Lesson Plan-Session: 2023-24 (odd semester)

Name: Dr. Shweta Pandey

Class: BSc Medical Ist Sem

Lesson Plan: PAPER – I DIVERSITY OF MICROBES

August -2023
Bacteria: Structure, nutrition, reproduction and economic importance **Cyanobacteria**: General characters; life-history of *Nostoc* **Algae:** General characters, classification (upto classes) and economic importance; General account of algal blooms
Test-1

September-2023
Important features and life-history (excluding development) of *Volvox*, *Oedogonium* (Chlorophyceae), *Vaucheria*(Xanthophyceae), *Ectocarpus*(Phaeophyceae) and *Polysiphonia*(Rhodophyceae)
Test -2

October-2023
Viruses: General account of Viruses including structure of TMV and Bacteriophages
Fungi: General characters, classification (upto classes) and economic importance;
General account of Lichens
Test 3

November-2023
Important features and life-history of *Phytophthora* (Mastigomycotina), *Mucor*
(Zygomycotina), *Penicillium* (Ascomycotina), *Puccinia*, *Agaricus* (Basidiomycotina),
Colletotrichum (Deuteromycotina)
December :- Revision ……..

Lesson Plan - Session: 2023-24 (odd semester)

Name: Dr. Shweta Pandey

Class: BSc Medical Ist Sem

Lesson Plan:PAPER – II CELL BIOLOGY

August -2023
The Cell Envelopes: Structure and functions of Cell Wall, Plasma Membrane,
Golgi Apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes and Vacuoles

September-2023
Ultra-structure and function: Chloroplast, Mitochondria, Nucleus and Nucleolus
Chromosome: Morphology, ultra-structure - kinetochore, centromere and telomere
Test 1

October-2023
Cell Cycle: General account
Cell Division: Mitosis and Meiosis - Stages and Significance
Test 2

November-2023
Chromosomal aberrations: Structural and Numerical - deletions, duplications,
translocations, inversions, aneuploidy, polyploidy
Sex chromosomes and Sex determination in Plants December:- Revision and test

Lesson Plan-Session: 2023-24 (odd semester)

Name: Anita Rathee

Class: BSc Medical Ist Sem

Lesson Plan: PAPER – I DIVERSITY OF MICROBES

August -2023
Bacteria: Structure, nutrition, reproduction and economic importance **Cyanobacteria**: General characters; life-history of *Nostoc* **Algae:** General characters, classification (upto classes) and economic importance; General account of algal blooms
Test-1

September-2023
Important features and life-history (excluding development) of *Volvox*, *Oedogonium* (Chlorophyceae), *Vaucheria*(Xanthophyceae), *Ectocarpus*(Phaeophyceae) and *Polysiphonia*(Rhodophyceae)
Test -2

October-2023
Viruses: General account of Viruses including structure of TMV and Bacteriophages
Fungi: General characters, classification (upto classes) and economic importance;
General account of Lichens
Test 3

November-2023
Important features and life-history of *Phytophthora* (Mastigomycotina), *Mucor*
(Zygomycotina), *Penicillium* (Ascomycotina), *Puccinia*, *Agaricus* (Basidiomycotina),
Colletotrichum (Deuteromycotina)
December :- Revision ……..

Lesson Plan - Session: 2023-24 (odd semester)

Name: Anita Rather

Class: BSc Medical Ist Sem

Lesson Plan:PAPER – II CELL BIOLOGY

August -2023
The Cell Envelopes: Structure and functions of Cell Wall, Plasma Membrane,
Golgi Apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes and Vacuoles

September-2023
Ultra-structure and function: Chloroplast, Mitochondria, Nucleus and Nucleolus
Chromosome: Morphology, ultra-structure - kinetochore, centromere and telomere
Test 1

October-2023
Cell Cycle: General account
Cell Division: Mitosis and Meiosis - Stages and Significance
Test 2

November-2023
Chromosomal aberrations: Structural and Numerical - deletions, duplications,
translocations, inversions, aneuploidy, polyploidy
Sex chromosomes and Sex determination in Plants December:- Revision and test

Lesson Plan - Session: 2023-24 (odd semester)

