

**Session - (2021-2022)**  
**Class - B.Sc.I Sem-1**  
**Subject - Botany**  
**Unitization of Syllabus**

**October**

Basic characteristics of algae; habitat, range of thallus, algal cell structure, photosynthetic pigments, cell wall, flagella, reserves food materials and nutrition; lifecycle pattern, classification, and economic importance of algae.

Important features and life history of Chlorophyceae – Volvox, Oedogonium, Xanthophyceae- Vaucheria, Phaeophyceae- Ectocarpus, Sargassum, Rhodophyceae- Batrachospermum.

**November**

Fungi and Fungi like organisms: General characters. Classification and economic importance; important features and life history of members of Kingdom Chromista: Phytophthora. Kingdom Fungi: Zygomycota-Mucor; Ascomycota- Saccharomyces, Pencillium and Peziza.

Important features and life history of Basidiomycota, Mitosporic Fungi and Lichens – Puccinia, Ustilago, Agaricus; Cercospora, Colletotrichum. Lichens Structure, morphology, reproduction and economic importance.

Viruses: General characters, structure, classification and replication of viruses, importance of viruses, a brief account of Mycoplasma.

**December**

Bacteria- A general account with particular reference to ultra-structure, classification, mode of reproduction, nutritional types and economic importance

General account of cyanobacteria with emphasis on Oscillatoria.

Bryophyta: Amphibians of Plant Kingdom displaying alternation of generations structure, reproduction and affinities of Marchantia (Hepaticopsida) Anthoceros (Anthocerotopsida); Funaria (Bryopsida) - developmental stages are excluded. Evolution of sporophytes in Bryophytes.

**January & February**

Pteridophyta: The first vascular plants: important characteristics, structure and reproduction of Psilopsida (Rhynia); Lycopsida (Selaginella); Sphenopsida (Equisetum) and Pteropsida (Pteris and Marsilea) – developmental stages are excluded. Evolution of stellar system in Fern-allies and Ferns.

**Session - (2021-2022)**  
**Class - B.Sc.I Sem-2**  
**Subject - Botany**  
**Unitization of Syllabus**

**March**

General Structure of Cell: Structure and function of nucleus: Ultrastructure of nuclear membrane, nuclear pore; nucleolus

Structure and function of cell organelles: Mitochondria, Plastids, Ribosomes, Golgi Body, Endoplasmic Reticulum, Peroxisomes, Vacuoles. Extranuclear genome: Presence and function of mitochondrial and plastid DNA.

Chromosome organization: Morphology; centromere and telomere; chromosome alterations – deletions, duplications, translocations, inversions. Variations in chromosome number – aneuploidy, polyploidy. Sex chromosomes.

**April**

The cell envelopes: Structure, composition and functions of cell wall and plasma membrane in microbes and plants.

DNA the genetic material: DNA structure; replication; DNA – protein interaction the nucleosome model. Genetic code, satellite and repetitive DNA, Cell division: Mitosis, meiosis.

Genetic inheritance: Mendelism, laws of segregation and independent assortment linkage analysis; allelic and non-allelic interactions.

**May**

Gene expression: Structure of gene; transfer of genetic information–transcription, translation, protein synthesis; regulation of gene expression in prokaryotes and eukaryotes. Proteins structure; Genetic Variations: Mutations – spontaneous and induced transposable genetic elements.

Brief account of origin of life, evolutionary theories of Lamark, Darwin and DeVries, evidences for organic evolution

**Session - (2021-2022)**  
**Class - B.Sc.II Sem-3**  
**Subject - Botany**  
**Unitization of Syllabus**

**August**

General features of gymnosperms and their classification.

Origin and evolution of Angiosperms giving suitable examples. Primitive and advanced characters of Angiosperms.

**September**

Classification of angiosperms: salient features, comparison, merits and demerits of the classification systems proposed by Bentham and Hooker and Engler and Prantl.

Diagnostic features, technical description and taxonomic significance of flowering plants as illustrated by members of families Ranunculaceae, Brassicaceae,

General characters of Cycadales. Morphology, anatomy, reproduction and life cycle of Cycas

**October**

General characters of Coniferales and Ephedrales. Morphology, anatomy, reproduction and life cycle of Pinus and Ephedra.

Families Malvaceae, Rutaceae, Fabaceae, Apiaceae, Cucurbitaceae, Rosaceae, Apocynaceae, Asclepiadaceae, Solanaceae

**November**

Angiosperm taxonomy: brief history, aims and fundamental components taxonomy, taxonomy and taxonomy identification keys. International code of Botanical nomenclature: Principles and rules; taxonomic ranks; type concept.

Families Lamiaceae, Euphorbiaceae, Asteraceae, Liliaceae and Poaceae.

Reproduction and life cycle of Gnetum

General features of gymnosperms and their classification; fossil gymnosperms Pentoxylon, Cordaites, Bennettites, Glossopteris, Lyginopteris, Williamsonia, Distribution, Cytology and Economic Importance of Indian Gymnosperms.

General characters of Pro-Gymnosperms, morphological features of Arachaeopteris and Aneurophyton.

**Session - (2021-2022)**  
**Class - B.Sc.II Sem-4**  
**Subject - Botany**  
**Unitization of Syllabus**

**March**

Tissue Systems: Epidermal: Structure and types of stomata, idioblasts, trichomes, nectaries, hydathodes. Fundamental: parenchyma, collenchyma, and sclerenchyma Vascular system.

Flower: a modified shoot; structure, development of flower; Inflorescence types of structure of anther and pistil.

**April**

The root system: the root apical meristem and its histological organization anatomical details of Dicot and Monocot roots.

