PERIYAR UNIVERSITY

PERIYAR PALKALAI NAGAR

SALEM – 636 011

DEGREE OF BACHELOR OF

SCIENCE

CHOICE BASED CREDIT SYSTEM

SYLLABUS FOR B.Sc. BOTANY

FOR THE STUDENTS ADMITTED FROM THE

ACADEMIC YEAR 2012 – 2013 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.

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, Tamil Nadu 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 comprise instruction in the following subjects according to the syllabus and books prescribed from time to time.

(Course Structure from the Year 2012 onwards)

Sem	Part	Course	Code	Inst. Hrs	Credit	Exam Hrs	Marks		
							CIA TOT		EAL
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
		CoreCourseII(practical)	08UBOP01	3	-	-	-	-	-
		First Allied – I	08UBOAP01	4	3	3	25	75	100
		FirstAllied–II(Practical)	08UZOAP01	3	-	-	-	-	-
	IV	Env. Stu		1	-	-	-	-	-
		Value Education		2	3	-	-	-	-
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	3	-	-	-	-
		Second Allied-I	08UCHA01	4	3	3	25	75	100
		Second Allied-II	08UCHP01	3	-	-	-	-	-
IV		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	75	100
	IV	NMEC II	08UBONE02	2	2	3	25	75	100
	III	Corecourse VII	08UBO05	5	5	3	25	75	100
		Corecourse VIII	08UBO06	5	5	3	25	75	100
		Corecourse IX(Practical)	08UBOP03	3	-	-	-	-	-
		Corecourse 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
	III	Corecourse XI	08UBO07	5	5	3	25	75	100
		Corecourse XII	08UBO08	5	5	3	25	75	100
		Corecourse XIII	08UBO09	5	5	3	25	75	100
		Corecourse IX(Practical)	08UBOP03	3	4	3	40	60	100
VI	III	CorecourseXI	08UBO07	5	5	3	25	75	100
		CorecourseXII	08UBO08	5	5	3	25	75	100
		CorecourseXIII	08UBO09	5	5	3	25	75	100
		CorecourseIX(Practical)	08UBOP03	3	4	3	40	60	100
		CorecourseX(Practical)	08UBOP04	3	4	3	40	60	100
		Elective III	08UBOME03	5	5	3	25	75	100
		SVEC 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

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 Bryophtes)
4. Core course – II – Major Practical – I – Extended to II nd Semester.
5. First Allied Course – I – Allied Zoology – Paper – I
6. First Allied – II – Allied Practical – Extended to II nd 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
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.
47. Extension activities.

SEMESTER I

CORE COURSE -1

MAJOR PAPER -1

PLANT DIVERSITY – I ALGAE & BRYOPHYTA

Algae

UNIT - I

General characters of 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, Spirogyra, Ulva.

UNIT - IV

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.] Marchantia, 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.

To study the economic importance of algae.

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 Gymnospems. 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) - Bryophya (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. Julunder.
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.

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, Aspergillus, Neurospora and Peziza.

UNIT - III

A study of the occurrence, structure, reproduction and life cycle of the following genera: Puccinia, Polyporus and cercospora. VAM.

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, ultra structure, classification, 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.
5. To study of economic importance of Fungi.

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, Bicaner, India.
6. Sharma, O.P. Text Book of Fungi. Tata McGraw Hill Publishing Co., New Delhi.

REFERENCE BOOKS

1. Sistrom, W.R, (1962) Microbial life. Holt, Rinchart Winson.
2. Misra, A. and Agarwal, R.Pl (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, EcS, and Kriez, R. Microbiology Tata McGraw Hill, 1998, New Delhi.

SEMESTER - II

SKILLED BASED ELECTIVE COURSE – I

MUSHROOM CULTURE TECHNOLOGY

UNIT I

Introduction - history - scope of edible mushroom cultivation - Types of edible mushrooms available in India – 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. Factors affecting the mushroom bed preparation - Low cost technology.

UNIT IV

Storage and nutrition : Short-term storage (Refrigeration - upto 24 hours) Long term Storage (canning, pickels, 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.

SEMESTER – III

CORE COURSE - IV

MAJOR PAPER III -08UBO03

ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS

Anatomy

UNIT – I

Meristems : Classification, distribution, structure and 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 Graminaceous.

UNIT – III

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

Primary structure of monocot stem and root. 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, double fertilization and triple fusion **Endosperm :** Nuclear, Cellular, Helobial and Ruminate. 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, root, leaf, Monocot Stem, root and leaf.
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. Fahn, 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.

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.

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 - 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.

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.

- 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.