Name: Nisha

Class: BSc Medical Ist Sem

Lesson Plan:PAPER – II CELL BIOLOGY

August -2023
The Cell Envelopes: Structure and functions of Cell Wall, Plasma Membrane,
Golgi Apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes and Vacuoles

September-2023
Ultra-structure and function: Chloroplast, Mitochondria, Nucleus and Nucleolus
Chromosome: Morphology, ultra-structure - kinetochore, centromere and telomere
Test 1

October-2023
Cell Cycle: General account
Cell Division: Mitosis and Meiosis - Stages and Significance
Test 2

November-2023
Chromosomal aberrations: Structural and Numerical - deletions, duplications,
translocations, inversions, aneuploidy, polyploidy
Sex chromosomes and Sex determination in Plants **December 2023** :Revision and test

Lesson Plan-Session: 2023-24 (odd semester)

Name: Nisha

Class: BSc Medical Ist Sem

Lesson Plan: PAPER – I DIVERSITY OF MICROBES

August -2023
Bacteria: Structure, nutrition, reproduction and economic importance **Cyanobacteria**: General characters; life-history of *Nostoc* **Algae:** General characters, classification (upto classes) and economic importance; General account of algal blooms
Test-1

September-2023
Important features and life-history (excluding development) of *Volvox*, *Oedogonium* (Chlorophyceae), *Vaucheria*(Xanthophyceae), *Ectocarpus*(Phaeophyceae) and *Polysiphonia*(Rhodophyceae)
Test -2

October-2023
Viruses: General account of Viruses including structure of TMV and Bacteriophages
Fungi: General characters, classification (upto classes) and economic importance;
General account of Lichens
Test 3

November-2023
Important features and life-history of *Phytophthora* (Mastigomycotina), *Mucor*
(Zygomycotina), *Penicillium* (Ascomycotina), *Puccinia*, *Agaricus* (Basidiomycotina),
Colletotrichum (Deuteromycotina)
December 2023 :Revision and test ……..

Lesson Plan for B.Sc Pass Course 3th Semester

2023-2024

Subject- Paper-IBIOLOGYANDDIVERSITYOFSEEDPLANTS–I
(Paper code – 3.1)

Name – Dr. Archana Singh

July

Generalcharacters,originandevolutionofGymnosperms;GeologicalTimeTable;EvolutionofSeedHabit.

August

PilgerandMelchior's(1954)systemofclassificationofGymnosperms

Palaeobotany-FossilsandFossilization(Processinvolved,typesoffossilsandimportanceoffossils);

September

Reconstructionofthefollowingfossilplants:*LyginopterisWilliamsonia Cycadeoidea(=Bennettites)*

Morphologyandanatomyofroot,stem,leaf/leafletandreproductivepartsincluding mode of reproduction, life-cycle and economic importance of following plants: *Cycas*
Class test

October

Morphologyandanatomyofroot,stem,leaf/leafletandreproductivepartsincluding mode of reproduction, life-cycle and economic importance of following plants: *Pinus*
Class test

November

Morphologyandanatomyofroot,stem,leaf/leafletandreproductivepartsincluding mode of reproduction, life-cycle and economic importance of *Ephedra*EconomicimportanceofGymnosperms
Generalcharacters,originandevolutionofAngiosperms
Class test

December

Generalcharacters,originandevolutionofAngiosperms
Class test
Revision session

Lesson Plan for B.Sc Pass Course 3th Semester

2023-2024

Subject– PLANTANATOMY

(paper code-3.2)

Name – **Sanjeela Punia**

July

Tissues - meristematic and permanent (simple, complex andsecretory) Tissue systems (Epidermal, ground and vascular)TheShootsystem - shootapicalmeristemanditshistologicalorganizations.

Class Test

August

Cambium-structureand functions. Secondarygrowthindicotstem;characteristicsofgrowthrings;sapwood andheart wood,periderm; Anomaloussecondarygrowth(*Dracaena*,*Boerhaavia*and*Achyranthes*)

Class Test

September:

Leaf: Types of leaves (simple and compound); phyllotaxy. Epidermis-uniseriateandultiseriate,epidermalappendagesandtheirmorphological types. AnatomyoftypicalMonocotandDicotleafandcellinclusionsinleaves,leafabscission,Stomatalapparatus andtheirmorphologicaltypes

Class Test

October:

Root system: Root apical meristem; histological organizationSecondarygrowthindicot root. Structural modifications in roots: Storage (*Beta*), Respiratory(*Rhizophora*),Epiphytic(*Vanda*).