The shoot system: The shoot apical meristem and its histological organization. Anatomical details of Dicot and Monocot stems.

Male and female gametophytes types of pollination; pollen-pistil interaction, self-incompatibility, double fertilization.

**May**

Cambium and its functions. Secondary growth including anomalous secondary growth

Leaf: Anatomy in Dicots and Monocots and modification with special reference to their function.

Post fertilization changes, endosperm and embryo development; seed development, structure and dispersal; dormancy fruit development and types of fruit.

Vegetative Reproduction: Various methods of vegetative propagation and applications in floriculture and horticulture.

# Session - (2021-2022)

## Class - B.Sc.III Sem-5

### Subject - Botany

### Unitization of Syllabus

#### August

Plant-water relations: Importance of water to plant life; diffusion and osmosis. absorption, transport of water and transpiration; mechanism of stomatal opening and closing.

Mineral nutrition: Essential macro- and micro- elements and their role; mineral uptake deficiency and toxicity symptoms.

#### September

Transport of organic substances: Mechanism of phloem transport; source-sink relationship, factors affecting translocation.

Basics of enzymology: Discovery and nomenclature; characteristics of enzymes concepts of holoenzyme, apoenzyme, coenzyme and cofactors; regulation of enzyme activity; mechanism of action.

Growth, phases of growth, growth kinetics; plant hormones: discovery, bioassay, physiological effects and application of auxins, gibberellins, cytokinins, abscisic acid and ethylene

Photomorphogenesis, discovery, structure, physiological role and mechanism of action of phytochrome and cryptochrome.

#### October

Photosynthesis: Significance; historical aspects; photosynthetic pigments; action spectra and enhancement effect; concept of two photosystems; Z-scheme, photophosphorylation; Calvin cycle; C<sub>4</sub> pathway; CAM plants; photorespiration.

Respiration: ATP- the biological energy currency; aerobic and anaerobic respiration, Krebs's cycle, electron transport mechanism (chemi-osmotic theory) redox potential, oxidative phosphorylation, pentose phosphate pathway.

Nitrogen Fixation : Symbiotic and Asymbiotic, Nitrogen fixation, Mechanism of Nitrogen fixation; mechanism of nodule formation, Assimilation of fixed Nitrogen.

Lipid : Structure and function of lipids;  $\beta$ - oxidation.

#### November

Photoperiodism, vernalization, biological clocks, physiology of senescence and abscission.

Physiology of seed dormancy and seed germination; plant movements.

Tools and techniques of recombinant DNA technology with special reference to restriction enzymes, gel electrophoresis, Southern blotting, cloning vectors and PCR. Genomic and cDNA library.

Methods of G transfer in plants: physical, chemical and biological methods.

Basic concept of plant tissue, culture, totipotency, micropropagation, anther culture, embryo culture, synthetic seeds and somatic hybridization.

Plant Biotechnology and its application in human welfare with particular reference to industry, agriculture and molecular farming.



# Session - (2021-2022)

## Class - B.Sc.III Sem-6

### Subject - Botany

### Unitization of Syllabus

#### March

Concept of ecology and its scope. Environmental factors: climatic, edaphic, topographic and biotic, Shelford's law of tolerance.

Population ecology: Characteristics, positive and negative interaction, growth forms, carrying capacity, ecotypes and ecads.

Community ecology: Community characteristics, frequency, density and abundance, cover, life forms. ecological succession (Hydrosere, Xerosere). Gause principle of competitive exclusion.

Structure and concept of ecosystem, ecological pyramids, food chain, food web, ecological energetics, ecological productivity.

Environmental issues: Brief idea of air, water, noise and soil pollution. Global warming and ozone depletion. International efforts for mitigation of global climate change.

#### April

Biodiversity: Introduction and Importance of Biodiversity; Elements of Biodiversity;

Genetic, species and ecological diversity. Conservation strategies, concept of hot spots, biomes, phytogeographic regions of India, vegetation types (Forests, Grasslands, Deserts and Wetlands).

Ecological adaptations in xerophytes, hydrophytes and halophytes.

Biogeochemical cycles with particular reference to C, N and P

The importance and nature of plant products; fibres: surface fibres (cotton), soft fibres (Jute), hard fibres (Coir). Forest products: Wood, properties, seasoning and importance, important timber plants of India.

Brief history of origin of food plants; cultivation practice and recommended varieties of wheat, rice, maize and sugarcane with particular reference to Punjab.

#### May

Cultivation practices and use of soyabean, sunflower, mustard, groundnut and coconut.

Vegetables and Fruits: Botanical name, family, season and area of cultivation of potato, tomato, brinjal, carrot, ladyfinger, pea, mango, apple, banana, guava, kinnow and grapes.

Spices: General account pertaining to botanical name, family and part used in case of clove, cardamom, black pepper, turmeric, cumin and ginger.

Medicinal Plants: General account pertaining to botanical name, family, part used and active principle in case of belladonna, neem, tulsi, stevia, rauwolfia, ashwagandha and glycyrrhiza.

Beverages and Narcotics: Cultivation practices, botanical name, family and active ingredients of tea and coffee. Cannabis, tobacco and opium.

Rubber: Major sources, cultivation, processing and uses of Para rubber.

