उत्तर प्रदेश शिक्षा सेवा चयन आयोग

23 एलनगंज, प्रयागराज–211002

Syllabus

Trained Graduate Teacher (TGT) - BIOLOGY
(Subject Code- 06)

(A) ZOOLOGY

Write classification, nature, structure and life cycle of the following:-

1. Non- chordata

(i) Protozoa: *Entamoeba, Plasmodium, Paramoecium, Euglena.*

(ii) Diseases caused by Protozoa

(iii) Porifera: *Leucosolenia, Sycon.*

(iv) Coelenterata: *Hydra, Obelia, Aurelia.*

(v) Helminthes: *Fasciola, Taenia, Ascaris.*

(vi) Diseases caused by helminthes.

(vii) Annelida: *Nereis, Pheretima,* Leech.

(viii) Arthropoda: Cockroach, *Musca,* Mosquito, *Palaemon.*

(ix) Economic importance of insects.

(x) Mollusca: *Unio, Pila.*

(xi) Echinodermata: Starfish.

2. Protochordata: *Herdmania,* Amphioxus.

3. Chordata:

Vertebrates

(i) Pisces: Scoliodon

(ii) Amphibia: *Rana tigrina*

(iii) Reptilia: *Uromastix* or any other lizards.

(iv) Aves: *Columba*

(v) Mammalia: *Oryctolagus*

Cell Biology: Micro (Ultra) structure of cell, Mitotic and Meiotic division. Gametogenesis.

Inheritance — Mendel and Mendelian laws. Linkage. Gene exchange (Crossing over) and Eugenics.

Evolution:- Bio-evolution, Evidences of Evolution, Principles of Evolution, Lamarckism, Neo-lamarckism, Darwinism, Neo-Darwinism, Cognitive Principle of Evolution, Method/processes of Evolution, Mutation,

Variance, Isolation – Evolution in Epochs/Periods, Human Evolution.

Ecology: Ecology, Basic Process of Ecological System.

Pollution: General knowledge of Pollution.

Physiology: Physiology and Biochemicals, Digestion, Respiration, Circulation and Blood Circulatory System, Excretory System, Nervous system and Preliminary knowledge of Endocrine System.

Biochemistry: Carbohydrate, Protein, Lipids, Enzyme, Preliminary knowledge of functions of hormones and Classification.

Embryology: Embryology, Outlines of embryonic development in Amphioxus, Frog and Poultry, Placenta in mammals.

Biogeography: Principle zoogeographic regions and animal inhabitants.

(B) Botany

i. **Viruses**

Definition, nature, transmission, symptoms, and importance of viruses.

Ii. **Lichens**

Structure and forms of lichens, reproduction, economic importance, symbiotic association, and significance.

iii. **Algae**

Classification of algae; characteristics of major groups including blue-green algae, green algae, brown algae, and red algae. Study of the structure, life cycle, and economic importance of ***Nostoc, Chlamydomonas, Volvox, Ulothrix, Spirogyra, Oedogonium, Ectocarpus, and Batrachospermum.***

iv. **Fungi**

Classification of fungi; characteristics of major groups; structure, habitat, life cycle, and economic importance of ***Mucor, Rhizopus, Pythium, Albugo, Saccharomyces, Penicillium, Puccinia, and Agaricus.***

v. **Bryophyta**

Classification and characteristics of major groups, along with the habitat and life cycle of ***Riccia, Marchantia, and Funaria.***

vi. **Pteridophyta**

Classification and characteristics of major groups, and the habitat and life cycle of ***Lycopodium, Selaginella, Equisetum, and Marsilea.***

vii. **Gymnosperms**

Classification and characteristics of major groups, with the habitat, structure, life cycle, and economic importance of ***Cycas****and* ***Pinus***.

viii. **Palaeobotany**

Geological time scale, types of fossils and fossilization, and the importance of palaeobotany.

2. **Taxonomy (Systematic Botany)**

Study of angiosperm classification up to families according to the Bentham and Hooker system, including Ranunculaceae, Brassicaceae (Cruciferae), Papaveraceae, Caryophyllaceae, Fabaceae (Leguminosae), Rosaceae, Cucurbitaceae, Apiaceae (Umbelliferae),

Asteraceae (Compositae), Solanaceae, Acanthaceae, Lamiaceae (Labiatae), Euphorbiaceae, Liliaceae, and Poaceae (Gramineae).

3. **Economic Botany**

Plants yielding timber, fibres, oils, medicines, beverages, and spices.

4. **Morphology and Anatomy**

External morphology of root, stem, leaf, and flower; types of inflorescence; plant tissues and tissue systems; anatomical features of stem and leaf; primary and anomalous secondary growth in Tinospora, Dracaena, Achyranthes, Boerhaavia, and Nyctanthes.

5. **Embryology**: microsporogenesis, megasporogenesis, male and female gametophytes, fertilization, embryo and endosperm, and the life cycle of angiosperms.

6. **Ecology**: ecosystem and environment, autecology, plant community, ecological succession, plant adaptation, and environmental components and their impact on human life.

6. **Cell Biology, Genetics and Development:**

Plant cell, cell wall, cell organelles, cell division with basic knowledge and significance, chromosome structure and chemistry, Mendelism, linkage and gene interaction, sex determination, mutation, polyploidy, and theories of evolution.

7. **Plant Physiology:**

Water absorption, ascent of sap, transpiration, essential mineral elements and deficiency symptoms, photosynthesis, respiration, translocation of organic solutes, protein synthesis, nitrogen cycle, and plant growth regulators (plant hormones) along with their mechanism of action. Soil Science, Soil formation, types of soil, and soil erosion.