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, and Equisetum.

UNIT III

Detailed study of Morpology, Internal structure, Reproduction and life cycle of the following genera: Gleichenia , 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.

NON-MAJOR ELECTIVE – II

08UBONE02

HERBAL BOTANY

UNIT - I

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

UNIT - II

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

UNIT - III

Drugs from leaves (Aloe, Eucalyptus, Ocimum, Drugs from flower, (Eugenia). Drugs from fruits and seeds (wood apple and Coriander, Underground 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.

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, Kalyani. 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.

CORE COURSE – VII

MAJOR PAPER –V-08UBO05

MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS

UNIT – I

The plant body (parts)

Root: Types and modifications

Stem: Types: aerial and underground stem modifications.

Leaf parts , Phyllotaxy, simple and compound leaves.

UNIT – II

Inflorescence: types – raceme, cyme, (spike, spadix, corymb, Umbel, captiulum (or) head). Mixed – Thyrsus. Special – verticillastar.

Flower: parts and their arrangement.

Fruit: Types and classification.

UNIT – III

Taxonomy and its importance. Systems of classification – artificial system (Linnaeus), Natural (Bentham and Hooker's), Phylogenetic system (Engler and Prantl) and Modern system (Taktajan'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, BSI [Botanical Survey of India].

UNIT – IV

A detailed study of the following families and their economic importance:

Annonaceae, Capparidaceae, Rutaceae, Leguminosae (subfamilies:

Fabaceae, Caesalpinaceae, Mimoseae), Myrtaceae, Cucurbitaceae, Apiaceae.

UNIT – V

A detailed study of the following families and their economic importance of Asteraceae, Apocynaceae, Verbenaceae, Euphorbiaceae, Poaceae and Lilliaceae.

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 Brighton Book House, Madras.
3. Pandey, P.B (1989) – Taxonomy of angiosperms (Systematic Botany), S.Chand & Co. Ltd., Ram Nagar, 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, Calcultta.
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.

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, structures of 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, complementary factor , epistasis, and lethal genes. 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, chromosome aberrations, 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-three 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 tumifaciens- 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 algae. Biofuels-methanogenesis – Biogas – biogas plants – Hydrogenic bacteria.

UNIT – V

Environmental pollution – sewage – Domestic and industrial Sewage – composition of sewage – Biological O^2 [BOD]demand – Treatment of sewage – primary – secondary and tertiary treatment. Treatment of distillery effluents – 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 N_2 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.

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.

SKILL BASED ELECTIVE COURSE – III - 08UB0SE03

MICRO TECHNIQUE

UNIT -1

Light microscopy - History - optical principles. Use and care of microscope. A brief of SEM, TEM. Microtechnical processes.

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. Maceration

d. Wholemounts.

e. Clearing.

UNIT -4

Microtomy - types of microtomes - Paraffin Microtome, Freezing microtome and sledge microtome 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 Broyophyta, 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 Churchil Livington, 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 :

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 :

Certified seed production of the following Paddy, groundnut, cotton.

UNIT – V :

Seed certification – objectives – fundamental concepts of seed certification – sources and classes of seed : Breeder's seed, certified seed. 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, translocation of solutes - role of macro and microelements.

UNIT – II

Photosynthesis: Photosynthetic pigments, Emerson's enhancement effect, and Photoelectron transport and photophosporylation. Calvin cycle and C_4 pathway. Factors affecting photosynthesis.

UNIT – III

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

UNIT – IV

Nitrogen metabolism: Sources of nitrogen, nitrogen fixation- symbiotic and non – symbiotic. Protein synthesis.

UNIT – V

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

Phototropism, photoperiodism, Senescence and seed Dormancy.

PRACTICALS

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

1. Determination of DPD by using Rheo 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 on transpiration using Ganong's Potometer.
5. Separation of plant pigments by paper chromatography.
6. Rate of photosynthesis under varying concentration of CO^2 water plants- Wilmott's bubbler.
7. Effect of intensity of light on O^2 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. Dilatometer.
3. Anaerobic respiration. (Kuhne's apparatus)

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, NewDelhi.
3. Arumugam, N. (1994) Elements of Biochemistry, Saras Publications, Nagerkoil, 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 loalto, London.
2. Devlin, K.M. (1969) Plant Physiology, Rinehart and Winston and Affiliated East West Press (P) Ltd, New Delhi.
3. Noggle, 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 hydrophyte, Mesophyte & xerophytes.

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. Conservation insitu and exsitu methods. Endemism, Mega biodiversity and Hot spot .