1. अगस्त से सितम्बर 2017-2018

हिन्दी साहित्य का इतिहास - आदिकाल का नामकरण  
पारिस्थितियाँ, प्रवृत्तियाँ  
चंद्रबख्श और उनके पृथ्वीराज रासो,  
की प्रभावशालिता, अप्रभावशालिता।

व्याख्या -

संज्ञा, सर्वनाम, क्रिया, विशेषण, क्रिया विशेषण

1. Class Test -

2. Revision -

2. सितम्बर से अक्टूबर 2017-2018 के पाँच (उपन्यास) भगवती चरणा

आलोचनात्मक प्रश्न (लेखक परिचय / स्वप्न का सार,  
समीक्षा, उद्देश्य, चरित्र-चित्रण आदि।  
सप्रसंग व्याख्या, अति लघु उत्तरात्मक प्रश्न।)

1. Revision -

2. Mid Semester Exam -

3. अक्टूबर से नवम्बर 2017-2018

दीपिका (आधुनिक हिन्दी-काव्य)  
डा० हेमराज निर्मल

सप्रसंग व्याख्या -

आलोचनात्मक प्रश्न (काव्य परिचय,  
स्वप्न का सार, उद्देश्य समीक्षा, चरित्र-चित्रण आदि।

अति लघु उत्तरात्मक प्रश्न।

1. Class Test -

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4.

सितम्बर 2017 - 2018

हिन्दी साहित्य का इतिहास — Revision

दीर्घिका (आधुनिक हिन्दी काव्य — कविता पाठ

Revision

class Test



1. जनवरी से फरवरी 2017-2018

हिन्दी साहित्य का इतिहास (केवल अर्न्त काल)

अर्न्तकाल की परिस्थितियाँ,

कवि - कबीर, जायसी, फरीद, अर्न्तकाल स्वी  
शूरदास, तुलसीदास के काल की विशेषताएँ

1. Revision 3

2. Class Test

2. फरवरी से मार्च 2017-2018

मुहावरे, लक्ष्यवित्या (अर्थ व वास्तव)

शुद्ध - अशुद्ध, पर्यायवाची, विपरीतार्थक शब्द,

अनेकार्थक शब्द।

Class Test

3. मार्च से अप्रैल 2017-18

सात कहानियाँ (संपा ईश्वरदास जोषी)

1. पुस की रात, - प्रेमचंद

2. देवस्थ, - जयशंकर प्रसाद

3. प्रायश्चित, - भगवती चरण वर्मा

4. खुदा का खौफ - यशपाल

5. जिन्दगी और गुलाब के फूल - उषा प्रियंवदा

6. परमात्मा का कुत्ता - मोहन राकेश

7. सजा - मन्जु अण्डारी

आलोचनात्मक प्रश्न

संप्रसंग व्याख्या

लेखक परिचय, रचना का सार, रचना का उद्देश्य  
विद्यार्थियों से सार्त कक्षाओं का  
पाठ्य पठन कराया,

Class Test Mid Semester  
Revision

4. अप्रैल से मई-2017-18

कविला (नाटक) प्रेमचंद, सम्पादक सुधाजित

लेखक परिचय  
संप्रसंग व्याख्या,

आलोचनात्मक प्रश्न, रचना का सार, रचना का  
उद्देश्य,

Class Test

1. अगस्त से सितम्बर 2017-2018  
हिन्दी साहित्य का इतिहास - रीतिकाल  
जामकरणी, परिस्परितियाँ, प्रवृत्तियाँ  
प्रमुख कवि - रसखान, धनानन्द, बिहारी, भूषण, गुरुगोविन्द जी  
के काव्य की विशेषताएँ।

काव्यगत विशेषताओं की  
Revision  
class test

2. सितम्बर से अक्टूबर 2017-2018  
हिन्दी भाषा : उद्भव और विकास  
हिन्दी भाषा के विभिन्न रूप - राजभाषा, राष्ट्रभाषा,  
सम्पर्क भाषा, शब्द भण्डार और मानकीकरण।

प्रतिनिधि कवित्तियाँ: जयशंकर प्रसाद।

ग्राम, आकाशदीप, आँधी, मधुषा, पुरस्कार (लेखक  
परिचय, रचना का सार, रचना की समीक्षा, उद्देश्य  
चरित्र - चित्रण आदि।

संप्रसंग व्याख्या, लघु आते लघु उत्तरात्मक प्रश्न।

Revision

Mid Semester Test

3. अक्टूबर से नवम्बर 2017-18

रीति सौख्य

सप्रसंग व्युत्पत्ति, कवि परिचय, रचना का सार,  
रचना समीक्षा, उद्देश्य, चरित्र-चित्रण आदि।

लघु - अति लघु उत्तरात्मक प्रश्न।

पाठ्यक्रम समाप्त के बाद Revision

Class Test

4. दिसम्बर 2017-18

हिन्दी साहित्य के इतिहास की Revision

हिन्दी भाषा के विभिन्न रूप, व स्थिति Revision



10 जनवरी से फरवरी 2017-18

आधुनिक हिन्दी काव्य के विभिन्न  
आंदोलन नई कविता तक -

नामकरण, परिस्थितियाँ,  
प्रवृत्तियाँ प्रमुख कवि -

जयशंकर प्रसाद, निराला,  
महादेवी वर्मा और अज्ञेय के काव्य की  
विशेषताएँ।

1. कक्षा में पाठ्यक्रम संशोधन।

2. कक्षा में लिखित परीक्षा।

20 फरवरी से मार्च 2017-18

उषा प्रियवंदा - "पंचपन खम्बे लाल  
दीवारें"

अन्यास  
रचना का सार, लेखक परिचय, रचना समीक्षा, उद्देश्य  
चरित्र चित्रण

सप्रसंग व्याख्या आदि।

1. Revision पाठ्य पठन अन्यास

2. लिखित परीक्षा

30 मार्च से अप्रैल - 2017-18

पांच रत्नांकी - सम्पादक सुरेश चंद

रचना का सार, कवि/लेखक, परिचय, रचना समीक्षा

रचना का उद्देश्य, चरित्र-चित्रण आदि।

सप्रसंग व्याख्यान।

पाठ्यक्रम की पुनरावृत्ति कराई गई।

कक्षा में लिखित परीक्षा ली गई।

५० मई २०१७-१८ अंशकार (लक्षण, उदाहरण)

