

**M.Sc. BOTANY**  
**SYLLABUS**  
**2018-2020**

**SEMESTER -I**

**Paper-I**  
**BOT F01**  
**Foundation Course**

**Credits: 05**

**Full Marks: 70**

**Time: 03 Hrs.**

In all nine questions of equal value will be set, out of which a student shall have to answer five questions. Q.no. 1 will be compulsory, consisting of seven very short answer type questions (each of two marks) covering the entire syllabus and the candidates are required to give their answers in maximum 50 words.

- 1) Structure and evolutionary relationship of Prokaryote, Mesokaryote and Eukaryote
- 2) Salient features and life cycle patterns in algae.
- 3) Salient features and life cycle patterns in fungi.
- 4) Salient features and life cycle patterns in Bryophytes.
- 5) Salient features and life cycle patterns of Pteridophytes.
- 6) Salient features and distribution of Gymnosperms.
- 7) International Code of Botanical Nomenclature (ICBN): History of ICBN, principles, rules, types method, author citation, valid and effective publication, principle of priority.
- 8) Herbarium, important herbaria and botanical gardens of India and the world

**Paper-II**  
**BOT C02**  
**Core Course-I**

**Microbiology, Mycology, Phycology and Plant Pathology**

**Credits: 05**

**Full Marks: 70**

**Time: 03 Hrs.**

In all nine questions of equal value will be set, out of which a student shall have to answer five questions. Q.no. 1 will be compulsory, consisting of seven very short answer type questions (each of two marks) covering the entire syllabus and the candidates are required to give their answers in maximum 50 words.

- 1) Bacteria: Reproduction in Bacteria-Binary Fission, Recombination-Conjugation, Transformation and Transduction, Economic importance of bacteria with special reference to agriculture, industry and medicine.
- 2) Cyanobacteria : Ultra-Structure of a typical Cyanobacterial Cell, Economic importance.
- 3) Virus:- Nomenclature and classification, distinctive properties of virus, morphology and ultra structure, Viral replication: lytic and lysogenic.
- 4) Mycoplasma : Structure, life cycle and significance.
- 5) Fungi : Structure, life cycle and phylogeny of Chytridiales and Moniliales; General account of Mycotoxin, mycorrhizae; Fungi as biocontrol agents.
- 6) Algae:- Role of pigments, reserve food and flagella in the Classification of algae, Structure, life cycle and phylogeny of Charales and Fucales; Evolution of sex in algae; Economic Importance of Algae with special reference to Algal bloom, biofertilizers and indicator of water pollution.
- 7) Symptoms, etiology and control measures of the following diseases:
  - (i) Bacterial leaf blight of paddy
  - (ii) Leaf curl of papaya
  - (iii) Little leaf of brinjal.

**Paper III**  
**BOT C03**  
**Core Course-II**  
**Bryophyta, Pteridophyta, Gymnosperms**

**Credits: 05**

**Full Marks: 70**

**Time: 03 Hrs.**

In all nine questions of equal value will be set, out of which a student shall have to answer five questions. Q.no. 1 will be compulsory, consisting of seven very short answer type questions (each of two marks) covering the entire syllabus and the candidates are required to give their answers in maximum 50 words.

- 1) Bryophytes: Structure, reproduction, affinities and evolutionary trends of the following orders- Sphaerocarpaceae, Sphagnales; Evolution of gametophytes and sporophytes in bryophytes; Fossil Bryophytes
- 2) **Pteridophytes: Classification of Pteridophytes (Sporne 1975)** ; Telome theory; its merits and weaknesses ; Stele organization and evolution of stele in pteridophytes ; Heterospory in pteridophytes; Economic importance of Pteridophytes; Structure, reproduction, affinities and evolutionary trends of the following orders: Psilophytales, Psilotales and Marsiliales.
- 3) **Gymnosperm: Classification of Gymnosperm (Sporne 1965)**; Structure, reproduction, affinities and evolutionary trends of Pinetales, Ginkgoales, Taxales, Gnetales (emphasis on angiospermic features) ; Evolution of female gametophytes in gymnosperms; Fossil gymnosperm flora of Jharkhand.

**Paper-IV : Practical Paper**  
**BOT C04**  
**Credits: 05**

**Full Marks: 70**

**Time: 06 Hrs.**

- 1) Identification of the members of different Groups of algae.
- 2) Study and identification of the genera of different Groups of fungi.
- 3) Study of general habit, external and internal morphology of vegetative and reproductive features of the bryophytes.
- 4) Study of general habit, external and internal morphology of vegetative and reproductive features of the members of different groups of pteridophytes.
- 5) Study of general habit, external and internal morphology with special reference to their male and female reproductive structures of the members of different group of gymnosperms.
- 6) Spotting; related to Microbiology, Phycology, Mycology, Bryophyta, Pteridophyta, Gymnosperms and fossils.
- 7) General overview of plant diseases.
- 8) Viva-voce
- 9) Practical records, field reports, herbarium, charts, models etc.