PRACTICALS

Study of the morphological and structural adaptation of locally available hydrophytes, mesophytes, xerophytes 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 8sCompany Ltd.,
3. Vasishta, P.C, 1979 Plant Ecology, Vishal Publication.
4. Verma, V,A 1981 Text Book of plant Ecology, Emkay Publication.
5. Sharma, 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 causal 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, Tikka disease of groundnut.

UNIT-IV

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

UNIT-V

Nature of Plant Virus. Causal organism , symptoms, control measures of Viral diseases: Tobacco Mosaic, Bunchy top of banana, Mosaic disease of Lady's finger.

PRACTICAL

1. Collection and study of diseased plant materials.
2. Study of fungal, bacterial and viral diseases mentioned in the syllabus.
3. 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, Governmcnt 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 and Sons Ltd., Inco, New York.
4. Bap Reddy D, 1968 Plant protection in India Allied publishers,
5. Walker, J.C, Plant pathology Me Graw 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 and 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, Ayervedha and Unani systems. Classifications crude drugs and Drug adulteration.

UNIT - II

Drugs from roots (Catheranthus and Rauwolfia). Drugs form 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). Underground 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.

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, Kalyani. Publishers, 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, (pure line, clonal and mass)

UNIT – II

Hybridization : Types and procedure of hybridization. Somatic hybridization : Heterosis, hybrid vigour. Anther culture and its role in plant breeding. Role of mutation and polyploidy in plant breeding.

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.

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 Papaya.

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

Origin, distribution, ecology and uses of Onion.

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. Lakshmi 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, fators affecting growth, Blue green algae and Azolla in rice cultivation.

UNIT – IV

VA-Mycorrhizal association, types of mycorrhizal association, occurrence and distribution – 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 biodegradable 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.

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. Trabeculae
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 Ltalhus structure of sargatham.

(or)

(b) Briefly describe the structure of Chara sex organs.

15. (a) Write a short account on Economic importance of Bryophtes.

(or)

(b) Describe the thallus structure in Marchentia.

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 Sargassum with suitable diagrams.
20. Write an essay on classification of Bryophytes by Rothmaler.

THEORY QUESTION PAPER MODEL.

(For the candidates admitted from 2012-13)

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 Cercrspora.

(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 Questions 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 Heteroecious fungus you have studied.

19. Enumerate the classification, types, morphology and uses of Lichens.

20. Give an account of the economic importance of Bacteria.

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 Trilo carer node
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 Dicot 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.

Fourth Semester

Paper- IV - 08UBO04

PLANT DIVERSITY III

(PTERIDOPHYTES, GYMNOSPERMS, PALAEO BOTENY)

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. Actinostele.
2. What is apospory?

3. Ligule.
4. Valecular cauot
5. Monoxylic wood
6. winged Pollen..
7. Corolloid root.
8. Bordered pits .
9. How will you name a fossil plant?
10. Sporocarp.

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 Pinus word.

(or)

b) Describe the female cones of Cycas.

14. a) Differentiate Normal and corolloid root of cycas.

(or)

b) Explain the cycas ovule..

15. a) Describe the stem of Calamites.

(or)

b) Explain the stem of Lepidodendron.

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

SIXTH SEMESTER

PAPER - V – (08UBO05)

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. Decompound leaf.
3. Heterophylly.
4. Gynandrophore.
5. Cremocarp.
6. Cyathium.
7. Linnaeus.
8. Herbarium.
9. Diaynamous Condition.
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) Spikate . Explain

(or)

(b) Describe a flower of Myrtaceae.

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 in Leguminosae.

20. Give an account of Bentham and Hooker's classification with merits and demerits.

FIFTH SEMESTER

PAPER VI – CYTOLOGY AND GENETICS - (08UBO06)

Time : Three Hours **Maximum : 75 Marks**

PART – A (10 x 2 = 20)

Answer ALL the questions.

All question scarry 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 questions 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.

SIXTH SEMESTER

PAPER VII – PLANT PHYSIOLOGY - (08UBO07)

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

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 process of transpiration through hydathodes.

(or)

(b) Give the role of macro elements.

12. (a) Draw the photophosporylation 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) Differentiate Symbiotic and non symbiotic nitrogen fixation.

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 questions 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 Physiological role of auxin and ethylene.

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) Describe 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.