अनुप्रास, उपमा, रूपक, यमक, उत्प्रेक्षा,

अतिशयोक्ति, श्लेष, विभावना, दृष्टान्त, अन्योक्ति,

पाठ्यक्रम पुनरावृत्ति

10

अगस्त से सितम्बर 2017-18

मौलिक (काव्य संग्रह) की

कबीर, गुरु गोबिन्द,  
सुखाय, लुनसी

मौलिक (काव्य परिवर्तन, रचना का सार  
समीक्षा, उद्देश्य, विशेषताएं)

सम्पादक: डॉ. जयनाथ  
मौलिक

आलोचनात्मक प्रश्न आदि

संप्रसंग व्याख्या

कला में काव्य पाठ

काव्यों काव्यों की रचनाओं का विवरण  
लिखित परीक्षा

20 सितम्बर से अक्टूबर 2017-18

काव्य शास्त्र: काव्य का स्वरूप

प्रयोजन, भेद, महाकाव्य के लक्षण, शब्द  
शक्तियाँ।

पाठ्यक्रम की पुनरावृत्ति

कला में लिखित परीक्षा

30

अक्टूबर से नवम्बर 2017-18

निबन्ध परिवेश (सम्पादक)

योगेन्द्र बखशी

केवल पांच निबन्धकार: भारतेन्दु, चन्द्रधर शर्मा  
पुरुष सिंह, धर्मवीर भारती,  
कुवेरनाथ राय।

निबन्ध परिवेश —

रचना का सार, लेखक परिचय,  
समीक्षा, उपदेश, विशेषताएं।

आलोचनात्मक प्रश्न, समसंग व्याख्या।  
पाठ्यक्रम की पुनरावृत्ति  
लिखित परीक्षा

प० नवम्बर से दिसम्बर 2017 — 18

धन्व — (लक्षणा - उदाहरण)

चौबई, दोहा, सौरठा, हरीगीतिका, कुंडलिया, छप्पय,  
वरतै, उल्लाल, सतोगर व अहीर

मल्लिका के कवियों की पुनरावृत्ति

काव्य शास्त्र की पुनरावृत्ति



जनवरी से फरवरी तक — 2017-18

महादेवी का गद्य-साहित्य सम्पादक: डॉ सुधा जितेंद्र

केवल पाँच लेख (रामा, वीसा, अमृतन, चीनी फेरी वाता, सुभद्रा कुमारी चौहान)।

रचना का सार, लेख परीचय, समीक्षा, उद्देश्य, विशेषताएं आदि।

सप्रसंग व्याख्या

Revision

Class Test

20 फरवरी से मार्च 2017-18

हिन्दी साहित्य का इतिहास —

आधुनिक काल:

नवीन विचार — जीवनी, आत्मकथा, संस्मरण, रेखाचित्र, आलोचना का विकास।

लिखित परीक्षा।

30 मार्च से अप्रैल 2017-18

ध्रुवस्वामिनी नाटक (जयशंकर प्रसाद)

रचना का सार, लेख परीचय, रचना की समीक्षा

रचना का उद्देश्य विशेषतः आदि।

आलोचनात्मक - प्रश्न । अप्रसंग व्याख्या ।  
अति लघु उत्तरात्मक प्रश्न ।

पुनरावृत्त

लिखित परीक्षा

५० अप्रैल से मई २०१७-१८

विद्यागत धारणः निबन्ध, जीवनी, संस्मरण,

रेखाचित्र - परिभाषा, स्वरूप व तत्व ।

हिन्दी साहित्य के इतिहास की गद्य विद्याओं की पुनरावृत्ति

## **COURSE OUTCOMES: BA PUBLIC ADMINISTRATION**

### **Aims of B. A. (General) Public Administration:**

- Provide students with learning experiences that develop broad knowledge and understanding of key concepts of Public Administration and equip them with advanced knowledge and understanding for analyzing and performing the tasks concerning Public Affairs and Public Policy.
- Nurture ability among students to apply the acquired knowledge and skills to find solutions to specific theoretical and applied problems in Public Administration settings.
- Develop abilities in students to come up with innovative prescriptions/solutions for the benefit of society by diligence, leadership, team work and lifelong learning.
- Provide students with skills that enable them to get employment in public, private and non-governmental sectors, pursue higher studies or research assignments.

### **Program Learning Outcomes of B. A. General Public Administration:**

The learner who completes three years of the undergraduate program in Public Administration would earn a Bachelor's degree. The learning outcomes that a student should be able to demonstrate on completion of a degree level program may involve academic, behavioral and social competencies.

#### **1. Academic Competence**

- Disciplinary knowledge and methods including data analysis and computer literacy.
- Basic professional skills pertaining to psychological testing, assessment and counseling.
- Ability to use skills in specific areas related to chosen specialization (e.g. cognitive, industrial-organizational, clinical, counseling, health, educational, social, community).
- Ability to relate and connect concepts with personal experiences and using critical thinking.
- Curiosity and ability to formulate psychology related problems and using appropriate concepts and methods to solve them.

- Ability to use various e-resources and social media and negotiating with technological challenges.
- Articulation of ideas, scientific writing and authentic reporting, effective presentation skills.
- Dealing with conflicting theories and approaches, learning to withstand ambiguities and understanding the limitations of the discipline

## **2. Personal & Behavioral Competence**

- Self-development, health and hygiene, self-regulation skills.
- Developing positive attributes such as empathy, compassion, social participation, and accountability.
- Developing cultural and historical sensibility particularly indigenous traditions, socio-cultural context and diversity.
- Having conversational competence including communication and effective interaction with others, listening, speaking, and observational skills.
- Appreciating and tolerating different perspectives.
- Ability to work both independently and in group and dealing effectively with clients and stakeholders, learning the art of negotiation.

