

MAHATMA GANDHI UNIVERSITY, NALGONDA

Department of Botany

B.Sc(CBCS) BOTANY I-Semester

BLOW UP

PAPER - I

PAPER - I

MICROBIAL DIVERSITY OF LOWER PLANTS

Lecturer	TOPIC	Remarks
UNIT -I		
Lecturer-1	Brief account of Archebacteria . Introduction and cell Structure	
Lecturer-2	Types of Archebacteria and reproduction	
Lecturer-3	Classification and Economical importance of Archebacteria	
Lecturer-4	Actinomycetes	
Lecturer-5	Cyanobacteria General Characters	
Lecturer-6	Cyanobacteria Cell Structure	
Lecturer-7	Thallus Organisation and their significance as biofertilises	
Lecturer-8	Thallus Organisation and their significance as SCP	
Lecturer-9	Oscillatoria cell structure and reproduction	
Lecturer-10	Cell structure and reproduction of Nostoc and Anabaena	
Lecturer-11	Lichen-Introduction and Cell structure	
Lecturer-12	Internal Structure (or)Anatomy of lichen	
Lecturer-13	Lichen reproduction -Vegetative and Asexual reproduction	
Lecturer-14	Lichen Sexual Reproduction	
Lecturer-15	Lichen Economical Importance	
UNIT-II		
Lecturer-16	Viruses introduction and (structure) size of viruses	
Lecturer-17	Virus replication	
Lecturer-18	Virus transmission	
Lecturer-19	Symptoms of viral infection in plants	
Lecturer-20	Types and structure and phages	
Lecturer-21	Plant disease caused by viruses and their control with reference to tobacco mosaic virus	
Lecturer-22	Rice tungro disease	
Lecturer-23	Bacteria - Introduction and cell structure	
Lecturer-24	Nutrition in Bacteria	
Lecturer-25	Bacterial reproduction	
Lecturer-26	Economical Importance of Bacteria	
Lecturer-27	Bacterial diseases and their control with reference to angular leaf spot of cotton	
Lecturer-28	Bacterial blight of Rice symptoms and their control	
Lecturer-29	General account of Mycoplasma	
Lecturer-30	Mycoplasma diseases - Little leaf of brijal and papaya leaf curl.	
UNIT -III	ALGAE	
Lecturer-31	General characters Algae	
Lecturer-32	General characters Algae	
Lecturer-33	Classificaiton of Algae(Fritch)	
Lecturer-34	Chlorophyceae-Volvax - Structure and Asexual reproduction	
Lecturer-35	Volvox - Sexual reproduction and life cycle	

Lecturer-36	Oedogonium cell structure and reproduction	
Lecturer-37	Chara-Cell structure and vegetative reproduction	
Lecturer-38	Chara-Cell structure and vegetative reproduction	
Lecturer-39	Phaeophyceae-Ectocarpus-Cell structure and Asexual reproduction	
Lecturer-40	Sexual reproduction and fertilization in ectocarpus	
Lecturer-41	Rhoplophyceae-polysiphonia-Thallus Structure	
Lecturer-42	Reproduction in polysiphonia	
Lecturer-43	Casposporophyte and life cycle in polysiphonia	
Lecturer-44	Economic importance of Algae in Agriculture	
Lecturer-45	Economic importance of Algae in Industry	
UNIT-IV	FUNGI	
Lecturer-46	General Characters of Fungi	
Lecturer-47	General Characters of Fungi	
Lecturer-48	Classification of Fungi(Ainsworth)	
Lecturer-49	Mastigomycotina-Albugo Structure and reproduction	
Lecturer-50	Zycomycotina- Mucor Structure and reproduction	
Lecturer-51	Mucor -reproduction	
Lecturer-52	Ascomycotina - Saccharomyces life cycle	
Lecturer-53	Penicillium-Cell structure and Asexual reproduction	
Lecturer-54	Penicillium-Sexual reproduction and life cycle	
Lecturer-55	Basidiomycotina -puccinia - symptoms & Vegetative structure	
Lecturer-56	Puccinia life cycle -Stages on wheat plant	
Lecturer-57	Puccinia life cycle-stages on basberry plant	
Lecturer-58	Deuteromycotina -Cercospora	
Lecturer-59	Economic importance of fungi in relation to mycorrhizae and mushrooms	
Lecturer-60	General account of mushroom cultivation	

