

सेवा सम्बन्धित कार्य-ज्ञान (Job Based -knowledge)
खण्ड (Section) (A)

1. **Structure and Physiology**

- 1.1 The cell: Fine structure of the plant cell (Plasma membrane, Chloroplast, mitochondria, endoplasmic reticulum and nucleus).
- 1.2 The Tissue: Classification of tissues, internal structure of dicot and monocot root, stem and leaf.
- 1.3 Diffusion, Osmosis, water and mineral Transportation, Mechanism of stomatal opening and closing.
- 1.4 Translocation and food storage: translocation pathway, Mechanism of translocation, food storage in seeds and vegetative organs.
- 1.5 Photosynthesis: Importance of photosynthesis, Photosynthetic pigments, Mechanism of photosynthesis, Carbon dioxide assimilation, stages in photosynthesis, the light and dark reaction, Factors affecting the rate of photosynthesis, Limiting factors.
- 1.6 Respiration: Adenosine triphosphate, Respiratory Quotient, and Mechanism of respiration, factors affecting rate of respiration.
- 1.7 Growth: germination of seeds and dormancy, site of growth, phase of growth, measurement of growth, factors affecting growth and growth hormones.
- 1.8 Response: Tropic and mastic movement in plants, the physiology of flowering, photoperiodism and vernalization

2. Laboratory and field techniques used in taxonomical, cytological, anatomical, physiological and ecological studies.

खण्ड (Section) (B) :

3. Diversity of Plant

- 3.1 Principles of classification artificial, natural and phylogenetic systems of classification, binomial nomenclature, outline classification of the plant kingdom. Study of the characteristics of the following families of the plant kingdom cruciferae malvaceae, papilionaceae, compositae and solanaceae.
- 3.2 Virus: Characteristics, structure and life cycle of viruses with special reference of bacteriophage.
- 3.3 Bacteria: Characteristics, shape of bacteria, classification of bacteria, nutrition, respiration and reproduction of bacteria, importance of bacteria.
- 3.4 Algae: Structure and life cycle with special reference to spirogyra.
- 3.5 Fungi :
 - 3.5.1 Yeast: structure, significance of life cycle, alcoholic fermentation.
 - 3.5.2 Rhizopus nigricans: structure and life cycle
- 3.6 Bryophyta : Funaria (Morphology, significance of life cycle with special reference to alternation of generation)
- 3.7 Pteridophyta: Dryopteris and Selaginella (Morphology, significance of life cycle with special reference to alternation of generation).
- 3.8 Gymnosperm : Pinus - Structure, significance of life cycle

परीक्षाको पाठ्यक्रम

4. General

- 4.1 Types of Vegetation in Nepal.
- 4.2 Medicinal and aromatic plants of Nepal with reference to :
 - 4.2.1 Jatamansi (*Nardostachys grandiflora*)
 - 4.2.2 Sarpagandha (*Rauwolfia serpentina*)
 - 4.2.3 Sugandh kokila (*Cinnamomum glauucasens*)
 - 4.2.4 Lemon grass (*Cymbopogon flexousces*)
 - 4.2.5 Citronella (*Cymbopogon winterianus*)
- 4.3 Common Orchids of Nepal
- 4.4 Common Ornamental plants of Nepal