## **3. Social Competence**

- Collaboration, cooperation and realizing the power of groups and community.
- Analyzing social problems and understanding social dynamics.
- Gender sensitization including gender respect, respect for one's own gender, dealing with gender confusion and gender identity issues.
- Ethical, social and ecological responsibility including acknowledging the dignity and presence of others, awareness of social order, learning of values and social concern reflected through activation of social participates (e.g. village surveys, visiting old age homes and spending time with elderly, orphanage community service etc.).
- Moral and ethical awareness and reasoning involving objective and unbiased work attitude, avoiding unethical behavior such as data fabrication and plagiarism, observing code of conduct, respecting intellectual property rights and being aware of the implications and ethical concerns of research studies.



### **Graduate Attributes:**

A set of individually assessable outcomes that collectively indicate the graduate's potential to acquire the competence to perform certain tasks, duties and responsibilities.

- **Discipline-specific Knowledge:** Acquire an in-depth knowledge of Public Administration both as a theoretical discipline and a profession.
- **Critical Thinking:** Analyze complex administrative problems critically; apply independent judgment for analyzing information to make intellectual and/or rational decisions for conducting social enquiry in a wider theoretical, practical and policy context of Public governance.
- **Analytical Reasoning:** Develop the ability to evaluate the reliability and relevance of evidence in the field of Public Administration; identify logical limitations and gaps in the arguments of others; analyze and synthesize data from diverse sources; draw valid conclusions based on evidence and examples and address alternative viewpoints.
- **Communication:** Communicate confidently and effectively with all concerned stakeholders and community leadership, and with society at large, regarding complex social, political and administrative activities, such as, being able to comprehend and write effective reports and design documentation by adhering to appropriate standards; make effective presentations; and give and receive clear instructions.
- **Leadership Readiness/Qualities:** Capability for mapping out the tasks in a team or an organization, self-motivating and inspiring team members to engage with the team objectives/vision; and using management skills to follow the mapped path to the destination in a smooth and efficient way.
- **Life-long Learning:** Recognize the need for and have acquired the ability to engage in life-long independent learning, with a high level of enthusiasm and commitment, to unceasingly improve knowledge and competence.
- **Ethical Practices and Social Responsibility:** Acquire professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, thoughtfulness of the impact of research outcomes on professional practices and an understanding of the responsibility to contribute to the community for sustainable development of society.

# UNITIZATION-ORGANIC CHEMISTRY

SESSION: - 2020- 2021

(B.Sc. Sem – I)

<u>MONTH</u>	<u>Topics Of Syllabus</u>	<u>Program Outcomes</u>
<u>JULY</u>	<b><u>Structure and Bonding</u></b> Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bond, Van der Waals interactions, resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding.	To understand the basics of structure of organic molecules and apply in structural determination.
<u>AUGUST</u>	<b><u>Mechanism of Organic Reactions</u></b> Curved arrow notation, drawing electron movements with half-headed and double-headed arrows, homolytic and heterolytic bond breaking. Types of reagents of organic reaction. Energy considerations. Reactive intermediates- carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species. Methods of determination of reaction mechanism (product analysis, intermediates, isotope effect, kinetic and stereo-chemical studies).	To understand the meaning and implication of various notations used for writing reaction mechanisms.
<u>SEPTEMBER</u>	<b><u>Alkanes-</u></b> Isomerism in alkanes, sources, methods of formation (with special reference to Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids), physical properties and Mechanism of free radical halogenation of alkanes: orientation, reactivity and selectivity.	Understanding various types of isomerism shown by alkanes and physical and chemical properties of alkanes'
<u>OCTOBER</u>	<b><u>Cyclo alkanes-</u></b> Cycloalkanes--nomenclature, chemical reactions, Baeyer's strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strain less rings. The case of cyclopropane ring: banana bonds.	To understand type of isomerism exhibited by cycloalkanes and its implication.
<u>NOVEMBER</u>	<b><u>Alkenes, Cycloalkenes</u></b> - Nomenclature of alkenes-methods of formation, mechanisms and dehydration of alcohols and dehydrohalogenation of alkyl halides regioselectivity in alcohol dehydration. The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes. Chemical reactions of alkenes-mechanisms involved in hydrogenation, electrophilic and free radical additions Markownikoff's rule, hydroboration-oxidation, oxymercuration reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with $\text{KMnO}_4$ . Polymerization of alkenes. Substitution and the allylic and vinylic positions of alkenes. Industrial application of ethylene and propene. Methods of formation, conformation and chemical reactions of Cycloalkenes	To understand the various methods of preparations of alkenes, cycloalkenes, with special emphasis on their physical and chemical properties .

**DECEMBER**

**Dienes And Alkynes-** Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of allenes and butadiene, methods of formation, polymerization. Chemical reactions-1,2 and 1,4 additions, Diels-Alder reaction. Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions hydroboration-oxidation. metal-ammonia reductions, oxidation and polymerization.

To understand the IUPAC names of dienes and various types of methods of their [preparations along with the mechanism of their general chemical reactions.

## ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

### PAPER: ADMINISTRATION THEORY (B.A Sem. I)

#### Learning Outcomes

1.	Awareness about the evolution and growth of the discipline of Public Administration.
2.	Learning of basic principles and approaches of Public Administration.
3.	Theoretical clarity of basic concepts and dynamics (both ecological and others) relating to Public organizations.

