

BIOLOGY

For Class X (marks 65)

10. GASEOUS EXCHANGE

- 10.1 Introduction
- 10.2 Gaseous Exchange in Plants
- 10.3 Gaseous Exchange in Man
 - 10.3.1 Air Passage Way and Lungs
 - 10.3.2 Mechanism of Breathing
- 10.4 Respiratory Disorders and their Causes (Asthma, Bronchitis, Pneumonia, Lung Cancer)
- 10.5 Effects of Smoking

11. HOMEOSTASIS

- 11.1 Introduction
- 11.2 Homeostasis in Plants
- 11.3 Homeostasis in Man
- 11.4 Urinary system of Man
 - 11.4.1 Structure and Functioning of Human Kidney
 - 11.4.1.1 Structure of Kidney
 - 11.4.1.2 Structure of Nephron
 - 11.4.1.3 Functioning of Nephron
- 11.5 Disorders of Human Excretory System
 - 11.5.1 Kidney Stones and Treatment
 - 11.5.2 Kidney Failure and Dialysis

12. COORDINATION

- 12.1 Introduction
- 12.2 Types of Coordination (Nervous and Chemical Coordination)
- 12.3 Human Nervous System
 - 12.3.1 Components of Nervous System
 - 12.3.2 Structure and Function of Neuron
 - 12.3.3 Reflex Action and Reflex Arc
- 12.4 Receptors of Man (Eyes and Ears)
- 12.5 Endocrine System
 - 12.5.1 Important Endocrine Glands (Pituitary, Thyroid, Pancreas, Adrenal, Gonads)
- 12.6 Nervous Disorders (Paralysis and Epilepsy)

13. SUPPORT AND MOVEMENT

- 13.1 Introduction
- 13.2 Human Skeleton (Axial Skeleton and Appendicular Skeleton)
- 13.3 Ball-n- Socket and Hinge Joints
- 13.4 Action of Antagonistic Muscles at a Hinge (Elbow) Joint
- 13.5 Disorders of Skeletal System (Arthritis and Osteoporosis)

14. REPRODUCTION

- 14.1 Introduction
- 14.2 Reproduction in Plants
 - 14.2.1 Asexual Reproduction in Plants
 - 14.2.2 Sexual Reproduction in Plants
- 14.3 Asexual Reproduction in Animals
- 14.3 Sexual Reproduction in Rabbit
 - 14.3.1 Male Reproductive System
 - 14.3.2 Female Reproductive System
- 14.4 Population Planning

- 14.5 Sexually Transmitted Diseases (AIDS)
- 15. INHERITANCE**
 - 15.1 Introduction
 - 15.2 Chromosomes and Genes
 - 15.3 Law of Segregation
 - 15.4 Law of Independent Assortment
 - 15.5 Variation and Evolution
- 16. MAN AND HIS ENVIRONMENT**
 - 16.1 The Ecosystem: Levels of Ecological Organization; Components
 - 16.2 Flow of materials and energy in the ecosystem
 - 16.3 Biogeochemical Cycles (Carbon Cycle & Nitrogen Cycle)
 - 16.4 Interactions in the Ecosystem (Competition; Predation; Symbiosis)
 - 16.5 Ecosystem Balance and Human impact on environment (Population growth, Urbanization, Industrialization, Deforestation)
 - 16.6 Pollution, its Consequences and Control
 - 16.7 Conservation of Nature
- 17. BIOTECHNOLOGY**
 - 17.1 Introduction
 - 17.2 Fermentation and Baking Industry
 - 17.3 Genetic Engineering
 - 17.4 Single Cell Protein and its Uses
- 18. PHARMACOLOGY**
 - 18.1 Introduction
 - 18.2 Medicinal Drugs and Addictive Drugs
 - 18.3 Antibiotics and Vaccines