Class Test

Lesson Plan(2023-24 /Odd Semester)

Name of the Teacher-Nisha

Class –B.Sc. Pass Course Medical 5th sem

Subject-Plant Physiology(5.1)

Month	Topics to be covered	Assignments/Test
July 2023	Plant water relations, physical properties of water, Imbibition.Diffusion and osmosis	
August 2023	Absorption of water, transport of water ,Transpiration and Physiology of stomata. Introduction to mineral nutrition. Mineral nutrition, essential micronutrients and macronutrients, and their role, uptake of mineral nutrients. deficiency symptoms of mineral nutrition	Assignment
September 2023	Transport of organic substances, mechanism of phloem transport.source sink relationship, factors affecting translocation. Photosynthesis, historical aspects and its significance, absorption spectra and action spectra. Various photosynthetic pigments, two phases of photosynthesis, enhancement effects, hill reaction and oxidents. concept of two photosystems, photolysis of water, Z- scheme,	Test
October 2023	cyclic electron transport system Photophosphorylation, dark reaction, Calvin cycle. C4 pathway.CAM plants and CAM pathway, Photorespiration. growth and development, Definitions and phases of growth. Phases of development and seed dormancy. Plant movements and concept of photoperiodism. concept of flowering and its physiology. florigen concept and senescence Physiology of senescence and concept of fruit ripening	Assignment
November 2023	introduction to plant hormones , auxin –discovery of auxin hormone, mechanism of action and its physiological effects. Gibberllins and cytokinins, their discovery, mechanism of action and physiological effects. Abscissic acid and ethylene, their discovery, mechanism of action and physiological effects. concept of Photomorphogenesis Phytochrome , their discovery and physiological role. mechanism of action of phytochrome , Introduction to cryptochrome.	Test
December 2023	Revision	

Lesson Plan(2023-24 /Odd Semester)

Name of the Teacher-Amita Kumari

Class –B.Sc. Pass Course Medical 5th sem

Subject-Plant Physiology(5.1)

Month	Topics to be covered	Assignments/Test
July 2023	Plant water relations, physical properties of water, Imbibition.Diffusion and osmosis	
August 2023	Absorption of water, transport of water ,Transpiration and Physiology of stomata. Introduction to mineral nutrition. Mineral nutrition, essential micronutrients and macronutrients, and their role, uptake of mineral nutrients. deficiency symptoms of mineral nutrition	Assignment
September 2023	Transport of organic substances, mechanism of phloem transport.source sink relationship, factors affecting translocation. Photosynthesis, historical aspects and its significance, absorption spectra and action spectra. Various photosynthetic pigments, two phases of photosynthesis, enhancement effects, hill reaction and oxidents. concept of two photosystems, photolysis of water, Z- scheme,	Test
October 2023	cyclic electron transport system Photophosphorylation, dark reaction, Calvin cycle. C4 pathway.CAM plants and CAM pathway, Photorespiration. growth and development, Definitions and phases of growth. Phases of development and seed dormancy. Plant movements and concept of photoperiodism. concept of flowering and its physiology. florigen concept and senescence Physiology of senescence and concept of fruit ripening	Assignment
November 2023	introduction to plant hormones , auxin –discovery of auxin hormone, mechanism of action and its physiological effects. Gibberllins and cytokinins, their discovery, mechanism of action and physiological effects. Abscissic acid and ethylene, their discovery, mechanism of action and physiological effects. concept of Photomorphogenesis Phytochrome , their discovery and physiological role. mechanism of action of phytochrome , Introduction to cryptochrome.	Test
December 2023	Revision	

Lesson Plan (2023-24 /Odd Semester)

Name of the Teacher-Anita Rathee

Class – B.Sc. Pass Course Medical5th sem

Subject- Ecology (5.2)