#### Month wise Unitization Plan

Session	Month	Topics form the Syllabus
July 2022	August	Meaning, Nature & Scope of Public Administration; Public and Private Administration (differences & similarities); Public Administration as Science or Art; Relationship of Public Administration with other Social Sciences- Political Science, Economics
	September	Relationship of Public Administration History & Sociology New Public Administration & New Public Management; Organization: Meaning, Bases, Formal & Informal Organization.
	October	Chief Executive; Line & Staff Agencies;  ➤ Mid Semester Test & Assignments
	November	Principles of Organization- Hierarchy, Centralization, Decentralization, Coordination, Communication; Legislative & Judicial Control over Administration; Delegated Legislation (meaning, reasons for its growth, merits, demerits and safeguards).
	December & January	Revision/Preparation of Exams

Note: Dates may vary as per the instruction received for beginning of classes and conduct of examinations by the University.

ਰੋਹਿਤ ਬਰਾਚ (ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ)

ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ



## ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

### PAPER: PERSONNEL ADMINISTRATION IN INDIA (B.A. Sem. III)

Learning Outcomes	
1.	Conceptual clarity regarding Public Personnel Administration, its issues, career systems and other dimensions covering various aspects of personnel administration.
2.	Detailed understanding of the Public personnel system of the Indian Republic.
3.	Theoretical clarity of basic concepts and dynamics relating to Public organizations.

Month wise Unitization Plan		
Session	Month	Topics form the Syllabus
July 2022	August	Personnel Administration: Meaning, Nature and Scope; Civil Services in India: Meaning, Features & Role; Classification: Meaning, Advantages and Disadvantages.
	September	Classification of Civil Services in India; Recruitment: Meaning, Methods; Merits & demerits, Recruitment of Civil Services in India.
	October	Union & State Public Service Commissions: Composition and Functions; ➤ Mid Semester Test & Assignments
	November	Training: Meaning, Types; Training System in India; Promotion: Meaning and Principles; Employer-Employee Relations: Joint Consultation Machinery, Conduct and Discipline, Morale; Corruption: Causes and remedies.
	December & January	Revision/Preparation of Exams

Note: Dates may vary as per the instruction received for beginning of classes and conduct of examinations by the University.

ਰੋਹਿਤ ਬਰਾਚ (ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ)

ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

## ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

### PAPER: LOCAL GOVERNMENT IN INDIA (WITH SPECIAL REFERENCE TO PUNJAB) (B.A Sem. V)

#### Learning Outcomes

1.	Acquiring the theoretical knowledge and understanding of the evolution and growth of local governance in India with special reference to Punjab.
2.	Gaining insights about composition, resources, role and functions, of Local Government Institutions.
3.	Understanding role and relationships of local government institutions with other institutions.

Session	Month	Topics from the Syllabus
July 2022	August	Local Government: Meaning and Significance; Evolution of Local Government in India Since 1882; Deputy Commissioner: Appointment, Functions and Role in Local Government.
	September	Panchayati Raj: Concept and Significance; The 73rd Constitutional Amendment Act; Gram Sabha: Composition and Functions; Gram Panchayat, Panchayat Samiti and Zila Parishad: Composition, Functions, source of Finance.
	October	Panchayat Secretary & Block & Development Panchayat Officer (B.D.P.O). Urbanisation- Meaning and Concept; Problems of Urbanisation in Punjab.  ➤ Mid Semester Test & Assignments
	November	The 74th Constitutional Amendment; Types of Municipalities; Municipal council: Structure, Functions, Sources of Finance, President and Executive Officer; Municipal Corporation: Structure, Functions, Sources of Finance, Mayor and Commissioner; State Control over local bodies; State Control over local bodies; District Planning Committee.
	December & January	Revision/Preparation of Exams

Note: Dates may vary as per the instruction received for beginning of classes and conduct of examinations by the University.

ਰੋਹਿਤ ਬਰਾੜ (ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ)

ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

PAPER: INDIAN ADMINISTRATION (B.A Sem. II)

Learning Outcomes	
1.	Knowledge about the evolution and growth of Indian Administration.
2.	Familiarity with the constitutional framework on which Indian Administration is based.
3.	Grasping the role of Union Executive and Executive at the state level.
4.	Delineating the constitutional provisions and dynamics of union-state relationships.

Month wise Unitization Plan		
Session	Month	Topics form the Syllabus
January 2022	January	Features of Indian Administration, Union Executive: The President, The Prime Minister and The Council of Ministers.
	February	The Parliament: Compositions and Functions, Legislative and Administrative Relations between the Union and the States.
	March	State Executive: The Governor, The Chief Minister, The Chief Secretary;  ➤ Assignment, Presentations and Mid Semester Test
	April	State Legislature composition and Functions; Judiciary: Supreme Court of India- Organization and Functions, High Court- Organization and Functions.
	May	Revision/Preparation of Exams

Note: Dates may vary as per the instruction received for beginning of classes and conduct of examinations by the University.

ਰੋਹਿਤ ਬਰਾਚ (ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ)

ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

## ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

### PAPER: FINANCIAL ADMINISTRATION (B.A Sem. IV)

Learning Outcomes	
1.	Knowledge of various aspects of Public Financial Administration in the Indian context.
2.	Understanding the process of Public budgeting, and financial resource mobilization strategies in the Indian context.
3.	Comprehending the system and dynamics of Indian fiscal federalism.
4.	Deep understanding of the role of Finance Commission and Comptroller and Auditor-General of India.

