

**GOVT.D.B. GIRL'S P.G. AUTONOMOUS COLLEGE**

**RAIPUR CHHATTISGARH**

**FACULTY OF BOTANY**

**SYLLABUS**

**OF**

**B.Sc. (BOTANY)**

**PART-I, II, III**

**2020-21**

Signature of Chairman

Signature of Member (Subject)

**DEPARTMENT OF BOTANY**  
**CLASS-B.Sc. PART-II (Botany)**

**SESSION: 2020-21**

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**PAPER –I**

**(PLANT TAXONOMY, ECONOMIC BOTANY, PLANT ANATOMY AND  
EMBRYOLOGY)**

**MAXIMUM MARKS: 50**

**NUMBER OF UNIT: V**

**MINIMUM MARKS: 17**

**UNIT-I**

Bentham and Hooker system of classification. Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy. Preservation of Plant material and Herbarium techniques. Important botanical gardens and herbaria of India, Kew Botanical garden, England.

**UNIT-II**

Systematic position, distinguishing characters and economic importance of the following families, Ranunculaceae, Magnoliaceae, Brassicaceae, Rosaceae, Papaveraceae, Caryophyllaceae, Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae and Liliaceae.

**UNIT-III**

Economic Botany: Botanical name, family, part used and uses of the following economically important plants, fiber yielding plants; Cotton, jute, sun, hemp, coir. Timber yielding plants: Sal, Teak, Shisham and Pine. Medicinal plants: Kalmegh, Ashwagandha, Ghritkumari, Giloy, Brahmi, sarpgandha, ---of medicinal plants of C.G. Food plants: Pearl millet, Buck of wheat, Sorghum, Soyabean, gram, Ground nut, Sugarcane and Potato. Fruit plants: Pear, Peach, Litchi. Spices: Cinnamon, Turmeric, Ginger, Asafoetida and Cumin. Beverages : Tea, Coffee Rubber Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropha, Pongamia Ethnobotany in context of Chhattisgarh.

#### **UNIT-IV**

Plant Anatomy: Root and shoot apical meristems theories of root and shoot apex organization, permanent tissues, anatomy of root, stem and leaf of dicot and monocot, secondary growth in root and stem, Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhaavia, Casuarina), Anamolous secondary growth in Dracaena, Bignonia, Laptadenia.

#### **UNIT-V**

Embryology: Flower as a reproductive organ, anther, microsporogenesis, types of ovules, megasporogenesis, development of male and female gametophyte, pollination, mechanisms, self incompatibility, fertilization, endosperm, embryo, polyembryonoy, apomixes and parthenocarpy.

#### **APPROVED BY THE BOARD OF STUDIES ON**

<b>NAME</b>	<b>IN THE CAPACITY OF</b>	<b>SIGNATURE</b>
Dr. J.N.Verma	CHAIRMAN	
Dr. J. K. Verma	SUBJECT EXPERT(V. C. Nominee)	
Dr. S. Moghae	SUBJECT EXPERT(Principal Nominee)	
Dr. P.K.Saluja	MEMBER OF THE DEPARTMENT	
Dr. Aruna Shrivastava	MEMBER OF THE DEPARTMENT	
Dr. Deepa Shrivastava	MEMBER OF THE DEPARTMENT	
Dr. V. Acharya	MEMBER OF THE DEPARTMENT	
Dr. B.M.Lall	MEMBER OF THE DEPARTMENT	
Dr. Neetu Harmukh	MEMBER OF THE DEPARTMENT	

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**PAPER –II**

**(ECOLOGY AND PLANT PHYSIOLOGY)**

**MAXIMUM MARKS: 50**

**NUMBER OF UNIT: V**

**MINIMUM MARKS: 17**

**UNIT-I**

Introduction and scope of ecology, environmental and ecological factors, Soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adaptations in hydrophytes, xerophytes and epiphytes.

**UNIT-II**

Population and community characteristics, Raunkiaer's life forms, population interactions (e.g. Symbiosis, Amensalism etc.), succession, ecotone and edge effect, ecological niches, ecotypes, keystone species

Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain and food web, concept of ecological pyramids

Biogeochemical cycles: carbon cycle, nitrogen cycle and phosphorus cycle

**UNIT-III**

Plant water relations: Diffusion, permeability, osmosis, imbibitions, plasmolysis, osmotic potential and water potential, Types of soil water, water holding capacity, wilting, Absorption of water, theories of Ascent of sap, Mineral nutrition and absorption, Deficiency symptoms, Transpiration, stomatal movement, significance of transpiration, Factors affecting transpiration, guttation.

**UNIT-IV**

Photosynthesis: Photosynthetic apparatus and pigments, light reaction mechanism of ATP synthesis. C3, C4 CAM pathway of carbon reduction, photorespiration, factors affecting photosynthesis.

Respiration: Aerobic and anaerobic respiration, Glycolysis, Krebs's cycle, factors affecting respiration, R.Q.

**UNIT-V**

Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Physiology of flowering, Florigen concept, Photoperiodism and Vernalization. Seed dormancy and germination, plant movement.

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Dr. B.M.Lall	MEMBER OF THE DEPARTMENT	
Dr. Neetu Harmukh	MEMBER OF THE DEPARTMENT	

**PRACTICAL SCHEME**

**B.Sc. PART II (2019-2020)**

**Time- 4 Hrs.**

**M.M. – 50**

<b>S.NO.</b>	<b>TITLE</b>	<b>MAX. MARKS</b>
1	<b>Anatomy</b>	08
2	<b>Economic botany</b>	04
3	<b>Physiology</b>	08
4	<b>Ecology</b>	10
5	<b>Spotting</b>	10
6	<b>Viva-Voce</b>	05
7	<b>Project Work/Field Study</b>	10
<b>Total Marks</b>		<b>50</b>

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