

## UNIT-V

12. Taxonomic and morphological characteristics of the following :

*Paeonia, Exocarpus, Trapa, Sphenoclea, Nyctanthes, Funaria, Calycanthus, Polygala, Aristolochia, Casuarina, Passiflora, Centella, Dischidia, Ultricularia, Tillandsia, Butomus, Butomopsis, Alisma.*

## M.Sc. (FINAL) BOTANY

### PAPER-VIII D ADVANCED PLANT PATHOLOGY

#### UNIT-I

Diseases and their causes : Scope and history of plant pathology with special reference to contribution by Indian Phytopathologists. Concept of disease, animate and non-animate causes of plant diseases, introduction to disease causing pathogens and symptoms caused by them. Plant parasitic nematodes and their classification. Morphology, anatomy and life-cycles of some important phytophagous nematodes like *Meloidogyne, Heterodera, Anguina* and *Rotylenchulus*. Insects and mites induced plant galls : their types and classification and structure.

#### UNIT-II

Disease Development and Diagnosis : Mechanism of penetration, transmission and host defense invoked by different phytopathogens. Factors affecting infections. Toxins and phytoalexins and their significance in disease development and defense. Virulence inoculum potential and pre-disposition factors for disease development and epiphytotics. Modern tools of plant disease diagnosis and surveillance. Role of monoclonal antibodies and serology in plant disease diagnosis. Integrated approaches to plant disease management (Preventive, Curative and biological methods). Seed and soil borne

microbes and their role in plant diseases. Control of soil borne fungi by antibiosis.

### UNIT-III

Study of deranged metabolism of host under pathogenesis with special reference to phenolics, carbohydrates, enzymes, plant growth regulators and other metabolites. Application of plant tissue culture techniques in plant pathology with special reference to culture of biotrophic fungi, elimination of viruses, screening of germplasm and development of disease resistant lines. Genetic regulation of defense in plants. Susceptibility and resistance phenomena. Physiological specialization of parasitic fungi. Molecular basis of host-parasite interaction with special reference to crown-gall pathogen.

### UNIT-IV

Study of symptoms, etiology, perpetuation and control measures of following plant diseases caused by fungi : Wheat-Rust, Blight, Powdery Mildew; Bajra-Green-ear, Ergot, Smut; Maize-Blight, Downy Mildew, Smut ; Jowar-Smut; Rice-Blast Ground nut-Tikka; Sarson-White Blisters; Gram-Blight, Rust; Sugarcane-Red-Rot.

### UNIT-V

Study of symptoms, etiology, perpetuation and control measures of following plant diseases caused by viruses, phytoplasma, bacteria, nematodes, insects

and mites : Tobacco-Tobacco Mosaic Virus; Chillies-Leaf-curl; Tomato-Leaf-curl; Papaya-Vein-clearing and leaf curl; Citrus-Canker; Sesame-Phyllody; Root knot-Vegetable crops; Cyst Nematode of wheat, Molya disease of wheat, Tundu disease of wheat; plant galls of *Pongamia*, *Cordia*, *Ficus*, *Zizyphus* and *Prosopis*.

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