SYLLABUS

BSC III (BOTANY)PAPER I
ANALYTICAL TECHNOLOGY PLANT PATHOLOGY, EXPERIMENTAL EMBRYOLOGY, ELEMENTARY BIOSTATICS, ENVIRONMENTAL POLLUTION AND CONSERVATION

UNIT I Structure , principle and application of analytical instrumentation Chromatography technique, oven, incubator, autoclave, centrifuge, spectrophotometer

UNIT II Plant tissue culture techniques, growth media, totipotency, protoplast culture, somatic hybrids and cybrids, micropropagation, somaclonal variations, haploid culture, Analytical techniques: Microscopy- Light Microscope, Electron Microscope

UNIT III
General principles of plant pathology, general symptoms of fungal, bacterial and viral diseases,mode of infection, diseases resistance and control measures, plant quarantine. A study of epidemiology and etiology of following plant diseases. Rust disease of wheat, Tikka disease of ground nut, red rot of sugar cane, bacterial blight of rice, yellow vein mosaic of bhindi, little leaf of brinjal

UNIT IV
Introduction to pollution, green house gases, ozone depletion, dissolve oxygen BOD, COD Bio magnification, Eutrophication, Acid precipitation, Phytoremediation, plant indicators, Biogeographical Zones of India, Concept of biodiversity, CBD, MAB, National parks and biodiversity. Hot spots, Conservation strategies. Red data book, IUCN threat categories, invasive species, endemic species, concept of sustainable development

UNIT V
Elementary Biostatistics Introduction and application of Biostatics, measure of central tendency-Mean, Median, measures of dispersal-Standard deviation, standard error.

PAPER II
GENETICS, MOLECULAR BIOLOGY, BIOTECHNOLOGY AND BIOCHEMISTRY

UNIT I Cell and cell organelles, organization and morphology of chromosomes, giant chromosomes, cell division. Mendel's laws, gene interactions, linkage and crossing over, chromosomal aberration, polyploidy, sex linked inheritance, sex determination, cytoplasmic inheritance, gene concept; cistron, muton, recon

UNIT II Nucleic acids, structure and forms of DNA and RNA, DNA/RNA as genetic material, replicationof DNA, biochemical and molecular basis of mutation, genetic code and its properties, mechanism of transcription and translation in prokaryotes, regulation of gene expression, Operon model

UNIT III Recombinant DNA, Enzymes in recombinant DNA technology, cloning vectors (Plasmid, Bacteriophages, Cosmids, Phagemids), gene cloning PCR, Application of Biotechnology; G.M. Plants, Monoclonal antibodies, DNA finger printing.

UNIT IV Protein: chemical composition, primary, secondary and tertiary structure of proteins
Carbohydrate: general account of monosaccharides, disaccharids and Polysaccharides
Fat: structure and properties of fats and fatty acids, synthesis and breakdown

UNIT V Enzymes: Nomenclature and classification, components of enzyme, theories of enzyme action, enzyme kinetics (Michaelis-Menten constant), allosteric enzymes, isozymes, Abzymes, Ribozymes, factors affecting enzyme activity.

List of Practical

1. Study of host parasite relationship of plant disease listed above.
2. Demonstration of preparation of Czapek's Dox medium and Potato dextrox agar medium, sterilization of culture medium and pouring.
3. Inoculation in culture tubes and pouring
4. Gram staining
5. Microscopic examination of curd
6. Study of plant disease as listed in the theory paper
7. Biochemical test of carbohydrate and protein
8. Instrumentation techniques

PRACTICAL SCHEME Time : 4 Hrs. M.M. : 50

Plant Disease symptoms	10
Instrumentation techniques	05
Staining of microbes	05
Tissue Culture techniques	05
Spotting	10
Project Work/field study	05
Viva-Voce	05
Sessional	05
Total	50