REFERENCE BOOKS :

1. Alexopoulos, J. and W. M. Charles. 1988. Introduction to Mycology. Wiley Eastern, New Delhi.
2. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
3. Sharma, O. P. 1992. Textbook of Thallophyta. McGraw Hill Publishing Co., New Delhi
4. Vashishta, B. R., A. K. Sinha and V. P. Singh. 2008. Botany for Degree Students: Algae. S. Chand & Company Ltd, New Delhi.
5. Sambamurthy, A. V. S. S. 2006. A Textbook of Plant Pathology. I. K. International Pvt. Ltd., New Delhi.
6. Sambamurthy, A. V. S. S. 2006. A Textbook of Algae. I. K. International Pvt. Ltd., New Delhi.
7. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
8. Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.

B.Sc(Botony) CBCS II-SEMSTER**PAPER -II****PAPER -II****Bryophytes, Pteridophytes, Gymnosperms and Paleobotany**

Lecturer	TOPIC	Remarks
UNIT - I		
Lecturer-1	Bryophytes General characters	
Lecturer-2	Bryophytes General characters	
Lecturer-3	Bryophytes classification	
Lecturer-4	Marchantia thallus structure and thallus T.S	
Lecturer-5	Marchantia Archegoniophore, Antheridiophore	
Lecturer-6	Marchantia sporophyte	
Lecturer-7	Anthoceros thallus structure, thallus T.S	
Lecturer-8	Anthoceros, Antheridiophore Archegoniophore	
Lecturer-9	Anthoceros sporophyte	
Lecturer-10	Polytrichum Protonema, thallus Morphology	
Lecturer-11	Polytrichum stem, Leaf, Rhizome T.S	
Lecturer-12	Polytrichum Antheridium, Archegonium	
Lecturer-13	Polytrichum Sporophyte	
Lecturer-14	Evolution of Sporophyte in Bryophyte - Prograssive Theory	
Lecturer-15	Theory of progressive simplification	
UNIT -II		
Lecturer-16	General characters of Pteridophytes	
Lecturer-17	General characters of Pteridophytes	
Lecturer-18	Pteridophytes classification	
Lecturer-19	Rhynia Morphology and Anatomy	
Lecturer-20	Rhynia reproduction	
Lecturer-21	Lycopodium thallus, root, stem T.S	
Lecturer-22	Lycopodium Reproduction	
Lecturer-23	Equisetum Sporophyte, stem T.S	
Lecturer-24	Equisetum Reproduction	
Lecturer-25	Marsilea sporophyte, petiole T.S	
Lecturer-26	Marsilea stem T.S (Rhizone)	
Lecturer-27	Marsilea Reproduction	
Lecturer-28	Development of male and female Gamatophyte	
Lecturer-29	Stelor evolution in Pteridophytes	
Lecturer-30	Heterospory and seed habit in Pteridophytes	
UNIT - III		
Lecturer-31	Gymnosperms General charactors.	
Lecturer-32	Gymnosperms General charactors.	
Lecturer-33	Classification of Gymnosperms - Van Tieghem, Eichler	
Lecturer-34	Classification of Gymnosperms - Camberlin and Sporne classification	
Lecturer-35	Distribution of Gymnosperms in the world	
Lecturer-36	Economic importance of Gymnosperms	
Lecturer-37	Economic importance of Gymnosperms	
Lecturer-38	Pinus Morphology, needle T.S	
Lecturer-39	Pinus Male cone, female cone	
Lecturer-40	Pinus ovule and male and female Gamatophyte development	
Lecturer-41	Sporophytice phase, seed formation	

