about Samosa
(or)
(b) Give an account on National Research Centers.

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

21. Write an essay on types of edible mushrooms available in India.
22. Describe detailed account on preparation of test tube slants to store mother culture.
23. Write short notes on
i. Paddy straw
ii. Maize straw
24. Write an essay on amino acids and mineral elements nutrition .
25. Write an essay on cost benefit ratio marketing in India.

B.SC., DEGREE EXAMINATION
(For the Candidates admitted from 2008-2009 onwards)

B.Sc., BOTANY
FOURTH SEMESTER - 08UBONE02
NON-MAJOR ELECTIVE COURSE - II
HERBAL BOTANY

Time : 3 Hrs.

Maximum : 75 Marks

PART - A (10x2 = 20)

Answer ALL the questions :

Explain briefly on the following in 1 or 2 sentences.

Draw diagrams wherever necessary.

1. Siddha
2. Ayuervadha
3. Reserpine
4. Ephedrin
5. Ocimum
6. Eucalyptus Oil
7. Psychoactive drug
8. Nux vomica
9. Cardio vascular drugs
10. Biomedicine

PART-B (5 x 5 = 25)

Answer ALL the questions :

All questions carry equal marks

Briefly explain with necessary diagrams wherever needed.

11. (a) Briefly discuss about Unani system of medicine.
(or)
(b) Discuss the history of medicinal plants.

12. (a) Discuss the drugs obtain from roots.
(or)
(b) Discuss the drugs obtain from barks.
13. (a) What are the medicinal uses of Datura plant?
(or)
(b) Briefly explain the uses of Aloe.
14. (a) What are the drugs used for central nervous system?
(or)
(b) How will you cure the gastrointestinal disorders by using plant drugs?
15. (a) Briefly explain breeding methods applied in medicinal herbs.
(or)
(b) What are the drug adulteration?

PART-C (3x10 = 30)

Answer any three questions.

All questions carry equal marks.

Each answer should not exceed 500 words.

16. Explain the classification of crude drugs and chemistry of drugs.
17. Briefly discuss the method of extraction of drugs from roots.
18. (i) Drugs from flower
(ii) Drugs from Fruits and seeds
19. Explain the drugs acting on the central nervous system.
20. Discuss the cultivation methods of medicinal plants in India.

PERIYAR UNIVERSITY
(For the candidates admitted from 2008-09)
ALLIED BOTANY
SEMESTER - I
FIRST ALLIED COURSE - I

External Morphology, Taxonomy of Angiosperms, Cytology, Genetics, Anatomy and Embryology.

UNIT - I

External Morphology: Phyllotaxy, Types of leaf - simple, compound - Inflorescence - Racemose, Cymose, Special types (Head, Cyathium) Terminology with reference to flower description.

UNIT - II

Taxonomy: Bentham and Hooker's system of classification. Study of the following families and their economic importance - Annonaceae, Leguminosae, Cucurbitaceae, Rubiaceae, Asteraceae and Arecaceae.

UNIT - III

Cytology: Ultra structure of plant cell and brief outline of the following organelles - cell wall, cell membrane, endoplasmic reticulum, mitochondria, chloroplast, nucleus. Cell division - Mitosis and Meiosis.

Genetics-Mendal's mono and dihybrid cross Incomplete dominance in monohybrid.

UNIT - IV

Anatomy: Simple permanent tissues - Parenchyma, Collenchyma, Sclerenchyma. Complex permanent tissues - Xylem, and Phloem. Primary structure of Dicot stem and Dicot root. Structure of Dicot Leaf. (Mesophytic only)

UNIT - V

Embryology - Structure and development of anther, male gametophyte, ovule and female gametophyte (polygonum type), Fertilisation, structure and development of dicot embryo (Capsella type).

PERIYAR UNIVERSITY
(For the candidates admitted from 2008-09)
ALLIED BOTANY
SEMESTER - II
FIRST ALLIED COURSE - I I

Thallophytes, Bryophytes, Pteridophytes, Gymnosperms, Plant Physiology and Ecology.