LIST OF PRACTICALS

- 1. Introduction to Biology**
 1. Study of different types of bacteria with the help of prepared slides and of *Amoeba*, *Paramecium*, *Volvox* from prepared slides/ fresh culture/charts
- 4. Cells and Tissues**
 2. Use of microscope to observe movement of water in plants and to compare sizes of various types of cells
 3. Examination under the microscope an animal cell (e.g. from frog's blood) and a plant cell (e.g. from onion epidermis), using an appropriate temporary staining technique, such as iodine or methylene blue
 4. 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
 5. Preparation of the wet mounts of tissue from flowering plants and study of plant and animal tissues from charts and prepared slides
 6. Determination of the effect of tonicity on plasmolysis and deplasmolysis in plant cells or in Red Blood Cell
- 5. Cell Cycle**
 7. Observation of various stages of mitosis and meiosis by slides, model and charts
- 6. Enzymes**
 8. Experiment to show working of enzyme in vitro e.g., pepsin working on meat in test tube
 9. Experiment to test enzyme action by putting diastase in a starch solution in test tube at 37°C and after fifteen minutes performing iodine test for presence of starch
- 7. Bioenergetics**
 10. Demonstration of the process of photosynthesis using an aquatic plant, like *Hydrilla*
 11. Identification and labeling of the cellular and tissue structure in the CS of a leaf through observation under the microscope

12. Investigation of the necessity of chlorophyll, light, carbon dioxide, using appropriate controls
13. Experiment to demonstrate the process of respiration in germinating seeds by using limewater
14. Investigation of the release of carbon dioxide and heat during Aerobic Respiration in germinating seeds
8. **Nutrition**
 15. Food tests: Benedict's test for reducing sugar, iodine test for starch, spot test and emulsion test for fat, and Biuret test for protein in solution
 16. Microscopic examination of a transverse section of the small intestine to show the villi
9. **Transport**
 17. Measurement of differences in length/weight of raw potato strips in concentrated salt solution and water
 18. Microscopic observation of the structure and number of stomata in an epidermal peel of a leaf
 19. Investigation of the rate of water loss at the two surfaces of a leaf by a simple experiment using cobalt chloride paper
 20. Investigation of transpiration in potted plant under a bell jar
 21. Investigation of the pathway of water in a cut stem, using a suitable stain
 22. Identification of red and white blood cells under the light microscope on prepared slides and in diagrams and photomicrographs
 23. Investigation of the effect of physical activity on pulse rate
10. **Gaseous Exchange**
 24. Activity to compare the breathing rate at rest and after exercise
 25. Demonstration through experiment of breathing out air into limewater that carbon dioxide is exhaled during respiration
 26. Demonstration of the presence of tar in cigarette smoke and also by charts showing pictures of lungs of smokers and nonsmokers
11. **Homeostasis**
 27. Examination of the structure of kidney (sheep kidney/model)
12. **Coordination in Man**
 28. Study of human eye, ear and brain
13. **Support and Movement**
 29. Investigation of the nature of bone (by putting three pieces of rib bone of lamb in water, NaOH and dilute HCl)
14. **Reproduction**
 30. Observation of binary fission of ameba using slides, photomicrographs or charts
 31. Observation of budding in yeast from prepared slides
 32. Examination of a bulb (onion), corn (*Edocasia*), rhizome (ginger) or stem tuber (potato) and its cultivation to get new plants
 33. Examination of Mustard flower, Gram seed and Maize grain
15. **Inheritance**
 34. Recording the heights of class fellows to predict which kind of variation is it and presentation of the data of class fellows' heights in graphical form (either histogram or bar chart)

RECOMMENDED REFERENCE BOOKS FOR CLASS X

The question papers will be syllabus oriented. However, the following book is recommended for reference and supplementary reading:

Biology

Developed by: Punjab Textbook Board, Lahore

Published by: PLD Publishers, Lahore



Federal Board SSC Examination Biology Practical Model Question Paper

Time allowed: 3 hours

Marks: 20

1. Identification:
 - a. Identify the labeled parts (A & B) in the given models/charts. (2)
 - b. Identify the slides (C & D) (2)
2. Setup the apparatus and explain the procedure of given experiment (physiology based practical). (4)
3. Prepare a temporary mount of given material “E”, identify, draw its labeled diagram. (3)

OR

- Write and perform the biochemical test for the substance provided. (3)
4. Identify the given specimen “F”. Draw its labeled diagram and write any two features of its. (3)

Viva voce (3)

Note book (3)