Month	Topics to be covered	Assignments/Test
July 2023	Introduction to ecology , definition and its scope. importance of ecology and its level of organization.	
August 2023	Introduction to environment and environmental factors.climatic factors [water, humidity, wind, light, temperature] Edaphic factors [soil profile, its formation, physico-chemical properties of soil] Topographic factors	Assignment
September 2023	Biotic factors[species interaction Adaptations of plants to water stress and salinity. morphological and anatomical features of hydrophytes and xerophytes. morphological and anatomical features of halophytes and introduction to population ecology. characteristics of population ecolog	Test
October 2023	Biotic potential. growth curves , ecotypes and ecads. concept of community ecology, qualitative characteristics of communityecology, quantitative and analytical characteristics of community ecology, Synthetic characteristics of community ecology, method of analysis.Ecological succession introduction to ecosystem structural components of ecosystem functions of ecosystem like trophic levels, food chain, food web	Assignment
November 2023	ecological pyramids and energy flow. Biogeochemical cycle.carbon, nitrogen, phosphorus cyclehydrological cycle introduction to phytogeography. phytogeographical regions of India, vegetation types of India.environmental pollution, types, sources and control of air and water pollution.green house effect and green house gases, impacts of global warming, carbon tradingozone layer depletion and biomagnification.	Test
December 2023	Revision	

Lesson Plan (2023-24 /Odd Semester)

Name of the Teacher-Amita Kumari

Class – B.Sc. Pass Course Medical5th sem

Subject- Ecology (5.2)

Month	Topics to be covered	Assignments/Test
July 2023	Introduction to ecology , definition and its scope. importance of ecology and its level of organization.	
August 2023	Introduction to environment and environmental factors.climatic factors [water, humidity, wind, light, temperature] Edaphic factors [soil profile, its formation, physico-chemical properties of soil] Topographic factors	Assignment
September 2023	Biotic factors[species interaction Adaptations of plants to water stress and salinity. morphological and anatomical features of hydrophytes and xerophytes. morphological and anatomical features of halophytes and introduction to population ecology. characteristics of population ecolog	Test
October 2023	Biotic potential. growth curves , ecotypes and ecads. concept of community ecology, qualitative characteristics of communityecology, quantitative and analytical characteristics of community ecology, Synthetic characteristics of community ecology, method of analysis.Ecological succession introduction to ecosystem structural components of ecosystem functions of ecosystem like trophic levels, food chain, food web	Assignment
November 2023	ecological pyramids and energy flow. Biogeochemical cycle.carbon, nitrogen, phosphorus cyclehydrological cycle introduction to phytogeography. phytogeographical regions of India. vegetation types of India.environmental pollution, types, sources and control of air and water pollution.green house effect and green house gases, impacts of global warming, carbon tradingozone layer depletion and biomagnification.	Test
December 2023	Revision	

Lesson Plan(2022-23 /Odd Semester)

Name of the Teacher- Mrs. Rakhi Kaushik Class –B.Sc Botany (Hons) 1st Semester

Subject-INTRODUCTION TO BIOLOGY

Month	Topics to be covered	Assignments/Test
July 2023	Addmission	-
August 2023	Introduction to concepts of biology Themes in the study of biology; A closer look at ecosystem and cell; The process of Science; Biology and everyday life; Evolutionary history ofbiological diversity early earth and the origin of life; Major events in the history of life; Mechanismof Macroevolution; Phylogeny and the tree of life. Classifying the diversity of life, Kingdoms ofLife –Prokaryotes, Eukaryotes, Archaea; Darwinian view of life and origin of species Darwin's theory of evolution; The evolution of populations; Concepts of species; Mechanism of speciation	1st Class Test
September 2023	Genetic approach to Biology, Patterns of inheritance and question of biology; Variation on Mendel's Law; The molecular basis of genetic information; The flow of genetic information from DNA to RNA to protein; Genetic variation; Methodologies used to study genes and gene activities; Developmental noise; Detecting macromolecules of genetics; Model organisms for the genetic analysis; Distinction between Phenotype and Genotype	First Assignment
October 2023	Chemistry of life, The constituents of matter; Structure of an atom; The energy level of electron; Theformation and function of molecules depend on chemical bonding between atoms; Chemical reactionmake or break chemical bonds, Water and life The water molecule is polar; Properties of water;Ionization of water	2nd Class test
Novemeber 2023	Organic chemistry-the study of carbon compounds; Properties of organic compounds, Structure and function of biomolecule. Carbohydrates act as fuel and building materials; Lipids are group of hydrophobic molecules; Protein have diverse structures and functions; Nucleic acids store and transmit hereditary information	PowerPoint presentation
December 2023	Odd Semester Examination	

