



NOTIFICATION

It is notified for the information of all concerned that revised curriculum 2006 in the subject of BIOLOGY at HSSC level shall stand implemented w.e.f. the academic session 2017-19. Accordingly, the students to be admitted in Class - XI in August 2017 shall be examined in accordance with the revised curriculum in HSSC Part-I examination to be held in the year 2018. Contents of syllabus of Class - XI are enclosed herewith:

The book published by National Book Foundation, Islamabad is recommended for reference and supplementary material.

It is further clarified that the students admitted in Class - XII in 2017 will study the textbook of Biology - XII published by Punjab Textbook Board Lahore and they will be examined from the said book in Annual Examination 2018 accordingly.

27/07/17
(Engr. Muhammad Arif)
Controller of Examinations

To: All Heads of Institutions affiliated with KIU at HSSC level.

Copy to:

1. Executive Secretary to the Vice Chancellor KIU
2. PS To Registrar KIU
3. PS To Secretary Education Gilgit-Baltistan
4. Director Colleges Gilgit-Baltistan
5. Additional Registrar Academics KIU
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**BIOLOGY
For Class - XI**

1. CELL STRUCTURE AND FUNCTION

- 1.1. Techniques used in Cell Biology
- 1.2. Cell Wall and Plasma Membrane - The Boundary Wall
- 1.3. Cytoplasm and Organelles
- 1.4. Prokaryotic and Eukaryotic Cells

2. BIOLOGICAL MOLECULES

- 2.1. Biological Molecules in Protoplasm
- 2.2. Importance of Water (Importance in Protoplasm and in Environment)
- 2.3. Carbohydrates
 - 2.3.1. Classification (Monosaccharide's, Disaccharides and Polysaccharides)
 - 2.3.2. Role of Carbohydrates
- 2.4. Proteins
 - 2.4.1. Structure of Proteins (Amino Acids and Peptide Linkages)
 - 2.4.2. Classification of Proteins (Globular and Fibrous Proteins)
 - 2.4.3. Role of Proteins
- 2.5. Lipids
 - 2.5.1. Classification (Acylglycerols, Phospholipids, Waxes and Terpenes)
 - 2.5.2. Role of Lipids
- 2.6. Nucleic Acids
 - 2.6.1. Structure of Nucleic Acids (Nucleotides and Phosphodiester Linkage)
 - 2.6.2. Classification (RNA and DNA)
 - 2.6.3. Role of Nucleic Acids and Nucleotides (DNA, RNA, ATP and NAD)
- 2.7. Conjugated Molecules (Glycolipids, Glycoproteins, Lipoproteins and Nucleoproteins)

3. ENZYMES

- 3.1. Structure of Enzymes
- 3.2. Mechanism of Enzyme Action
- 3.3. Factors affecting the Rate of Enzymatic Action (Temperature, pH, Enzyme Concentration and Substrate Concentration)
- 3.4. Enzyme Inhibition (Competitive and Non-competitive Inhibitors)
- 3.5. Classification of Enzymes

4. BIOENERGETICS

- 4.1. Photosynthesis
 - 4.1.1. Role of light

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- 4.1.2. Role of Photosynthetic pigments - Absorption Spectra and Action Spectrum
- 4.1.3. Role of Carbon Dioxide
- 4.1.4. Role of Water
- 4.1.5. Mechanism of Photosynthesis

4.2. Cellular Respiration

- 4.2.1. Aerobic and Anaerobic Respiration
- 4.2.2. Mechanism of Respiration
- 4.2.3. Synthesis of ATP Chemiosmosis and Substrate- Level Phosphorylation

4.3. Photorespiration

5. ACCELLULAR LIFE

- 5.1. Viruses - Discovery and Structure
- 5.2. Parasitic Nature of Viruses
- 5.3. Life Cycle of Bacteriophage
- 5.4. Life Cycle of HIV
- 5.5. Viral Diseases (Hepatitis, Herpes, Polio and Leaf Curl Virus Disease of Cotton)
- 5.6. Prions and Viroids (Structure and examples of Diseases caused by them)

6. PROKARYOTE

- 6.1. Taxonomy of Prokaryotes
- 6.2. Archaea
- 6.3. Bacteria: Ecology and Diversity
- 6.4. Structure; Shape and Size of Bacteria
- 6.5. Modes of Nutrition in Bacteria
- 6.6. Growth and Reproduction in Bacteria
- 6.7. Importance of Bacteria (Beneficial and Harmful Bacteria)
- 6.8. The Bacterial Flora of Humans
- 6.9. Control of Harmful Bacteria