UNIT - I

Thallophytes: Algae, general characters, study of the structure and life cycle of the following genera-Oscillatoria, Oedogonium. Ectocarpus and Polysiphonia.

UNIT - II

Fungi: Genral Characters, study of the structure and life cycle of the following genera Albugo, Penicillium, Agaricus, Elementary knowledge of Bacteria and viruses. Economic importance of fungi and bacteria.

UNIT - III

Bryophytes, Pteridophytes and Gymnosperms: Structure and lifecycle of Funaria, Lycopodium and Cycas.

UNIT - IV

Plant Physiology: Osmosis, absorption of water. Photosynthesis-Light reaction, Calvin cycle. Respiration -Glycolysis, Krebs cycle, Electron transport system. Nitrogen cycle. Hormones (Auxins only)

UNIT - V

Plant Ecology: Factors affecting vegetation - climatic, edaphic and biotic. Morphological and anatomical adaptations in Hydrophytes and Xerophytes.

BOOKS

1. Fuller H.J. and Trippo O, 1949, College Botany, Henry Holt & Co.
2. Ganguly A.K, 1975, General Botany Vol I (1971) & Vol II, The New Book Stall, Calcutta.
3. Rao, K.N. Krishnamurthy, K.V and Rao G.S, 1979, Ancillary Botany, S. Viswanathan Pvt. Ltd., Madras.
4. Palaniappan, S. 1985, Thavaraviyal Thunaippaadam (Tamil), Mohan Padippagam, Chennai.
5. Pandey B.P, 1986, Text Book of Botany (College Botany) Vol I and II, S.Chand and Co. New Delhi.

PRACTICAL

1. To describe in technical terms plants belonging to any of the families prescribed and identify the family.

2. To identify the plant family and morphology of the parts used for the following plant specimens.

1. *Annona* - Fruit
2. *Arachis hypogea* - Ground nut
3. *Dolichos biflorus* - Horse gram
4. *Cicer arietinum* - Bengal gram
5. *Pisum sativum* - Pea
6. *Phaseolus mungo* - Blackgram
7. *Phaseolus radiatus* - Greengram
8. *Tamarindus indica* - Fruit
9. *Abrus precatorius* - Seed
10. *Acacia concinna* - Soapnut
11. *Luffa aegyptiaca* -Fibrous skeleton of the fruit
12. *Cucumis sativus* - Fruit
13. *Coffea arabica* - Seeds
14. *Eclipta alba* - Plant
15. *Cinchona officinalis* - Plant
16. *Helianthus annuus* - Flower
17. *Mentha viridis* - Plant
18. *Phoenix sylvestris* - Date fruit
19. *Areca catechu* - Nut
20. *Cocos nucifera* _ Kernal

3. To make suitable micropreparations, describe and identify materials of algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms prescribed.
4. To describe simple experimental set-up in plant physiology section of the syllabus.

**B.SC., BOTANY MAJOR AND ALLIED BOTANY THEORY QUESTION
PAPER MODEL.**

(For the candidates admitted from 2008-09)

Time : 3 hrs.

Max. Marks: 75

PART - A $10 \times 2 = 20$

Answer all questions $10 \times 2 = 20$

(10 Questions covering all the 5 units)

PART - B $5 \times 5 = 25$

One question from each unit with

Internal choice (either / or pattern) $5 \times 5 = 25$

PART - C $3 \times 10 = 20$

Any Three question out of Five

MODEL QUESTION PAPER - ALLIED BOTANY - I
PAPER I- EXTERNAL MORPHOLOGY, TAXONOMY, CYTOLOGY,
ANATOMY AND EMBRYOLOGY

Time : 3 hrs.

Maximum: 75 Marks

PART-A (10x2=20)

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Epigynous Flower
2. Define phyllotaxy.
3. What type of inflorescence found in Asteraceae?
4. Write note on syngenesious another.
5. Which part of a cell is called power houses?
6. Write two kinds of endoplasmic reticulum.
7. Define meristem.
8. Name of the cells found in xylem.
9. What is tapetum?
10. How many cells are there in an embryo sac?

