

SAMBHU NATH COLLEGE

Department: Botany

Year: 1st Year (General)

Session: 2016-17

Teacher Name: Prof. Satanu Roy

Unit Name (Topic)	Paper	Sub Unit Name	Month	No. of Classes
ALGAE	I-GROUP A	1. Range of vegetative structures, asexual and sexual reproduction, economic importance	July	9
ALGAE	I-GROUP A	3. Cyanophyceae: General account, cell structure.	July	7
ALGAE	I-GROUP A	2. Life histories of the following: Oedogonium, Chara, Fucus and Polysiphonia.	August	16
FUNGI & PLANT PATHOLOGY	I-GROUP A	1. General characters of Phycomycetes, Ascomycetes, Basidiomycetes & Deuteromycetes. Economic importance of fungi with special reference to mushroom cultivation.	September	8
FUNGI & PLANT PATHOLOGY	I-GROUP A	2. Life histories, symptoms and control measures (where applicable) of the following: Phytophthora (disease), Ascobolus, Puccinia, Agaricus, Helminthosporium (disease).	September	8
BRYOPHYTES	I-GROUP A	1. General characters of Hepaticopsida, Anthocerotopsida and Bryopsida.	November	8
BRYOPHYTES	I-GROUP A	2. Life histories of the following: Riccia, Marchantia, Anthoceros and Funaria.	November	8
PTERIDOPHYTES	I-GROUP B	1. General characters of pteridophytes.	December	4
PTERIDOPHYTES	I-GROUP B	2. Vegetative and reproductive organography of: Rhynia, Lycopodium, Selaginella, Equisetum, Pteris and life cycle patterns of homosporous and heterosporous pteridophytes (Lycopodium and Selaginella).	December	12
PALAEOBOTANY, GYMNOSPERMS	I-GROUP B	Definition, types of fossil (Fossilisation and the mode of their preservation excluded). Geologic Time Scale (Outline); Appearance of major classes of vascular plants through geologic Eras.	January	2
PALAEOBOTANY, GYMNOSPERMS	I-GROUP B	1. General characters of Gymnosperms.	January	2
PALAEOBOTANY, GYMNOSPERMS	I-GROUP B	2. Life histories of Cycas, Pinus and Gnetum. Angiospermic features in Gnetum.	January	4
MORPHOLOGY	I-GROUP B	1. Leaf: Types, modifications of lamina and petioles, phyllotaxy	January	2
MORPHOLOGY	I-GROUP B	2. Inflorescence: Types with examples.	January	2
MORPHOLOGY	I-GROUP B	3. Flower: Morphology of different parts and their adhesion and cohesion; pollination: Types and contrivances.	January	2
MORPHOLOGY	I-GROUP B	4. Fruit: Different types with examples.	January	2

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Unit Name (Topic)	Paper	Sub Unit Name	Month	No. of Classes
ANATOMY	II-GROUP A	1. Plant tissue and tissue system (ground and vascular).	July	5
ANATOMY	II-GROUP A	2. Anatomy of primary body - stem, root (monocot and dicot).	July	5
ANATOMY	II-GROUP A	3. Normal secondary growth of stem.	July	6
TAXONOMY	II-GROUP A	1. Systems of classification of plants by Linnaeus; Bentham & Hooker; Takhtajan (1997).	August	4
TAXONOMY	II-GROUP A	2. General characters and economic importance of the following families (range of floral structure excluded): Magnoliaceae, Cruciferae (Brassicaceae), Malvaceae, Euphorbiaceae. Leguminosae (Fabaceae), Apocynaceae, Labiatae (Lamiaceae), Solanaceae, Rubiaceae, Compositae (Asteraceae), Gramineae (Poaceae), Orchidaceae.	August	12
CYTOLOGY	II-GROUP B	1. Ultrastructure and function of mitochondrion, chloroplast, ribosome and nucleus. Physical structure of chromosome and organization of chromatin (nucleosome), structure of DNA, Euchromatin and Heterochromatin.	September	10
CYTOLOGY	II-GROUP B	2. Mitotic and meiotic cell division and their significance.	September	6
GENETICS	II-GROUP B	1. Mendel's laws, monohybrid and di-hybrid ratios (deviation of Mendel's laws excluded).	November	4
GENETICS	II-GROUP B	2. General account of linkage and crossing over.	November	4
GENETICS	II-GROUP B	3. Numerical changes in chromosome (Euploidy and Aneuploidy).	November	4
GENETICS	II-GROUP B	4. Mutation: definition and significance, mutagens.	November	4
PHYSIOLOGY	II-GROUP B	1. Water relation: Water absorption, mechanism and factors. Ascent of sap: Definition, path of ascent of sap, cohesion tension theory. Transpiration: Definition, types, mechanism and factors.	December	4
PHYSIOLOGY	II-GROUP B	2. Enzymes: Definition, properties, classification and cofactors.	December	4
PHYSIOLOGY	II-GROUP B	3. Respiration: Definition of aerobic respiration, anaerobic respiration and fermentation. Mechanism of Glycolysis and Krebs Cycle. Electron Transport Chain and Oxidative Phosphorylation. Factors affecting respiration. Definition of RQ. Photorespiration: Definition and occurrence.	December	4
PHYSIOLOGY	II-GROUP B	4. Protein synthesis: Transcription and Translation in prokaryotes.	December	4
PHYSIOLOGY	II-GROUP B	5. Photosynthesis: Definition, light reaction and Calvin cycle in C ₃ plants. Factors affecting photosynthesis; C ₄ plants - definition and occurrence.	January	3