Rakhi

Lesson Plan for B.Sc Botany Hons 1th Semester

2023-2024

Subject – Algae and Microbiology

Teacher's Name- Dr. Archana Singh

August

General characteristics; Ecology and distribution; range of thallus organization; Cell structure andComponents; cell wall, pigment system, reserve food (of only groups represented in the syllabus),flagella; and methods of reproduction, classification; criteria, system of Fritsch, and evolutionaryclassification of Lee (only upto groups); significant contributions of important phycologists (F.E.Fritsch, G.M. Smith, R.N. Singh, T.V. Desikachary, H.D. Kumar, M.O.P. Iyengar). Role of algaein ecosystem; aquaculture, industry, biotechnology and agriculture.

September

Cyanophyta: Ecology and distribution; thallus organization; cell structure; chromatic adaptation;physiology; reproduction; economic importance; role in biotechnology; morphology and life cycle of Nostoc Chlorophyta: General characteristics; range of thallus organization; pigment systems; methods ofreproduction; evolutionary significance of Prochloron; morphology and life cycles ofChlamydomonas, Volvox, Oedogonium, Coleochaete Charophyta: General characteristics; morphology and life cycle of Chara; fossils, evolutionarysignificance

October

Xanthophyta: General, characteristics; range of thallus organization; methods of reproduction;morphology and life cycle of Vaucheria Phaeophyta: General characteristics; range of thallus structure; methods of reproduction;morphology and life cycles of Ectocarpus and Fucus. Rhodophyta: General characteristics; range of thallus organization; methods of reproduction;morphology and life cycles of Polysiphonia. Introduction to microbial world, microbial nutrition, growth and metabolism. Virus : Discovery, physiochemical and biological characteristics;Classification; replication, lyticand lysogenic cycle ; special types: DNA virus (coliphage T-2), RNA virus (TMV). Economicimportance; Symptoms, Transmission and management of diseases caused by viruses on plants.

November

. Bacteria- general characteristics, comparison of Archaebacteria and Eubacteria , Wall-less formsMycoplasma and sphaeroplasts), cell structure, nutrition; reproduction: vegetative, asexual, sexual (conjugation, transformation , transduction), Economic importance.Microbial culturing technique, culture media, and microbial growth, microbes used inagriculture, mycorrhizae, environmental management and industry, Indian Institutes and theirresearch activities in microbiology

December

Revision test

Lesson Plan(2022-23 /Odd Semester)