Part - B: 5x5 = 25

Answer all questions

All Question carry equal marks

(One question from each unit internal choice)

Each answer should not exceed 200 words

11. (a) Describe the different types of phyllotaxy
(or)
(b) Explain the types of leaf

12. (a) Write down the economic importance of Arecaceae.
(or)
(b) What are the salient features of Annonaceae
13. (a) Briefly explain the functions of ribosomes.
(or)
(b) Describe the incomplete dominance.
14. (a) Write short notes on the structure and function of parenchyma.
(or)
(b) With suitable diagram explain the internal structure of a dicot leaf.
15. (a) Write short notes on fertilization.
(or)
(b) Explain the structure of an ovule.

Part - C: 3x10 = 30

Answer Any Three questions

All Question carry equal marks

Each answer should not exceed 500 words.

16. Describe the Racemose inflorescence.
17. Write the distinguishing characters and economic importance of family Asteraceae.
18. Write an essay about mitosis.
19. With suitable diagrams explain the primary structure of in dicot root.
20. Describe the structure and development of embryo in dictos.

MODEL QUESTION PAPER - ALLIED BOTANY - II
PAPER II - THALLOPHYTES, BRYOPHYTES, PTERIDOPHYTES,
GYMNOSPEMS, PLANT PHYSIOLOGY AND ECOLOGY

Time : 3 hrs.

Maximum: 75 Marks

PART-A (10x2=20)

Answer all the questions

All questions carry equal marks.

Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Hormogone
2. Capcells
3. Capsomere
4. Basidiocarp of Agaricus
5. Protonema
6. Protocorm
7. Auxin
8. Osmosis
9. Commensalism
10. symbiosis

Part - B: 5x5 = 25

Answer all questions

All Question carry equal marks

(One question from each unit internal choice)

Each answer should not exceed 200 words.

11. (a) Explain the asexual reproduction in oedogonium.
 (or)
 (b) Describe the vegetative reproduction in oscillatoria.

12. (a) Economic importance of Fungi.
 (or)
 (b) Asexual reproduction in Albugo.

13. (a) Describe the structure of caprule in Funaria.
(or)
(b) Explain the Coralloid root of cycas.
14. (a) Describe the absorption of H_2O
(or)
(b) Explain Ammonification and Nitrification.
15. (a) Describe succulent Xerophytes.
(or)
(b) How light effect the vegetation.

Part - C: 3x10 = 30

Answer any Three questions

All Question carry equal marks

Each answer should not exceed 500 words.

16. Describe the alternation of generation in Ectocarpus.
17. Describe the structure and reproduction in Bacteria.
18. Describe the reproduction in Cycas.
19. Describe Kreb's Cycle.
20. Describe Biotic factors.

B.Sc Botany Allied Practical
Model Question Paper

Time : 3 hrs.

Maximum: 60 Marks

Practical : 50 Marks

Record : 10 Marks

1. Refer A&B to their families giving reasons (Diagrams nor necessary) (10)
2. Identify the plant, family and morphology of the parts used for C, D, E, F and G. (15)
3. Cut transverse section of H & I. Stain and mount in Glycerin. Identify giving reasons. Draw diagrams. Submit the slides for valuation. (10)
4. Write critical notes on J, K, L, M, N, O. Draw diagrams. (12)
5. Comment on the set up P. (3)

KEY

1. For A and B - Any 2 plants prescribed in the syllabus. Reasons 3,
 Identification -2 5 x 2 = 10
2. For C, D, E, F and G - any 5 specimens given in the practical syllabus.
3 x 5 = 15
3. For H and I - Slide -2 Identification -1 Reasons - 2 5 x 2= 10
4. Notes 1, Diagram 1 for J, K, L, M, N, O 2 x 6 = 12
5. Physiology Experiment P (3)