Lecturer-42	Gnetum morphology, stem T.S	
Lecturer-43	Gnetum male cone and female cone	
Lecturer-44	Gnetum female Gamatophyte development	
Lecturer-45	Gnetum male gamotophyte development, seed Germination	
UNIT -IV		
Lecturer-46	Paleobotany introduction - Fossils	
Lecturer-47	Types of Fossils - Petrified, Fossils, Molds and Casts.	
Lecturer-48	Types of Fossils - Carbon films, Trace fossils, Preserved remains	
Lecturer-49	Types of Fossils - Compressions, impressions, Pseudo fossils	
Lecturer-50	Methods of Fossilization - Petrification, Mold, & Cast carbonization	
Lecturer-51	Methods of Fossilization - Trace fossils, Tracks, Burrows, coprolites	
Lecturer-52	Method of Fossilization - Preservation, Compression, Natural molds	
Lecturer-53	Importance of Fossils	
Lecturer-54	Geological time Scale - Precambrian, Archeozoic	
Lecturer-55	Geological time Scale - Proterozoic, Paleozoic	
Lecturer-56	Geological Time Scale - Mesozoic	
Lecturer-57	Geological Time Scale - Coenozoic	
Lecturer-58	Bennettitales - General Account	
Lecturer-59	Williamsonia -	
Lecturer-60	Cycadoidae -	

REFERENCE BOOKS :

1. Watson, E. V. 1974. The structure and life of Bryophytes, B. I. Publications, New Delhi.
2. Pandey, B. P. 2006. College Botany, Vol. II: Pteridophyta, Gymnosperms and Paleobotany.
3. Sporne, K. R. 1965. Morphology of Gymnosperms. Hutchinson Co., Ltd., London.
4. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany - Pteridophyta (Vascular Cryptogams).
5. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology,
6. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams,
7. Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams.
8. Vashishta, B. R., A. K. Sinha and Adarsha Kumar. 2008. Botany for Degree Students: Bryophyta.
9. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany for Degree Students: Gymnosperms.
10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.

B.Sc(CBCS) BOTANY-II YEAR
III-Semester
PAPER-III

PAPER -III TAXONOMY OF ANGIOSPERMS AND MEDICINAL BOTANY

Lecturer	TOPIC	Remarks
UNIT-I		
Lecturer-1	Introduction Taxonomy	
Lecturer-2	Principles of plant systematics	
Lecturer-3	Types of Classification	
Lecturer-4	Systems of Classification Bentham & Hooker	
Lecturer-5	Engler & Prantle	
Lecturer-6	Salient features and comparative account of Bentham & Hooker and Engler & Prantle	
Lecturer-7	An introduction to Angiosperms Phylogeny Group (APG)	
Lecturer-8	Embryology in relation to taxonomy	
Lecturer-9	Cytotaxonomy	
Lecturer-10	Chemotaxonomy	
Lecturer-11	Numerical Taxonomy	
Lecturer-12	Nomenclature and Taxonomic resources	
Lecturer-13	An Introduction to ICBN	
Lecturer-14	Vienna Code - a brief account	
Lecturer-15	Herbarium : Concept, techniques and applications	
UNIT-II		
Lecturer-16	systematic study and economic importance of plants belonging to polypetalae- Annonaceae.	
Lecturer-17	capparidaceae	
Lecturer-18	Rutaceae	
Lecturer-19	Fabaceae	
Lecturer-20	Caesalpinioideae	
Lecturer-21	Mimosoideae	
Lecturer-22	Cucurbitaceae	
Lecturer-23	Gamopetalae - Apiaceae	
Lecturer-24	Asteracea	
Lecturer-25	Asclepiadaceae	
Lecturer-26	Lamiaceae	
Lecturer-27	Monochlamydeae - Amaranthaceae	
Lecturer-28	Euphorbiaceae	
Lecturer-29	Monocotyledons : Orchidaceae	
Lecturer-30	Poaceae	
UNIT -III		
Lecturer-31	Ethnomedicine : Scope	
Lecturer-32	Interdisciplinary nature	
Lecturer-33	Distinction of Ethnomedicine from Folkole medicine	
Lecturer-34	Out line of Ayurveda	
Lecturer-35	Out line of "Sidda and Unani	
Lecturer-36	Homeopathic System	
Lecturer-37	Role of AYUSH, NMPB	
Lecturer-38	Role of CIMAP and CDRI	
Lecturer-39	Plant in primary health case : Common medicinal plants. Tippiateega (Teenospora cordifolia)	
Lecturer-40	Tulsic Ocimum sanctum	