PHYSIOLOGY	II-GROUP B	6. Mineral nutrients: Criteria of essentiality of mineral elements and their roles. Macro - (N, P, K, Mg, Ca) and Micro (Zn, Mo, B) elements.	January	3
PHYSIOLOGY	II-GROUP B	7. Nitrogen fixation: Examples of biological nitrogen fixers and symbionts. Significance of nitrogen fixation in agriculture, nitrogen cycle, mechanism of biological N ₂ fixation.	January	3
PHYSIOLOGY	II-GROUP B	8. Growth hormones: Definition of plant hormone. Classification of hormones (Natural, synthetic/artificial, postulated), preliminary role of auxins, gibberellins, cytokinins and ethylene (in brief), application of plant hormones in agriculture.	January	4
PHYSIOLOGY	II-GROUP B	9. Growth and development: Definition, short account of photoperiodism, vernalization & phytochrome	January	3
ECOLOGY	II-GROUP B	1. Definition of autecology and synecology, energy flow in ecosystem.	February	4
ECOLOGY	II-GROUP B	2. Ecological adaptations and characteristics of hydrophytes, xerophytes and halophytes.	February	4
ECOLOGY	II-GROUP B	3. Water and air pollution.	February	4
ECOLOGY	II-GROUP B	4. Characteristic vegetation of Eastern Himalayas and Sunderbans.	February	4
PRACTICAL	III-1.A	a. Algae: Nostoc, Oedogonium, Chara.	July	5
PRACTICAL	III-1.A	b. Fungi: Ascobolus, Puccinia (Uredosorus and teleutosorus).	July	5
PRACTICAL	III-1.A	c. Bryophytes: Riccia, Marchantia and Funaria.	July	6
PRACTICAL	III-1.B Dissection, mounting, description, drawing, labeling and identification of the following genera	a. Pteridophytes: Lycopodium (stem), Selaginella (stem) and Pteris (leaflet).	August	4
PRACTICAL	III-1.B Dissection, mounting, description, drawing, labeling and identification of the following genera	b. Gymnosperms: Cycas leaflet, Pinus needle.	August	4
PRACTICAL	III-2. Study of vegetative and reproductive organs, description, drawing and labeling, floral diagram, f	Malvaceae, Rubiaceae, Papilionaceae, Caesalpinaceae, Apocynaceae, Labiatae (Lamiaceae), Solanaceae.	September	16
PRACTICAL	III-3. Section cutting and temporary preparation using aqueous safranin, description with labeled sket	Sunflower stem Cucurbita stem, Maize stem, Pea root, Nerium leaf, Canna root.	November	16
PRACTICAL	III-4. Physiological experiments including procedure and precaution (11 marks: requisition-3, theory and	i. Determination of isotonic concentration of cell sap by plasmolysis method (using supplied solution).	December	4
PRACTICAL	III-4. Physiological experiments including procedure and precaution (11 marks: requisition-3, theory and	ii. To find out the essentiality of CO ₂ for photosynthesis.	December	4
PRACTICAL	III-4. Physiological experiments including procedure and precaution (11 marks: requisition-3, theory and	iii. Determination of the rate of transpiration by using conical flask.	December	4
PRACTICAL	III-4. Physiological experiments including procedure and precaution (11	iv. To find out the rate of respiration by germinating seeds (result should be expressed as CO ₂ released and O ₂ consumed in unit time).	December	4

	marks: requisition-3, theory and			
PRACTICAL	III-5. Identification with comments of the following from prepared slides and specimens (22 marks):	i. Cryptogams and gymnosperms as prescribed in the theoretical syllabus.	January	4
PRACTICAL	III-5. Identification with comments of the following from prepared slides and specimens (22 marks):	ii. Cystoliths, raphides, sphaeraphides, starch grain, stomata, lenticels and stone cells.	January	3
PRACTICAL	III-5. Identification with comments of the following from prepared slides and specimens (22 marks):	iii. Stages of mitosis.	January	3
PRACTICAL	III-5. Identification with comments of the following from prepared slides and specimens (22 marks):	iv. Local common plants of the families included in the practical syllabus.	January	3
PRACTICAL	III-5. Identification with comments of the following from prepared slides and specimens (22 marks):	v. Different types of fruits, inflorescences and stipules.	January	3

