

K.T.S.P.MANDAL'S  
 SAHEBRAOJI BUTTEPATIL MAHAVIDYALAYA  
 RAJGURUNAGAR, TAL-KHED, DIST-PUNE.

Dept. of Botany  
 Teaching Plan  
 F. Y. B. Sc. - 2018 - 19  
 Plant Diversity  
 (Term - II; Paper - I)

Sr. No	Month	Topics	Teacher
1	Nov/Dec	<b>Morphology</b> Introduction, Definition and Scope. Descriptive and Interpretative. Importance in identification, nomenclature, classification, phylogeny and Plant breeding.	SMJ
2	Dec	<b>Morphology of Vegetative Parts</b> Root: Types of roots, Modifications of roots: Epiphytic, Respiratory (Pneumatophores), Parasitic and Storage roots (conical, fusiform and napiform) with examples; functions of root. Stem: Modifications of Stem: Phyloclade, Runner, Stolon, Suckers, Offsets, Rhizome, Corm, Tuber and Bulb with examples. Functions of stem. Leaf: Parts of typical leaf: petiole, lamina; leaf margins and apices. Types of leaves: simple, compound, venation, phyllotaxy. Modifications: tendrils, spines, scale leaves, phyllode, reproductive and trap leaves (mechanism of trapping in Nepenthes only) with examples. Functions of leaf.	SMJ
3	Jan	<b>Morphology of Reproductive Parts</b> <b>Inflorescence:</b> Types of inflorescence: Racemose (raceme, spike, corymb, umbel, catkin, spadix and capitulum), Cymose (solitary, monochasial, dichasial, polychasial), Special types (Verticillaster, Cyathium, and Hypanthodium) Significance. <b>Flower:</b> Parts of typical flower, Types of flower (complete, incomplete), symmetry of flower and insertion of floral whorls. Floral whorls: Calyx, corolla, perianth, aestivation, modifications of calyx (pappus, petaloid, spurred), forms of corolla: polypetalous (cruciform and papilionaceous) gamopetalous (infundibuliform, bilabiate), Androecium: structure of stamen, fixation of anthers, cohesion and adhesion; Gynoecium: structure of carpel. Types of placentations.	SMJ
4	Jan/Feb	<b>Fruit:</b> Types of fruits: Simple and dry: Achene, Cypsela, Legume, Follicle and Capsule, Fleshy: Drupe, berry, Hesperidium and pepo. Aggregate: Etaerio of berries and Etaerio of follicles. Multiple fruits: Syconus and Sorosis. <b>Seed:</b> Parts, types, structural modifications for seed dispersal. <b>Anatomy</b> Introduction, Definition, Importance in taxonomy, physiology, ecological interpretations, pharmacognosy and wood identification.	SMJ

**Types of tissues**

Outline with brief description.

Meristmatic tissues: - Meristem, characters and types based on origin, position and plane of division, functions.

Vascular tissues:- Components of xylem and phloem, types of vascular bundles, functions.

Epidermal tissues:- Epidermis, structure of typical stomata, trichomes, motor cells; functions.

Mechanical tissues:- Collenchyma, sclerenchyma and xylem with functions.

**Internal Organization of Primary Plant Body**

Internal structure of dicotyledon and monocotyledon root.

Internal structure of dicotyledon and monocotyledon stem.

Internal structure of dicotyledon and monocotyledon leaf.

Revision & Question paper discussion

Internal Theory Examination

SMJ

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1	Nov/Dec	<p><b>Bio-fuel Industry</b> Introduction and advantages. Concept of biofuel and its need. Plants used for biofuel production. Biodiesel production from Caster. Commercial significance</p> <p><b>Bio-pesticide Industry</b> Concept of bio-control; Integrated Pest Management (IPM). Importance of bio pesticides. Types of bio pesticides: Indiar, Azadiractin. Commercial significance.</p>	SMJ
3	Dec	<p><b>Industrial Mycology</b> Introduction. Important genera of fungi used in various industries and their products. Products and applications of Trichoderma, Penicillium, Aspergillus and yeast. Commercial significance</p>	SMJ
4	Jan	<p><b>Bio-Fertilizer Industry</b> Bio fertilizers : concept and need . Types of bio-fertilizers: Nitrogen fixing bio fertilizer: Rhizobium, Bluegreen algae. Anabaena associated with Azolla. Phosphate solubilizing biofertilizer: Bacteria and Fungi. Commercial significance</p> <p><b>Fruit Processing Industry</b> Fruit processing: concept and need. Cold storage. Types of fruit processing (canned fruits, dried fruit chips, fruit pulp, squash, jam, jelly, pickle and ketchups). Commercial significance.</p>	SMJ



5	Feb	<p><b>Plant Pharmaceutical Industry</b>          Concept and advantages.          Types of pharmaceutical products: Churna, Asava and Arishta.          Drug plants with reference to botanical source, active principles and medicinal uses of <i>Adathoda zeylanica</i>, <i>Tinospora cordifolia</i> and <i>Asperagus racemosus</i>.          Manufacture of Churna (Triphala churna), Arishta (Ashokarishta) and Asava (Kumariasava).          Concept of nutraceuticals and cosmeceuticals.          Commercial significance of Amla and Aloe.</p> <p><b>Revision &amp; Question paper discussion</b>  <b>Internal Theory Examination</b></p>	SMJ
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