

TENTATIVE TEST SCHEDULE FOR RPSC COLLEGE LECTURER "BOTANY"

Date of upload (after this date you can appear for test any day before completion of series)	Test name (every test can be taken for 3 times)		RPSC Unit covered (some very large units are broken into multiple tests)	Number of questions (these are tentative number question may increase in given test)
2-07-2021	Virus bacteria mycoplasma	Archaeobacteria, eubacteria and cyanobacteria - ultra-structure and reproduction; L-Form Bacteria, Prions, Viroids, Virusoids; Characteristics and ultrastructure of virions; Mycoplasma, Spiroplasma and Phytoplasma - General characters and role in causing plant diseases; Microbiology of water, air and soil.	Paper 1 unit 1	100
2-07-2021	General taxonomy	Taxonomic hierarchy, principles of nomenclature, taxonomic tools,	Paper 1 unit 6	70
5-07-2021	plant water relation and enzymes	1 Plant-water relation, membrane transport and translocation of water and solutes. 2 Enzymes– General characteristics, Classification, mechanism of action, kinetics	PAPER II Unit 1 2	100
6-07-2021	photosynthesis nitrogen fixation signalling and metabolism	3. Photosynthesis- Pigments, photophosphorylation, Mechanism of photosynthesis, photorespiration,	PAPER II Unit 3, 4 5	100

		<p>photosynthesis in C4 plants, CAM.</p> <p>4. Nitrogen fixation and Nitrogen metabolism. Fatty acid metabolism. Signal transduction: overview, receptors and G-proteins, phospholipid signaling, second messengers, two-component sensor-regulator system in bacteria and plants.</p> <p>5. Respiration- Glycolysis, TCA cycle, Oxidative phosphorylation, Glycogen breakdown, inter conversion of hexoses and pentoses.</p>		
8-07-2021	genetics	<p>Genetics of prokaryotes and eukaryotic organelles; Mapping of bacteriophage genome; Genetic transformation, Conjugation and Transduction in bacteria; Cytoplasmic male sterility. Mendelism, Allelic and non-allelic gene interactions.</p> <p>Genetic mapping; Independent assortment and crossing over, molecular mechanism of recombination, genetic markers. Mutations, molecular basis of spontaneous and induced mutations and their role in evolution.</p>	Paper II unit 8 Paper II Unit 9	100
10-07-2021	bryophyta pteridophyta gymno	<p>General characters, structure, reproduction, evolution and inter-relationships of bryophytes, pteridophytes and gymnosperms. Evolution of stele, heterospory and seed habit; Principles of palaeobotany.</p>	Paper I unit 5	100

12-07-2021	embryology	Development of male and female gametophytes, pollination, pollen pistil interaction, fertilization, endosperm development and embryogenesis; seed development and fruit formation; polyembryony, apomixis, embryo culture; biochemistry and molecular biology of fruit maturation.	Paper 1 unit 8	100
15-07-2021	morphology	General concepts of plant morphology, origin and evolution of flower - Primitive living angiosperms, foliar stamens, open carpels	Paper I unit 7	100
18-07-2021	anatomy	Plant anatomy types of tissue; Organization of root and shoot apical meristems; Secondary growth (normal and anomalous) and Anomalous primary structures of root and stem.	Paper I unit 7	100
25-07-2021	Ecology and pollution	Basic concepts of ecology, ecological factors affecting the plants. Principle of limiting factors; population characteristics, population interaction, r and K selection, genecology and range extensions, community characteristics, community classification, continuum concept, ecological niche, plant succession in various habitats, concept of climax. Structure and function of ecosystem, energy flow and biogeochemical cycles (N,P,C,S), primary production, plant indicators, major biomes of the world. Phytogeographical regions of India, vegetation of	Paper I unit 9,10	100

		<p>Rajasthan. Ecosystem services.</p> <p>10 Environmental pollution-air, water, noise and soil; Greenhouse effect, Ozone layer depletion, Acid rain; Concept of biodiversity with special reference to India, Hot spots, Rare, Endangered and Endemic plant species of Rajasthan, strategies for conservation of the flora. Bio-monitoring. Environmental Impact Assessment.</p>		
30-07-2021	economic botany	<p>Plant civilization, centers of diversity/origin of crop plants, gene diversity Utilization, cultivation and improvement of food plants (rice, wheat, bajra, pulses, green-gram, moth and beans), Oil seeds (mustard, soybean and ground nut), drugs (Rauvolfia, Ephedra, Papaver, Atropa, Cinchona and Withania), fibre (cotton, jute and coir) and plants of industrial value (Tobacco, sugarcane, tea and coffee). Ethnobotany, under-exploited plants of potential medicinal and food value with special reference to Rajasthan</p>	Paper I unit 11	100
3-08-2021	algae fungi	<p>3 Algae of diversified habitats (Terrestrial, Fresh water, Marine); Thallus organization, cell structure and reproduction in different classes/groups; Criteria of classification of algae; Economic importance of algae.</p> <p>4 General characteristics of different classes/groups of fungi, cell ultrastructure, cell</p>	Paper I unit 3 4	100

