BIOLOGY

For Class IX (marks 65)

1. Introduction

What is Biology?
Main branches of Biology
Biology and other Sciences
Biological Method
History of Biology
Impact of biological studies on human welfare
Origin of life

2. Organization of Life

The basic structure of a cell
Cell Division
Levels of organization
Plant tissues
Animal tissues
Cellular organization in organisms
- Amoeba
- Mustard plant

Frog

3. Classification of Living Organisms

Major groups of living organisms

4. Viruses, Bacteria and Cyanobacteria

Bacteria
Viruses
Bacteria
Cyanobacteria

5. Fungi and Algae

Fungi
Algae

6. Bryophytes

7. Tracheophytes

Pteridophytes
Gymnosperms
Angiosperms

8. Invertebrates (Animals without Backbone)

Protozoa
Porifera
Coelenterata
Platyhelminthes
Nematoda
Annelida
Arthropoda
Mollusca
Echinodermata

9. Chordates/Vertebrates (Animals with Backbone)

Fishes
Amphibians
Reptiles
Birds
Mammals
Flora and Fauna of Pakistan

10. Foods and Nutrition

Nutrition and Nutrients
Nutrition in plants
Autotrophic nutrition in plants
Photosynthesis
Mineral requirements in plants
Special modes of nutrition
Nutrition in animals (Heterotrophic)
Nutrition in man
A balanced diet
Ingestion and digestion in man
Absorption
Assimilation
Egestion
Disorders of gut

11. Respiration

Cellular respiration
Gaseous exchange in plants
Gaseous exchange in animals and man
Disorders of respiratory system

PRACTICALS

For Class IX (marks 10)

1. Examination and handling of a microscope.
   Constructing and testing a hypothesis about malaria.
2. Study of different types of bacteria with the help of prepared slides.
3. Study of Rhizopus, Mushroom, Chlamydomonas and Spirogyra from fresh material/models prepared slides.
4. Study of Funaria, Pteris and Pinus (needles and cones.) from fresh material/model/ prepared slides.
5. Study of any Monocot and Dicot plants.
6. Identification of the animals representing each Phylum, in chordates each class is to be represented.
7. Field trips to observe local plants and Animals.
8. Microscopic preparation and examination of plant and animal cell e.g. (onion epidermal peel, Hydrilla leaf, Frog blood cells from prepared slides/photo micro graphs.)
9. Observation of various stages of mitosis and meiosis by slides/model and charts.
10. Study of plant and animal tissues from charts and prepared slides.
11. Study of external morphology of mustard plant and microscopic examination of root, stem, leaf, flower, fruit and seed.
12. Brief examination of internal organs of a dissected frog.
13. Experiment to demonstrate the process of photosynthesis using an aquatic plant,

like Hydrilla.

14. Food tests (demonstration by the teacher): Benedict's test for reducing sugar, Iodine test for starch, Spot test and Emulsion test for fat, and Biuret test for protein in solution.
15. Microscopic examination of a Transverse section of the small intestine to show the villi.
16. Demonstration of air sacs in mammals using slides/photomicrographs charts models.
17. Demonstration of the presence of tar in cigarette smoke and also by charts showing pictures of lungs of smokers and non smokers.

RECOMMENDED REFERENCE BOOKS FOR CLASS IX

The question paper will be syllabus oriented. However, the following books are recommended for reference and supplementary reading:

1. Biology
   Punjab Textbook Board, Lahore
2. Biology
   National Book Foundation, Islamabad
3. Biology
   Sindh Textbook Board, Jamshoro
4. Biology
   NWFP Textbook Board, Peshawar
5. Biology
   Baluchistan Textbook Board, Quetta

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Federal Board SSC-I Examination
Biology
Practical Model Question Paper

Time allowed: 2hours Marks: 10

1. Identification:
   a. Identify the labelled part 1 in the model/chart-'A'. (1)
   b. Identify the given animal 'B' and name the phylum to which it belongs. (1)

2. Prepare a temporary mount of the given material 'C' and draw its labelled diagram. (1+1)

   (OR)

   Write and perform the biochemical test for the substance provided. (1+1)

3. Set up the apparatus and explain the procedure (physiology based practicals). (2)

4. Viva voce (2)

5. Note book (2)