Name of the Teacher- Mrs. Rakhi Kaushik Class –B.Sc Botany (Hons.) 1st semester

Subject-MYCOLOGY AND PHYTOPATHOLOGY

Month	Topics to be covered	Assignments/Test
July 2023	Addmission	
August 2023	Introduction to Mycology- General characteristics; Ecology and Distribution; Thallusorganization; EM of haustorium and septum; Wall composition; Nutrition; Growth;Reproductionand spores; Heterokaryosis and parasexuality; Sexual compatibility; Life cycle patterns. Role offungi in various field of science.	1st Class Test
September 2023	Myxomycota- Introduction, Occurrence; Importance (Physrum as an experimental tool); General characteristics; Thallus organization; Reproduction. Oomycota General characteristics; Ecology;Significance; Thallus organization; Reproduction; Classification; Generalized life cycle of theclass with special emphasis on the reproductive structures of Phytophthora, Albugo. Zygomycota- General characteristics; Ecology; Significance; Thallus organization; Reproduction; with specialreference to Rhizopus.Ascomycota General characteristics; Ecology; Significance; Thallusorganization; Reproduction; Classification with special reference to Yeasts (Saccharomyces),Eurotium (Aspergillus), Penicillium, Generalaccount of Powdery mildews, Neurospora, Peziza. Basidiomycota General characteristics;Ecology; Significance; Thallus organization; Reproduction; Classificationwith special reference to Wheat Rusts (Puccinia), Loose & Covered Smuts.	First Assignment
October 2023	Mushrooms (Agaricus); Mushroom cultivation. Deuteromycota- General characteristics; Ecology, Significance; Thallus organization; Reproduction; Classification with special referenceto Alternaria, and Colletotrichum. Lichens; Occurrence,General Characteristics; Growth formsand range of thallus organization; Nature of association of algal and fungal partners;Reproduction; Ecological significance; Applied importance.	2nd Class Test
November 2023	Introduction: Definition; Importance; Terms and Concepts; Classification; Causes; Symptoms;Host- Pathogen relationships Geographical distribution of diseases; etiology; symptomology;disease cycle and environmental relation; prevention and control of plant diseases, and role of quarantine.	PowerPoint Presentation
December 2023	Odd Semester Examination	

Rakhi

Lesson Plan (2023-24 /Odd Semester)

Name of the Teacher- Bhupendra

Class – Botany hons. 3rd sem.

Subject- cell biology-1 (BOT301)

Month	Topics to be covered	Assignments/Test
July 2023	Overview of prokaryotic and eukaryotic cells, cell size and shape, Phages, Viriods, Mycoplasma and Escherichia coli.	
August 2023	Microscopy: Principles of Light microscopy; Phase contrast microscopy; Confocal microscopy; Electron microscopy (EM)- scanning EM and scanning transmission EM (STEM); Fluorescence microscopy;Flow cytometry- flurochromes, fluorescent probe and working principle; Spectrophotometry; Mass spectrometry; X-ray diffraction analysis. Separation-Sub-cellular fractionation- differential and density gradient centrifugation.	Class Test
September2023	Chromatography- paper, thin-layer, gel-filtration, ion-exchange, affinity and High- Performance Liquid Chromatography (HPLC). Composition of Cells: Molecules of cell, cell membranes and cell Proteins. The Nucleus :Nuclear Envelope- structure of nuclear pore complex, nuclear lamina, Transport across Nuclear Envelope, Chromatin: molecular organization, Nucleolus and rRNA Processing. Protein Sorting and Transport The Endoplasmic reticulum,	Class test /Assignment on Centrifugation.
October 2023	The Golgi Apparatus, Mechanism of Vesicular Transport, Lysosomes. Mitochondria, Chloroplasts and Peroxisomes Structural organization, Function, Marker enzymes,Mitochondrial biogenesis, Protein import in mitochondria, Semiautonomous nature of mitochondria and chloroplast, chloroplast DNA, Peroxisomes'assembly.	Group iscussion on coverd topics ,Assignment on cytoskeleton.
November2023	Cytoskelton and Cell Movement ,Structure and organization of actin filaments; actin, myosin and cell movement; intermediate filaments; microtubules	Test for internal Assesment and Assignment on Protein transport.
December2023	Examinations	

Lesson plan 2023-24 (Odd sem.)

Name of teacher: Dr. Anjana Anand

Class: B.sc. Botany Hons 3rd sem sem.

Subject and paper: Plant Resource Utilisation

Month	Topics to be covered	Assignment	Class test /Group discussion
July	Cereals Wheat and Rice, Role of dwarf varieties in green revolution	Assignment on any topic of this paper	class test on the topics taught
August	Legumes: General account, importance to man and ecosystem; chief pulses grown in India, Brief account of millets and pseudocereals. Fruits :Mango, Citrus, Papaya. Sugars and starches: Ratooning and nobilization of sugarcane, products and by products of sugarcane industry; Potato (Tuber anatomy and propagation methods) and comparative account with cassava.		class test on the topics taught
September	Listing of important spices, their family and part used; with special reference to fennel, saffron, clove, turmeric and all spices; common adulterants of spices. Beverages: Tea, coffee and cocoa, their processing and some common adulterants. Oils and Fats: General description with details of groundnut, coconut, linseed and Brassica spp and their use related health implications. Natural		class test on the topics taught