 Departmental Signature

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Year: 3rd Year (General)

Session: 2016-17

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Unit Name (Topic)	Paper	Sub Unit Name	Month	No. of Classes
MICROBIOLOGY:	IV-GROUP A	1. General structure of Bacteria (morphology and ultrastructure).	July	4
MICROBIOLOGY:	IV-GROUP A	2. Economic uses of Bacteria (useful and harmful Bacteria).	July	4
MICROBIOLOGY:	IV-GROUP A	3. Antibiotics: Definition, sources and uses.	August	4
MICROBIOLOGY:	IV-GROUP A	4. General structure of Viruses, structure of TMV and T2 phage and multiplication (Lytic cycle, mention lysogeny).	August	4
PLANT BREEDING AND TISSUE CULTURE:	IV-GROUP A	1. Introduction, selection and methods of hybridization.	September	3
PLANT BREEDING AND TISSUE CULTURE:	IV-GROUP A	2. General idea about tissue culture and its application.	September	3
PLANT BREEDING AND TISSUE CULTURE:	IV-GROUP A	3. Vegetative plant propagation.	September	2
ECONOMIC BOTANY AND MEDICINAL PLANTS:	IV-GROUP A	1. Economic importance of rice, jute and tea.	November	4
ECONOMIC BOTANY AND MEDICINAL PLANTS:	IV-GROUP A	2. Preliminary idea about the folk medicine, pharmacognosy, pharmacopoeia, use of Adhatoda vasica, Andrographis paniculata, Rauwolfia serpentina, Cinchona sp., Ocimum sanctum , Datura sp.	November	4
PRACTICAL	IV-GROUP B	1. Microbiology: Simple staining of Bacteria with methylene blue/Carbol Fuchsin - Curd	August	8
PRACTICAL	IV-GROUP B	2. Medicinal plants: Identification of medicinal plants, parts used and medicinal values of: Adhatoda vasica, Andrographis paniculata, Catharanthus roseus Ocimum sanctum, Datura sp and Eclipta alba..	September	8
Ecology and Ecosystems	ENVIRONMENTAL STUDIES(COMPULSORY)-	Concept of an ecosystem; different types of ecosystem	August	2
Ecology and Ecosystems	ENVIRONMENTAL STUDIES(COMPULSORY)-	Concept of an ecosystem; different types of ecosystem	August	1
Ecology and Ecosystems	ENVIRONMENTAL STUDIES(COMPULSORY)-	Concept of ecology, autecology and synecology; population ecology, community ecology	August	1
Ecology and Ecosystems	ENVIRONMENTAL STUDIES(COMPULSORY)-	Food chains, food webs and ecological pyramids Biogeochemical cycles: Pattern and basic types of biogeochemical cycles	September	2
Ecology and Ecosystems	ENVIRONMENTAL STUDIES(COMPULSORY)-	Energy flow in the ecosystem, energy flow models	September	1
Ecology and Ecosystems	ENVIRONMENTAL STUDIES(COMPULSORY)-	Concept of an ecosystem; different types of ecosystem	September	1
Biodiversity and its conservation	ENVIRONMENTAL STUDIES(COMPULSORY)-	Conservation of biodiversity: In situ and Ex-situ conservation of biodiversity	January	2
Biodiversity and its conservation	ENVIRONMENTAL STUDIES(COMPULSORY)-	Biogeographical classification of India	November	2
Biodiversity and its conservation	ENVIRONMENTAL STUDIES(COMPULSORY)-	Value of biodiversity: consumptive use, productive use and social values	November	2
Biodiversity and its conservation	ENVIRONMENTAL STUDIES(COMPULSORY)-	Hot-spots of biodiversity	December	2

Biodiversity and its conservation	ENVIRONMENTAL STUDIES(COMPULSORY)-	Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts	December	2
Biodiversity and its conservation	ENVIRONMENTAL STUDIES(COMPULSORY)-	Endangered and endemic species of India	January	2

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