7. PROTISTS AND FUNGI

- 7.1. Protists-The Evolutionary Relationships
- 7.2. Major Groups of Protists (Protozoa, Algae, Myxomycota, Oomycota)
- 7.3. General characteristics of Fungi
- 7.4. Diversity among Fungi (Zygomycota, Ascomycota, Basidiomycota)
- 7.5. Importance of Fungi

8. DIVERSITY AMONG PLANTS

- 8.1. The Evolutionary Origin of Plants
- 8.2. Nonvascular Plants (General Characteristics)
- 8.3. Seedless Vascular Plants (General Characteristics)
 - 8.3.1. Evolution of Leaf

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- 8.4. Seed Plants
 - 8.4.1. Evolution of Seed
 - 8.4.2. Gymnosperms (General Characteristics)
 - 8.4.3. Angiosperms (General characteristics and Life Cycle)

9. DIVERSITY AMONG ANIMALS

- 9.1. Characteristics of Animals
- 9.2. Criteria for Animal Classification
- 9.3. Diversity in Animals
 - 9.3.1. Invertebrates
 - 9.3.2. Vertebrates

10. FORM AND FUNCTIONS IN PLANTS

- 10.1. Nutrition in Plants
- 10.2. Gaseous Exchange in Plants
- 10.3. Transport in Plants
 - 10.3.1. Uptake of Water by Roots and Pathways
 - 10.3.2. Ascent of Sap
 - 10.3.3. Opening and Closing of Stomata
 - 10.3.4. Translocation of Organic Matter
- 10.4. Homeostasis in Plants (Osmotic Adjustments and Thermoregulation in Plants)
- 10.5. Support in Plants (Support in Herbaceous and Woody Plants)
- 10.6. Growth and Development in Plants
 - 10.6.1. Tissues for Growth- Apical and Lateral Meristems
 - 10.6.2. Primary and Secondary Growth
- 10.7. Growth Responses in Plants
 - 10.7.1. Plant growth Regulators (PRGs)
 - 10.7.2. Geotropism and Phototropism
 - 10.7.3. Photoperiodism
 - 10.7.4. Vernalization

11. DIGESTION

- 11.1. Digestive System of Man
 - 11.1.1. Alimentary Canal; Structural and Functional Details
 - 11.1.2. Role of Accessory Glands (Liver and Pancreas)
- 11.2. Disorders Related to Digestive System and Food Habits (Ulcer, Food Poisoning, Dyspepsia, Obesity, Anorexia Nervosa, Bulimia Nervosa)

12. CIRCULATION

- 12.1. Blood Circulatory System of Man
 - 12.1.1. Heart
 - 12.1.1.1. Structure of Heart
 - 12.1.1.2. Passage of Blood through Heart
 - 12.1.1.3. Heartbeat and its Control

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- 12.1.1.4. Electrocardiogram
- 12.1.2. Blood Vessels (Arteries, Capillaries and Veins)
 - 12.1.2.1. Vascular Pathway
 - 12.1.2.2. Rate of Blood Flow in Blood Vessels
- 12.1.3. Blood Pressure and its Measurement

12.2. Cardiovascular Disorders

- 12.2.1. Thrombosis
- 12.2.2. Heart Problems
 - 12.2.2.1. Causes and Diagnosis (Angiography)
 - 12.2.2.2. Treatment (Coronary Bypass, Angioplasty, Open Heart Surgery) and Preventions
- 12.2.3. Hypertension (Causes, Related Diseases and Preventions)

12.3. Lymphatic System of Man

13. IMMUNITY

- 13.1. First Line of Defense (Skin, Digestive Tract, Air Passageway)
- 13.2. Second Line of Defense - The Non-specific Defenses
 - 13.2.1. Killing Cells of Blood
 - 13.2.2. Protective Proteins
 - 13.2.3. Inflammatory Response
 - 13.2.4. Temperature Response
- 13.3. Third Line of Defense - The Specific Defenses
 - 13.3.1. Inborn and Acquired Immunity
 - 13.3.2. Cell Mediated and Antibody Mediated Immunity
 - 13.3.3. Disorders of Immunity (Allergies, Autoimmune Diseases, Transplant Rejections)

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