	Rubber Para Rubber, tapping and processing, Various substitutes of Para Rubber.		
October	Drug Yielding Plants Therapeutic and habit forming drugs with special reference to Cinchona, Digitalis, Rauvolfia, Papaver and Cannabis.Masticatories and Fumitories Tobacco and Health hazards. Timber plants General account with special reference to teak and pine.Fibres: Classification based on the origin of fibres, Tetraploid cotton and Jute.		class test on the topics taught
November/December	Essential Oils: General account and comparison with fatty oils. Natural Rubber Para Rubber, tapping and processing, Various substitutes of Para Rubber.		class test on the topics taught
January	Revision		Presentation by students

Lesson plan (2023-24, Odd Sem.)

Name of teacher: Dr. Anjana Anand

Class: B.sc. Botany Hons 5th sem sem.

Subject and paper: Plant Systematics and Evolution

Month	Topics to be covered	Assignment	Class test /Group discussion
July	What is systematics; Identification, Classification and Nomenclature of plants; Field inventory	Assignment on any topic of this paper	class test on the topics taught
August	Herbarium preparation and management; important herbaria and botanical gardens of the world and India. Classification by Bentham and Hooker		class test on the topics taught
September	Classification by Engler and Prantl & Takhtajan; brief reference of Angiosperm Phylogeny Group (APG) Classification		class test on the topics taught
October/November	Documentation: Flora, Monographs, Journals, Online Journals and Keys; Evidences from morphology, palynology, cytotaxonomy, chemotaxonomy, serology, and molecular systematics.Concept of taxa; categories and hierarchy; species concept (taxonomic, biological, evolutionary), Principles and rules of nomenclature; ranks and names; type method		class test on the topics taught
December			Revision and presentation by students

	author citation, valid publication; rejection of names, principle of priority and its limitation; names of hybrids and cultivars.role of Computers in systematics; Characters and attributes; OTUs, character weighing and coding; cluster analysis, phenograms, cladistics. Unit 4: Terms and concepts (homology, analogy, parallelism, convergence, monophyly, polyphyly,clades);origin & evolution of angiosperms; co-evolution of angiosperms and animals; methods of illustrating evolutionary relationship (phylogenetic tree, cladogram).		class test on the topics taught
December			
	Revision		
January			Representation by students

Lesson Plan (2023-24 /Odd Semester)

Name of the Teacher- Bhupendra

Class – Botany hons. 5th sem.

Subject- Plant Physiology (BOT502)

Month	Topics to be covered	Assignments/Test
July 2023	Pathway of water movement; concepts of symplast and apoplast; ascent of sap.	
August 2023	Transpiration; energy exchange during transpiration; role of stomata; relationship with photosynthesis; antitranspirants, guttation,exchange of gases. Characterization of stress response to water and high and low temperature response to saline soils; mechanism of response, essential and non-essential elements; criteria for essentiality; macro and micronutrients; roles of essential elements; mineral deficiency symptoms; ion antagonism and toxicity.	Group discussion
September2023	Transport of ions across cell membranes, passive absorption, electrochemical gradient, Donnan's equilibrium, facilitated diffusion, accumulation against concentration gradient, active absorption, role of ATP, carrier systems, role of cell membrane, proton pump and ion flux, Structure-function relationship for the Translocation of photoassimilates from source to sink cells.	Class test and group discussion on coverd topics of unit 1.
October 2023	Flowering; physiological definition; role of light; photoperiodism – discovery; variation in response; long day; short day and day neutral plants, inductive and non- inductive cycles,role of dark period,role of quality and intensity of light,vernalization; mechanism; bolting in long day plants, role of growth regulators; nutrient status; nature of the flowering stimulus; diffusibility of photoperiodic and vernalization stimuli; florigen concept.	Group discussion on coverd topics ,Assignment on Photoperiodism.
November2023	Structure, biosynthesis, analysis, transport, physiological effects and mechanism of action. Of growth regulators, Physiological and biochemical changes of fruit ripening, phytochrome: Discovery; chemical nature; mode of action; role of low energy response (LER) and high irradiance response (HIR); red (R) and far red (FR) light on photomorphogenesis	Test for internal Assesment and Assignment on mechanism of action of plant hormones.
December2023	Examinations	

