



ACCELERATED LEARNING PROGRAMME (ALP)

تسریع التعلیم پروگرام

برائے

سیکنڈری کلاسز

پنجاب کریکولم اینڈ ٹیکسٹ بک بورڈ، لاہور

CHAPTER 1: INTRODUCTION TO BIOLOGY

Introduction to Biology, Divisions and Branches of Biology (Pg. 2-3), Quran and Biology (Pg. 6-7), The Levels of Organization (Pg. 7-13)

Practicals:

1. Study of external morphology of mustard plant and microscopic examination of root, stem, leaf, flower, fruit and seeds
2. Identification of major organs and organ systems in a dissected frog (Dissection by demonstrator / teacher)

Questions:

Classwork: Multiple Choice Questions (Pg. 1-10) (Pg. 17)

Homework: Understanding the Concepts (Qs: 1, 2, 3, 5, 6, 7), Short Question (1) (Pg. 18)

CHAPTER 2: SOLVING THE BIOLOGICAL PROBLEM

Biological Method, Biological Problem, Hypothesis, Deductions and Experiments, (Pg. 20-23) Theory, Law and Principle, Data Organization and Data Analysis (Pg. 26-28)

Practicals:

No Practical

Questions:

Classwork: Multiple Choice Questions (1-9) (Pg. 29-30)

Homework: Understanding the Concepts (Q: 3), Short Questions (1, 2) (Pg. 30)

CHAPTER 3: BIODIVERSITY

Biodiversity, Importance of Biodiversity, Classification, Aims of Classification, Basis of Classification, Taxonomic Hierarchy, Species-Basic Unit of Classification (Pg. 31-35), Five Kingdom Classification System, The Five Kingdoms, Binomial Nomenclature (Pg. 37-40)

Practicals:

No Practicals

Questions:

Classwork: Multiple Choice Questions (1-11) (Pg. 48-49)

Homework: Understanding the Concepts (Qs: 1-5), Short Questions (1-3, 5) (Pg. 49)

CHAPTER 4: CELL BIOLOGY

Cellular Structures and Functions, Cell Wall, Cell Membrane, Cytoplasm, Cell Organelles, Nucleus, Ribosomes, Mitochondria, Plastids, Endoplasmic Reticulum, Golgi Apparatus, Lysosomes, Centrioles, Vacuoles, Difference between Prokaryotic and Eukaryotic Cells (Pg. 57-66), Passage of Molecules Into and Out of Cells, Diffusion, Facilitated Diffusion, Osmosis, Filtration, Active Transport, Endocytosis, Exocytosis (Pg. 69-74)

Practicals:

1. Identify from fresh preparations, the cell membrane, nucleus and cytoplasm in an animal cell and the cell wall, cell membrane, sap vacuole, cytoplasm, nucleus and chloroplasts in a plant cell

Questions:

Classwork: Multiple Choice Questions (1, 3-15) (Pg. 83-84)

Homework: Understanding the Concepts (Qs: 1-5, 6, 7), Short Questions (2-3) (Pg. 84)

CHAPTER 5: CELL CYCLE

Cell Cycle, Mitosis, Phases of Mitosis, Significance of Mitosis (Pg. 87-93), Meiosis, Phases of Meiosis, Significance of Meiosis (Pg. 95-100), Comparison between Mitosis and Meiosis (Pg. 101)

Practicals:

1. Observation of various stages of mitosis and meiosis by slides, model and charts

Questions:

Classwork: Multiple Choice Questions (1-15) (Pg. 104-105)

Homework: Understanding the Concepts (Qs: 1-8), Short Questions (1-4) (Pg. 105)

CHAPTER 6: ENZYMES

Enzymes, Characteristics of Enzymes (Pg. 107-109), Mechanism of Enzyme Action (Pg. 111-112)

Practicals:

1. Experiment to show working of enzyme in vitro e.g. Pepsin working on meat in test tube

Questions:

Classwork: Multiple Choice Questions (1-4) (Pg. 115)

Homework: Understanding the Concepts (Qs: 1, 2, 7), Short Question (1) (Pg. 116)

CHAPTER 7: BIOENERGETICS

Oxidation-Reduction Reactions, ATP - The Cell's Energy Currency, Photosynthesis, Mechanism of Photosynthesis, Light Reactions, Dark Reactions (Pg. 118-122), Respiration, Aerobic and Anaerobic Respiration (Excluding importance of fermentation) (Pg. 130-131), Tables: 7.1, 7.2 (Pg. 135, 136)

Practicals:

1. Demonstration of the process of photosynthesis using an aquatic plant, like Hydrilla

2. Investigation of the release of carbon dioxide and heat during Aerobic Respiration in germinating seeds

Questions:

Classwork: Multiple Choice Questions (3, 4, 9) (Pg. 137)

Homework: Understanding the Concepts (Qs: 4, 5, 7, 8), Short Questions (1-4) (Pg. 137-138)

CHAPTER 8: NUTRITION

Components of Human Food, Carbohydrates, Lipids, Proteins, Minerals (Excluding Role of Calcium and Iron), Table 8.2 (Pg. 143-144), Vitamins (Table 8.3: Functions, deficiencies and sources of important Vitamins - Table only) (Pg. 146), Effects of Water and Dietary Fiber, Digestion in Humans, Human Alimentary Canal, Role of Liver (Pg. 157-164)

Practicals:

1. Microscopic examination of a transverse section of the small intestine to show the villi

Questions:

Classwork: Multiple Choice Questions (1, 2, 4, 5, 7, 11, 13, 15) (Pg. 167- 168)

Homework: Understanding the Concepts (Qs: 3, 4, 6, 10-11), Short Questions (1, 3, 5) (Pg.168- 169)

CHAPTER 9: TRANSPORT

Transport in Plants, Water and Ion Uptake, Transpiration, Opening and Closing of Stomata

(Pg. 171-174), Significance of Transpiration (Pg. 176), Transport of Water, Transport of Food , Transport in Human, Blood, Blood Plasma, Blood Cells, (Pg. 181-187), Human Heart, Pulmonary and systemic circulation, Heart Beat, Heart Rate and Pulse Rate (Pg. 192-196), Blood Vessels (Excluding arteries, veins and capillaries – keeping only Table 9.1 of Comparison of arteries, capillaries and veins) (Pg. 199), Cardiovascular Disorders, Atherosclerosis and Arteriosclerosis, Myocardial Infarction (Pg. 202-204)

Practicals:

1. Observation of root hairs on a growing root of onion, carrot etc.

Identification of red and white blood cells under the light microscope on prepared slides and in diagrams and photomicrographs

Questions:

Classwork: Multiple Choice Questions (1-5, 7-10, 12-17, 19) (Pg. 205-206)

Homework: Understanding the Concepts (Qs: 1, 2, 6, 10, 14, 15), Short Questions (1, 2, 4, 6-8) (Pg. 207)



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