Month wise Unitization Plan		
Session	Month	Topics form the Syllabus
January 2022	January	Meaning and Significance of Financial Administration. Budget: Meaning & Types (Performance and Zero Base Budgeting)
	February	Budget as a Tool of Administration; Principles of Budget Making; Preparation of Budget; Enactment and Execution of the Budget.
	March	Finance Commission: Composition & Functions; Union Ministry of Finance: Organization and Functions; ➤ Assignment, Presentations and Mid Semester Test
	April	Parliamentary Control over Finance; Comptroller and Auditor-General of India: Appointment, Powers and Functions; Financial Relations between the Union and the States.
	May	Revision/Preparation of Exams

Note: Dates may vary as per the instruction received for beginning of classes and conduct of examinations by the University.

ਰੋਹਿਤ ਬਰਾਚ (ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ)

ਪਬਲਿਕ ਐਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

## ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

### PAPER: DEVELOPMENT ADMINISTRATION IN INDIA (WITH SPECIAL REFERENCE TO PUNJAB) (B.A Sem. VI)

#### Learning Outcomes

1.	Developing a basic intellectual understanding of development and sustainable development.
2.	Will be equipped with the knowledge and conceptual clarity of meaning, approaches and models of Comparative Public Administration.
3.	Understanding India as a Welfare State and rationale behind various steps taken uplift the marginal section of the society.
4.	Understanding the significance of planning in development and the role and reach of NITI Aayog in Indian Federalism.

#### Month wise Unitization Plan

Session	Month	Topics form the Syllabus
January 2022	January	Development Administration: Meaning, Nature, Scope & Significance; India as a Welfare and Socialist State; Features of Developed & Developing Countries.
	February	Comparative Public Administration: Meaning, Nature and Scope; Planning in Indias: Meaning & Objectives; Planning Machinery: NITI Aayog, National Development Council & State Planning Board.
	March	Public Enterprise: Meaning & Forms (Department, Corporation & Company). Parliamentary Control over Public Enterprises; ➤ Assignment, Presentations and Mid Semester Test
	April	Welfare of Scheduled Castes, Backward Classes in Punjab. Central Social Advisory Welfare Board and State Social Welfare Advisory Board of Punjab, Punjab State Women Commission: Composition and Functions.
	May	Revision/Preparation of Exams

Note: Dates may vary as per the instruction received for beginning of classes and conduct of examinations by the University.

ਰੋਹਿਤ ਬਰਾਚ (ਸਹਾਇਕ ਪ੍ਰੋਫੈਸਰ)

ਪਬਲਿਕ ਅਡਮਿਨਿਸਟ੍ਰੇਸ਼ਨ ਵਿਭਾਗ

**SHAHEED MAJOR HARMINDERPAL SINGH (SHAURYA CHAKRA)**  
**GOVERNMENT COLLEGE, SAHIBZADA AJIT SINGH NAGAR**

**DEPARTMENT OF PSYCHOLOGY**

**UNITIZATION PLAN**

**B.A. PART-I**

**GENERAL PSYCHOLOGY-A**

**AUGUST:** Introduction to Psychology; Approaches: Biological, Psychodynamic, Behaviourist, Cognitive, Humanistic and Evolutionary, Nature and Scope; Cross cultural Perspective. Methods of Psychology: Observation, Case Study, Experimental Method, Survey.

**SEPTEMBER:** Learning: Nature, Determinants. Theories- Trial and Error, Gestalt approach.

**OCTOBER:** Personality: Nature, Biological and Socio-Cultural Factors, Theories-Freud, Allport, Cattell, Eysenck; Assessment of Personality.

**NOVEMBER:** Statistics: Measures of Central Tendency (Arithmetic Mean, Median, Mode) and Variability (Range, Average Deviation, Quartile Deviation, Standard Deviation). Graphical Representation of Data: Histogram, frequency polygon and ogive.

**GENERAL PSYCHOLOGY-B**

**JANUARY:** Biological foundations of Behaviour: Nervous System: Central Nervous System and Peripheral Nervous System. Structure and Functions of Brain. The Endocrine System and its Functions.

**FEBRUARY:** Intelligence: Nature, Genetic and Environmental influences; Types of Intelligence Tests- Verbal, Non-Verbal, Performance; Cross cultural issues in testing.

**MARCH:** Motivation: Concept, Types of Motives; Intrinsic-Extrinsic framework; Conflict and Frustration. Theories: Murray, Maslow, McClelland.

**APRIL:** Emotions: Concept, Development, Expression and Control  
Theories-James-Lange, Cannon-Bard, Activation; Effect of Culture on Emotions :  
Physiological Correlates.



## **SEM-I PRACTICAL**

**AUGUST:** Personality Inventory (EPI)

**SEPTEMBER:** Public Opinion Survey

**OCTOBER:** Sentence Completion Test

**NOVEMBER:** Transfer of learning, Maze Learning

## **SEM-II PRACTICAL**

**JANUARY:** Non-Verbal Test of Intelligence

**FEBURARY:** Performance Test of Intelligence

**MARCH:** Facial Expressions in Emotions

**APRIL:** Measurement of Motivation, Level of Aspiration.

## B.A. PART-II

### EXPERIMENTAL PSYCHOLOGY – I

**AUGUST:** Experimental Psychology: Nature, Types of Variables and Control of Extraneous Variables.

**SEPTEMBER:** Memory: Information Processing, Levels of Processing, Measures of Memory; Mnemonics Constructive memory. Forgetting: Causes of Forgetting: Decay, Interference, Retrieval failure, Motivated forgetting and Amnesia.

**OCTOBER:** Learning: Classical Conditioning, Instrumental Conditioning. Types and schedules of Reinforcement.

**NOVEMBER:** Statistics: Properties of Normal Probability Curve and its applications, Degrees of Freedom, Levels of Significance. Chi Square -Application to One Way and Two Way Classification.