Lesson Plan (2023-24 /Odd Semester)

Name of the Teacher- Mrs.SanjeelaPunia

Class – B.Sc Botany (Hons.) 5th Semester (504)

Subject- Genetics and Genomics I

Month	Topics to be covered	Assignments/Test
July 2023	Mendel's work on transmission of traits, Genetic Variation, Molecular basis of Genetic Information, Interrelation between the cell structure and the genetics function, Mitosis, Meiosis (explaining Mendel's ratios),	Class Test Mendelian genetics
August 2023	Principles of Inheritance, Chromosome theory of inheritance, Laws of Probability, Pedigree analysis Incomplete and codominance, Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, Environmental effects on phenotypic expression, sex linked inheritance.	Assignments on Pedigree analysis and Epistasis
September 2023	Linkage and crossing over, Cytological basis of crossing over, Molecular mechanism of crossing over, Recombination frequency as a measure of linkage intensity, two factor and three factor crosses, Interference and coincidence, Somatic cell genetics – an alternative approach to gene mapping.	Class test on Linkage and crossing over
October 2023	Chromosomal Mutations, Gene mutations, Molecular basis of Mutations in relation to UV light and chemical mutagens, Detection of mutations: CLB method, Attached X method, DNA repair mechanisms, Sex Determination, Environmental factors determining sex determination, Barr bodies, Dosage compensation.	Discussion on Mutations and its various positive and negative effects.
November 2023	Extrachromosomal Inheritance :Chloroplast mutation/Variegation in Four o' clock plant and Chlymodomonas, Mitochondrial mutations in Neurospora and yeast, Maternal effects, Infective heredity- Kappa particles in Paramecium, Quantitative and multifactor inheritance, transgressive variations, Heterosis.	Doubt Clearing sessions and revision
December 2023	Examination	

PANDEY

Lesson Plan (2023-24 /Odd Semester)

Name of the Teacher-Amita Kumari

Class – Botany hons. 5th sem.

Subject- Ecology -II (BOT-505)

Month	Topics to be covered	Assignments/Test
July 2023	Introduction to community, analytical characteristics of community. Synthetic characteristics of community,	
August 2023	Ecotone and edge effect.method of studying vegetation, dynamics of communities. plant succession : processes, types , primary and secondary succession concepts of climax, structure of ecosystem.biotic and abiotic components in ecosystem, processes in ecosystem trophic organization	Assignment
September 2023	, basic source of energy, autotrophy and heterotrophyparasitism, food chains, food webs, ecologicalpyramids biomass, standing crop, functional aspects of ecosystemenergy flow and its principles grazing and detritus food chains, models of energy flow.ecosystem productivity, measurements of ecosystem productivity ecological efficiencies and concept of energy subsidy	Test
October 2023	biogeochemical cycle dynamics of biogeochemical cycle, hydrological cycle gaseous cycles and sedimentary cycles. aquatic ecosystem, fresh water (lotic and lentic) marine ecosystem (pelagic and benthic)	Assignment
November 2023	estuarine ecosystem, introduction to biomes ,tundra biome, temperate biome tropical biome, introduction to phytogeography principles of phytogeography, endemism hotspots, phytogeographical divisions of India, vegetation of Delhi	Test
December 2023	Revision	

Name of the Teacher :- Dr. SHWETA PANDEY
Class : B.Sc. Botany Hons. 5th Sem.
Subject: BIOSTATISTICS BOT 503

Month	Topics to be covered	Assignment/Test
July / August	Measures of central tendency: Mean, Median and Mode. Measures of dispersion, Skewness Kurtosis, Graphical representation of data.	Assignment
September	Discrete & continuous Random variable Mathematical Expectation, Mean and Variance of Binomial Poisson and Normal distribution, Sample mean	Test
October	Hypothesis testing using standard normal variate. Curve fitting correlation & Regression. Emphasis on examples from biological sciences Experimental design and Sampling -theories	Test
November	Elementary Probability & basic laws Probability theory: t-test, F-test and Chi-square test, Sampling Variance, coefficient of variation	Test and Assignment
December	Revision, Group discussion	