(2+) (6)

CLUSTER UNIVERSITY SRINAGAR

-Botany-

Semester - I

Biodiversity (Microbes, Algae, Fungi and Archegoniate)

(Credits: Theory-4, Practicals-2)

THEORY

Lectures: 60

Unit 1: Microbes and Fungi **(16 Lectures)**

Viruses: Discovery, general structure, replication, DNA virus (T-phage); lytic and lysogenic cycle, RNA virus (TMV).

Bacteria: General characteristics and cell structure; reproduction – vegetative, asexual and recombination (conjugation, transformation and transduction); economic importance.

Fungi: General characteristics, classification (Alexopolous, Mims & Blackwell, 1979), cell wallcomposition, nutrition and reproduction; life cycle of *Rhizopus*(Zygomycota), *Venturia*(Ascomycota), *Agaricus*(Basidiomycota).

Symbiotic Associations: Lichens and Mycorrhiza - general account and significance.

Unit 2: Cyanobacteria &Algae **(14 Lectures)**

Cyanobacteria-Structure and life cycle of *Nostoc*

General characteristics, classification of algae (Round, 1973), criteria for algal classification; range of thallus organization; morphology, reproduction and life cycle of *Chlamydomonas, Oedogonium, Vaucheria, Ectocarpus, Batrachospermum*; economic importance of algae.

Unit 3: Bryophytes **(14 Lectures)**

Archegoniate – General characteristics.

Bryophytes - General characteristics, Proskauer's classification; morphology,anatomy and reproduction (excluding developmental details) of *Marchantia*and *Funaria*;Evolution of sporophyte; apogamy and apospory; alternation of generation; adaptations to land habit,economicimportance of bryophytes.

Unit 4: Pteridophytes and Gymnosperms **(16 Lectures)**

Pteridophytes- General characteristics; classification of pteridophytes (Sporne, 1965); Earlyland plants (*Rhynia*); morphology, anatomy and reproduction (excluding developmentaldetails) of *Dryopteris*and*Slagenella*; heterospory and origin of seed habit; evolution ofstellar systems in pteridophytes.

Gymnosperms - General characteristics, classification – Christenhusz*et al*. 2011 (uptofamily); morphology, anatomy and reproduction (excluding developmental details) of *Cycas*and *Pinus*; economic importance of gymnosperms.

PRACTICAL

i. Models / photographs of viruses – T-Phage and TMV, drawing / photograph of lyticand lysogenic Cycle.
ii. Types of bacteria from temporary/permanent slides/photographs; Gram staining