Lecturer-41	Pippallu (Piper longum)	
Lecturer-42	Karakaya (Tesminalia Chebula)	
Lecturer-43	Kalabanda (Aloe Vera)	
Lecturer-44	Turmeric (Curcuma Longa)	
Lecturer-45	Evolution of Crude drugs	
UNIT - IV		
Lecturer-46	Traditional medicine Vs Modern medicine	
Lecturer-47	Study of selected plants examples used traditional medicine as resource active principle of Ashwagandha (Structure)	
Lecturer-48	Usage and pharmacological action of Ashwagandha (Withania Somniphera)	
Lecturer-49	Active principles and structure of Sarpagandha (Rowlfia Serpentina)	
Lecturer-50	Usage and pharmacological action of Ashwagandha	
Lecturer-51	Nela Usiri (Phyllanthus amarus)	
Lecturer-52	Amla (Phyllanthus embica)	
Lecturer-53	Brahmi (Bacopa Monnieri)	
Lecturer-54	Pharmacognosy - Introduction and scope	
Lecturer-55	Adulteration of plant crude drugs	
Lecturer-56	Pharmacognosy - methods of identification - some examples.	
Lecturer-57	India Pharmacopoeia	
Lecturer-58	Plant crude drugs - Types	
Lecturer-59	Plant crude Drugs - Methods of collection	
Lecturer-60	Plant Crude Drugs - processing and storage practices.	

REFERENCE BOOKS :

Pandey, B. P. 2007. Botany for Degree Students: Diversity of Seed Plants and their Systematics, Structure, Development and
Rastogi, R. R. and B. N. Mehrotra. 1993. Compendium of Indian Medicinal Plants. Vol. I & Vol. II. CSIR, Publication and
Sivarajan, V. V. and I. Balasubramanian. 1994. Ayurvedic Drugs and their Plant Sources. Oxford and IBH, New Delhi.
Stace, C. A. 1989. Plant Taxonomy and Biostatistics (2nd Ed.). Edward Arnold, London.
Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
Davis, P. H. and V. H. Heywood. 1963. Principles of Angiosperm Taxonomy. Oliver and Boyd, London
Heywood, V. H. 1965 . Plant Taxonomy. ELBS , London.
Heywood, V. H. and D. M. Moore (Eds). 1984. Current Concepts in Plant Taxonomy. Academic Press, London
Jain, S. K. and V. Mudgal. 1999. A Handbook of Ethnobotany. Bishen Singh Mahendra Pal Singh, Dehradun
Jeffrey, C. 1982. An Introduction to Plant Taxonomy. Cambridge University Press, Cambridge. London
Joshi, S. G. 2000. Medicinal Plants. Oxford and IBH, New Delhi.
Kokate, C. and Gokeale- Pharmacognosy- Nirali Prakashan, NewDelhi
Lad, V. 1984. Ayurveda – The Science of Self-healing. Motilal Banarasidass, New Delhi
Lewis, W. H. and M. P. F. Elwin Lewis. 1976. Medical Botany. Plants Affecting Man's Health. A Wiley Inter science Publication.