SIXTH SEMESTER

PAPAR – XI – 08UBO09

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 tucmanensis
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) Bud 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.(Lady's finger)

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, 1 and J. (Diagrams not Necessary) (9)
4. Identify and write notes on economic importance of K and L. (4)

Key

A - Algae

B - Fungi

C - Bryophytes

D - Algae- slide

E - Fungi- slide

F - Bryophyte-slide

G - Lichens- fruit body

H - Algae

I - Fungi

J - Bryophytes

K - Algae

L - Fungi

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:3hrs. **Maximum: 60 Marks**

Practical : 50 Marks

Record : 10 Marks

1. Cut transeverses 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 'E' (5)
5. Solve the given genetic problems 'E' and 'F'. (6)
6. Spot at sight H and T (CYHOLOGY Spotters) (4)
7. Write the name of the Genus, species, Family and morphology of the useful parts of 'J' and' K'. (8)

Key

A-Family

B-Family

C-Onion root tip

D-Plant with flowers

E-Chromosome map

F-Genetic problems

G-Genetic problem

H-Cytology spotter

I-Cytology spotter

J-Morphological parts

K-Morphological parts

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 'E'. draw diagrams.
   Describe the symptoms and list the control measures. (8)
5. Comment on 'F'

Key

A- Physiology

B- Ecology material

C- Ecology material

D- Physiology set up

E- Any disease in the syllabus

F- Plant protection appliances

SECOND SEMESTER

SKILL BASED ELECTIVE COURSE – I – 08UBOSE01

MUSHROOM CULTURE TECHNOLOGY

Time:3Hrs. **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.

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.

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 sledge microtome.

20. Give an account on the preparation of whole mount of fungi.

FIFTH SEMESTER

SKILL BASED ELECTIVE COURSE - IV – 08UBOSE04

SEED TECHNOLOGY

Time:3Hrs. **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.

SIXTH SEMESTER

SKILL BASED ELECTIVE COURSE –V - – 08UBOSE05

PLANT BREEDING AND PLANT UTILIZATION AS FOOD

Time:3Hrs. **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.

SIXTH SEMESTER

SKILL BASED ELECTIVE COURSE –VI - – 08UBOSE06

BIOFERTILIZER

Time:3Hrs. **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 carries 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 types of VAM fungi.

(or)

(b) Explain Inoculams Production of VAM.

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 bioferilizer.

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)

(b) 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 rectors.

(or)

(b) Writes notes on introns and extrons.

14. (a) Write about eutropiciation.

(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.

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.

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.

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.

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 paddy straw.

24. Write an essay on amino acids and mineral elements nutrition .

25. Write an essay on cost benefit ratio marketing in India.

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.
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.

ALLIED BOTANY

SEMESTER - I

FIRST ALLIED COURSE – I

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

UNIT - I

Morphology of Plant : 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 - Leguminosae, Cucurbitaceae, Rubiaceae. 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-Mendel's mono and dihybrid cross, Incomplete dominance, Gene interaction, Epistasis.

UNIT - IV

Anatomy: Simple permanent tissues - Parenchyma, Collenchyma, Sclerenchyma. Complex permanent tissues - Xylem, and Pholem. Primary structure of Dicot stem and Dicot root. and 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).

ALLIED BOTANY

SEMESTER - II

FIRST ALLIED COURSE – I I

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

UNIT - I

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

UNIT - II

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

UNIT - III

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

UNIT - IV

Plant Physiology: Osmosis, absorption of water. Photosynthesis-Light rection, 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.
6. Rasool S.K. and Sekar T.2002. Allied Botany Populer Book Hour chennai -15.

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. Arachis hypogea - Ground nut
    2. Dolichos biflorus - Horse gram
    3. Cicer arietinum - Bengal gram
    4. Pisum sativum - Pea
    5. Phaseolus mungo - Blackgram
    6. Phaseolus radiatus - Greengram
    7. Tamarindus indica - Fruit
    8. Abrus precatorius - Seed
    9. Acacia concinna - Soapnut
    10. Luffa aegyptiaca -Fibrous skeleton of the fruit
    11. Cucumis sativus - Fruit
    12. Coffea arabica - Seeds
    13. Ixora - Flower
    14. Cinchona officinalis - Plant

15. Musa Paradisica – Fruit
16. Phoenix sylvestris-Date fruit
17. Areca catechu-Nut
18. 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 2012-2013)

Time : 3 hrs. **Max. Marks: 75**

PART – A 10 x 2 = 20

Answer all questions 10x2=20

(10 Questions covering all the 5 units)

PART – B 5 x 5 = 25

One question from each unit with

Internal choice (either / or pattern) 5x5=25

PART – C 3 x 10 = 30

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 Musaceae?
4. Write note on syngenesious anther.
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 Cucurbitaceae.

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 Areeaeeae.
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, GYMNOSPERMS, 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 capsule 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 not 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)