### EXPERIMENTAL PSYCHOLOGY – II

**JANUARY:** Psychophysics: Absolute and differential limens, Weber's Law; Method of Limits, Method of Constant Stimuli, Method of Average Error.

**FEBRUARY:** Sensations: Types of Sensation; Visual Sensation: Structure and Function of the Eye. Auditory Sensation: Structure and Function of Ear. Cutaneous Sensation; Olfactory Sensation and Gustatory Sensation.

**MARCH:** Attention: Nature, Determinants, Selective Attention and Span of Attention.

**APRIL:** Perception: Nature, Laws and Determinants. Perception of Form and Depth. Cognition : Thinking process, Concepts, Categories and Prototypes; Problem Solving Approaches.

## PSYCHOLOGY HONOURS

### SOCIAL PSYCHOLOGY-I

**AUGUST:** Introduction: Nature and Scope, Research Methods in Social Psychology.

**SEPTEMBER:** Social Perception and Cognition : Concept, Attribution; Consistency between Attitude and Behaviour. Formation of Attitudes, Attitude Change. Measurement of Attitudes, Attitude Behaviour Link.

**OCTOBER:** Group: Nature, Structure and Functioning, Social Facilitation/Social Loafing.

**NOVEMBER:** Leadership: Concept and Functions of Leaders. Theories of Leadership (Trait, Behavioural, Fiedler's Contingency).

## **SOCIAL PSYCHOLOGY-II**

**JANUARY:** Prejudice and Discrimination: Nature and components of Prejudice;  
Acquisition of Prejudice; Reduction of Prejudice.

**FEBRUARY:** Prosocial Behaviour: Co-operation and helping; Personal, Situational and  
Socio-cultural determinants; Bystander effect.

**MARCH:** Aggression: Theoretical perspectives; Trait, Situational and Social  
learning approaches; Social and personal determinants of Aggression.

**APRIL:** Environmental Issues: Noise pollution and Atmospheric condition;  
Design, Personal space and Territoriality; Density and Crowding;  
Behaviour in response to environmental problems.

## **SEM-III PRACTICAL**

**AUGUST:** Effect of reinforcement in learning task, Paired Associate Learning

**SEPTEMBER:** Paired Associate Learning

**OCTOBER:** Comparing Recall and Recognition as Measures of Memory

**NOVEMBER:** Retroactive Inhibition, Zeigarnik Effect

## **SEM-IV PRACTICAL**

**JANUARY:** Division of Attention

**FEBURARY:** Two-Point Threshold

**MARCH:** Muller Lyer Illusion

**APRIL:** Differential Limen, Effect of Mental Set on Perception

## B.A. PART-III

### PSYCHOPATHOLOGY- A

**AUGUST:** Introduction to Psychopathology: The concept of normality and abnormality; Psychological models of Psychopathology: Psychodynamic, Behavioural, Cognitive-Behavioural and Existential; Classification System: DSM (Recent version).

**SEPTEMBER:** Causes of Psychopathology: Biological, Psycho-social and Socio-cultural causes.

**OCTOBER:** Stress: Causes, Selye's (GAS); PTSD Anxiety-Based Disorders, Conversion Disorders, Dissociative Disorders: Their symptoms and Etiology.

**NOVEMBER:** Correlation: Nature and Characteristic, Types (Rank Order and Product Moment). t-test (independent and related groups).

### PSYCHOPATHOLOGY- B

**JANUARY:** Psychosomatic Disorders: Ulcers, Hypertension, Asthma. Their Etiology and Treatment.

**FEBRUARY:** Schizophrenia: Types, Symptoms and Etiology. Mood Disorders: Types, Symptoms and Etiology.

**MARCH:** Drug Abuse: Causes and Types, Alcohol, Opium, Amphetamines.

**APRIL:** Psychotherapies: Psychodynamic, Behavioural, Cognitive-behavioural, Humanistic, Mindfulness and Yoga.

## PSYCHOLOGY HONOURS

### DEVELOPMENTAL PSYCHOLOGY

**AUGUST:** Concept, Principles and Issues in Development, Factors affecting Development (Biological, Psychological and Social); Principles of Heredity.

**SEPTEMBER:** Prenatal Period and Infancy: Stages and Hazards. Characteristics of Infancy (Physical, Perceptual and Emotional).

**OCTOBER:** Babyhood and Childhood. Babyhood-Characteristics, Physical Development, Language Development, Emotional Development, Social Development. Childhood: Characteristics-Physical Development, Emotional Development, Cognitive Development, Social Development, Moral Development.

**NOVEMBER:** Adolescence: Characteristics, Physical Development, Emotional Patterns, Cognitive, Social and Moral Development.

### **GUIDANCE AND COUNSELLING (Option I)**

**JANUARY:** Guidance and Counselling: Historical Antecedents, Concept, Goals.  
Counselling in the Indian Context.

**FEBRUARY:** Techniques for Appraisal of Students : Testing-Intelligence, Achievement, Interest, Aptitude, Adjustment, Personality.

**MARCH:** Approaches to Counselling : Directive, non-Directive, Eclectic.

**APRIL:** Areas of Counselling: School, Vocational, Marital and Family Counselling.

### **SEM-V PRACTICAL**

**AUGUST:** Interest Inventory

**SEPTEMBER:** T.A.T.

**OCTOBER:** Depression Inventory

**NOVEMBER:** Locus of Control, Memory Scale

### **SEM-VI PRACTICAL**

**JANUARY:** Adjustment Inventory.

**FEBURARY:** Interview Schedule/Case Study.

**MARCH:** Word Association Test.

**APRIL:** Stress/Clinical Analysis Questionnaire (CAQ) , Test of Anxiety.