B.Sc(CBCS)BOTANY-II YEAR**IV- Semester****PAPER - IV****PAPER -IV****PLANT ANATOMY , EMBRYOLOGY AND PALYNOLOGY**

Lecturer	Topic	Remarks
UNIT -I		
Lecturer-1	Meristems Types	
Lecturer-2	Histological Organisation of shoot apices theories	
Lecturer-3	Histological Organisation of root apices theories	
Lecturer-4	Simple tissues parenchyma,Collenchyma	
Lecturer-5	Sclerenchyma	
Lecturer-6	Complex Tissue:Xylem	
Lecturer-7	Complex Tissue:Phloem	
Lecturer-8	Special Tissue	
Lecturer-9	Special Tissue	
Lecturer-10	Dicot Leaf T.S	
Lecturer-11	Monocot Leaf T.S	
Lecturer-12	Stomata Structure	
Lecturer-13	Types of Stomata	
Lecturer-14	Epidermal Out Growths	
Lecturer-15	Epidermal Out Growths	
UNIT-II		
Lecturer-16	Stem and root anatomy	
Lecturer-17	Vascular Cambium Formation	
Lecturer-18	Vascular Cambium Function	
Lecturer-19	Anomalous Secondary Growth of Achyranthus Stem	
Lecturer-20	Boerhaavia	
Lecturer-21	Bignonia	
Lecturer-22	Dracaena	
Lecturer-23	Root-Beta Vulgaris	
Lecturer-24	Wood Introduction and Structure	
Lecturer-25	Properties of wood	
Lecturer-26	Uses of wood , Teak	
Lecturer-27	Rose Wood	
Lecturer-28	Red Sanders	
Lecturer-29	Nallamaddi	
Lecturer-30	Neem	
UNIT -III		
Lecturer-31	Introduction and History of Embryology	
Lecturer-32	Importance of Embryology	
Lecturer-33	Anther Structure	
Lecturer-34	Micro Sporogenesis	
Lecturer-35	Pollen Tetrads	
Lecturer-36	Dehiscence of Pollen and Male Gametophyte	
Lecturer-37	Male Gametophyte Development	
Lecturer-38	Abnormal Features of Pollengrain	
Lecturer-39	Ovule Structure and Types	
Lecturer-40	Parts of Ovule	

Lecturer-41	Mega Sporogenesis	
Lecturer-42	Female Gametophytes Development	
Lecturer-43	Types of Embryosac-Monosporic Embryosac	
Lecturer-44	Bisporic Embryosac	
Lecturer-45	Tetra Sporic	
UNIT-IV		
Lecturer-46	Pollination	
Lecturer-47	Pollen - Pistil Interaction	
Lecturer-48	Fertilization	
Lecturer-49	Post Fertilization Changes	
Lecturer-50	Endosperm Development	
Lecturer-51	Endosperm Types	
Lecturer-52	Embryo-Development and types	
Lecturer-53	Poly Embryony	
Lecturer-54	Apomixis	
Lecturer-55	Palynology Introduction	
Lecturer-56	Pollen Morphology	
Lecturer-57	Pollen Morphology	
Lecturer-58	Npc System	
Lecturer-59	Pollen Wall	
Lecturer-60	Applications of Palynology	

REFERENCE BOOKS :

- Bhattacharya et. al. 2007. A textbook of Palynology, Central, New Delhi.
New Delhi. Bhojwani, S. S. and S. P. Bhatnagar. 2000. The Embryology of Angiosperms (4th Ed.), Vikas Publishing
M.R.Saxena- A textbook of Palynology.
Vashista- A textbook of Anatomy.
P.K.K.Nair- A textbook of Palynology.
Esau, K. 1971. Anatomy of Seed Plants. John Wiley and Son, USA.
Johri, B. M. 1984. Embryology of Angiosperms. Springer-Verleg, Berlin.
Kapil, R. P. 1986. Pollination Biology. Inter India Publishers, New Delhi.
Maheswari, P. 1971. An Introduction to Embryology of Angiosperms. McGraw Hill Book Co., London.
Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.