

MDS UNIVERSITY B.Sc. Part -1

BOTANY

Examination Scheme-Theory		Duration	M.M.	Min
Paper-I	Microbiology, Mycology & Phytopathology	3hrs	50	} 54
Paper- II	Algae, Lichens and Bryophyta	3hrs	50	
Paper- III	Pteridophytes and Paleobotany	3hrs	50	
Practicals Based on suggested practical Exercises of Papers I, II & III (One day)			5 hrs	75 27

Paper – 1 MICROBIOLOGY MYCOLOGY & PHYTOPATHOLOGY

Unit – I MICROBIOLOGY

Virus – Discovery General structure of virus, classification of virus (Balty more) Replication of virus (General account) lytic and lysogenic cycles Economic importance of viruses, Bacteriophages.

Bacteria – Discovery General characters, cell structure & type archaeobacteria, eubacteria, Gram's positive and Gram's negative bacteria nutritional types and reproduction in bacteria – vegetative, asexual & recombination types (conjugation, transformation & transduction).

Mycoplasma – General account. Cyanobacteria – general characters & economic importance & life history of Oscillatoria & Nostoc.

Unit – II MYCOLOGY

General characters & classification of fungi (Alxopolus & Mim's) Economic importance of fungi, important features & life history of :-

- Mastigomycotina – phytophthora.
- Zygomycotina – Mucor
- Ascomycotina – Pezziza
- Basidiomycotina – puccinia, Agaricus, ustilago
- Deuteromycotina – Cercospora.

Unit – III PHYTOPATHOLOGY

Occurrence, diseases symptoms, pathology, treatment & control of following plant diseases.

Viral -	1 Tobacco mosaic virus. 2 Yellow vein mosaic of Bhindi
Bacterial	1 Citrus canker
Mycoplasm	1 Little leaf of Brinjal
Fungi	1 Rust disease of wheat 2 Smut disease of wheat 3 Tikka disease of Groundnut

Suggested Readings:

Smith, GM. 1971. Cryptogamic Botany. Vol. 1 Algae & Fungi. Tata McGraw Hill Publishing Co, New Delhi.

Sharma, O.P. 1992. Text Book of Thallophytes. McGraw Hill Pub. Co.

Sharma. P.D. 1991. The Fungi. Rastogi & Co. Meerut.

Dube. H.C. 1990. An Introduction to Fungi. Vikas Pub. House Pvt. Ltd. Delhi.

Clifton A. 1985. Introduction of the Bacteria. McGraw Hill & Co. New York.

Suggested Laboratory Exercises:

1. Study of genera included under Microbiology, Fungi and Pathology.
2. Observation of disease symptoms in hosts infected by fungi, viruses, bacteria and mycoplasma. Section cutting of diseased material and identification of the pathogens as per the theory syllabus.

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Paper – 2 ALGAE, LICHENS AND BRYOPHYTA

I ALGAE - General characters and thallus organization, types of Pigments and reserve food material in algae. Classification (Fritsch's classification) and economic importance of Algae.

Important features and life history of :-

- a. Chlorophyceae – Volvox, oedogonium, chara.
- b. Xanthophyceae – Vaucheria

II ALGAE & LICHENS –

Important features and life history of :-

- A. Phaeophyceae – Ectocarpus, Sargassum
- B. Rhodophyceae – Polysiphonia

General account of lichens, study of growth forms of lichens (Crustose, Foliose & Fruticose) on different substrates, study of thallus and reproductive structures (soredia & apothecium) Mycorrhizae, ectomycorrhizae & endomycorrhizae (phylograph) and their significance.

III BRYOPHYTA – General characters and classification of Bryophyta, economic importance of Bryophyta. Evolutionary trends in thallus & sporogonium. Structure, reproduction and classification of :-

- A. Hepatecopsida – Riccia, Marchantia
- B. Anthocerotopsida – Anthocerose
- C. Bryopsida – Funaria.

Suggested Readings:

Smith, GM. 1971. Cryptogamic Botany. Vol. 1 Algae & Fungi. Tata McGraw Hill Publishing Co, New Delhi.

Sharma, O.P. 1992. Text Book of Thallophytes. McGraw Hill Pub. Co.

Smith, GM. 1971. Cryptogamic Botany. Vol-II Bryophytes and Pterido-phytes. Tata McGraw Hill Pub. Co. New Delhi.

Puri, P. 1980. Bryophyta. Atma Ram & Sons Delhi.

Suggested Laboratory Exercises:

Study of morphology, reproductive structures and anatomy of the examples cited in the theory under Algae, Lichens and Bryophyta.

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Paper – III PTERIDOPHYTA & PALEOBOTANY

UNIT- I PTERIDOPHYTA – The first vascular plants – study of pteridophytes in India, characteristics & Broad classification of pteridophytes Stejar system in pteridophytes, origin of seed habit – hetrospory. Important characters of psilopsida, lycopsida, sphenopsida & pteropsida.

UNIT- II PTERIDOPHYTA – Structure and reproduction in

- A. Lycopodium
- B. Sleginella
- C. Equisetum
- D. Pteris and
- E. Marsilia

UNIT- III PALEOBOTANY – History and general account of Paleobotany in India, Geological time scale; Process of fossilization, types of fossils, basic idea of techniques of calculating the age of fossils.

Study of fossil plants – **Rhynia, Williamsonia**

Suggested Readings:

Smith, GM. 1971. Cryptogamic Botany. Vol-II Bryophytes and Pterido-phytes. Tata McGraw Hill Pub. Co. New Delhi.

Sharma, O. P. Text Book of Pteridophyta McMillan India Ltd.

Suggested Laboratory Exercises:

Study of morphology, reproductive structures and anatomy of the examples cited in the theory under Pteridophyta & Paleobotany.