		<p>wall composition, reproduction, heterothallism, para sexuality, recent trends in classification, economic importance of fungi; General account and economic importance of mycorrhiza and lichens.</p>		
7-08-2021	plant physiology	<p>Seed dormancy and germination. Concept of growth and development. Physiological effects and mechanism of action of auxins, gibberellins, cytokinins, ethylene, abscisic acid and jasmonic acid. Plant rhythms and biological clock. Secondary metabolites. Plant responses to biotic and abiotic stresses. Physiology of flowering- Photoperiodism and Vernalization</p>	Paper 2 unit 6	100
10-08-2021	plant pathology & disease managemnet	<p>General account of diseases caused by plant pathogens; molecular basis of host parasite interaction, pathogen attack and defense mechanism; etiology of red rot of sugarcane, rust of wheat, covered smut of wheat, loose smut of wheat, green ear disease of bajra, leaf spot and smut of jowar, ergot and smut of bajra, root knot and rot diseases of vegetables; disease control and the role of information technology in disease management.</p>	Paper I unit 2	100
14-08-2021	tool and techniques	<p>Bright field Microscopy, Electron microscopy (TEM & SEM), Confocal microscopy, phase contrast microscopy; Fixation (of</p>	Paper I unit 12	70

		<p>lower and higher plant groups) and staining techniques (for bright field microscopy, cytology and bacterial staining); Chromatography, Electrophoresis, ELISA, Spectrophotometry, centrifugation.</p>		
18-08-2021	Cell and Molecular Biology	<p>Ultrastructure of prokaryotic and eukaryotic cells; Cell membrane- structure and function; Cell organelles- structure and functions; Ultrastructure of nucleus; DNA: Structure, A, B and Z forms, replication, damage and repair; Cells cycle; Structure of chromatin and its organization; Special types of chromosomes; Banding patterns; Chromosomal aberrations and numerical chromosome abnormalities</p> <p>Techniques in cell biology-in situ hybridization, FISH, GISH. Genetic code, transcription and translation, RNA processing; Teminism; Regulation of gene expression in prokaryotes and eukaryotes;</p>	<p>PAPER II UNIT 7</p> <p>PAPER II UNIT 9</p>	100
22-08-2021	Recombinant DNA technology	<p>Recombinant DNA Technology: Restriction enzymes, Gene cloning- principles and techniques; construction of gene library (genome and cDNA library); DNA sequencing, polymerase chain reaction, RT-PCR, DNA finger printing. Genetic engineering of plants: Aims and strategies for development of transgenics, Methods of gene transfer in plants, intellectual property</p>	<p>PAPER II UNIT 11</p>	100

		rights and possible ecological risks and ethical concerns. Microbial genetic manipulation. Structural and functional genomics, microarray, genome sequencing projects (with special reference to rice, wheat, chick pea and tomato) and proteomics		
25-09-2021	Plant tissue culture	Basic concepts, principles and scope of Biotechnology, plant cell and tissue culture. Concept of totipotency; Micropropagation by axillary bud proliferation and adventitious shoot bud differentiation; Embryogenesis and organogenesis; Somatic hybridization, protoplast-isolation, fusion and culture; Artificial seeds; Somaclones and somatic hybrids; in-vitro production of secondary metabolites and bioactive compounds		100
30-09-2021	Angiosperm taxonomy and evolution	important systems of classification (Bentham and Hooker; Engler and Prantl; Hutchinson and Takhtajan). Role of morphology, anatomy, embryology, palynology, cytology, phytochemistry, genome analysis and nucleic acid hybridization in taxonomy. Taxonomy of some selected families (Leguminosae, Cucurbitaceae, Asteraceae, Asclepiadaceae, Solanaceae, Euphorbiaceae and Poaceae). Phylogeny of angiosperms.		70
05-09-2021	biostatistics	Principles and practices of statistical methods in biological research, samples and population, Data	Paper II unit 12	50

		collection and processing in research; Basic statistics (averages, statistics of dispersion, coefficient of variation, standard error and deviation); Confidence limits, Probability, Distribution (Binomial, Poisson and Normal), Tests of statistical significance, Simple Correlation and Regression, Analysis of Variance		
12-09-2021 (LIVE TEST only 2 pm to 11 pm)	MOCK TEST 1	Paper 1		100
18-09-2021 (LIVE TEST only 2 pm to 11 pm)	MOCK TEST 2	Paper 1		100