Telangana SSC (Class 10)

BIOLOGICAL SCIENCE

(Botany & Zoology) – Chapter-wise Important Questions

Multiple Choice Questions (1 mark) | Short Answer Questions (2–4 marks) | Long Answer / Big Questions (4–8 marks)

This booklet covers all 10 chapters of the Telangana SCERT Class 10 Biological Science textbook (chapters 13–22 of the combined Science syllabus) and is meant for quick revision before SSC public examinations. Chapters that mix plant and animal/human topics are marked “Botany & Zoology”. MCQ answer keys are given at the end of each chapter's MCQ section.

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Chapter 13: Nutrition

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. The process by which green plants prepare their own food is called

   (a) Respiration (b) Photosynthesis (c) Transpiration (d) Excretion

2. The green pigment present in chloroplasts that absorbs light energy is

   (a) Carotene (b) Chlorophyll (c) Xanthophyll (d) Anthocyanin

3. The enzyme present in saliva that digests starch is

   (a) Pepsin (b) Trypsin (c) Salivary amylase (d) Lipase

4. Bile juice, which helps in the digestion of fats, is secreted by the

   (a) Pancreas (b) Liver (c) Stomach (d) Small intestine

5. Deficiency of Vitamin C in the diet causes

   (a) Rickets (b) Scurvy (c) Night blindness (d) Beri-beri

Answer Key: 1-b, 2-b, 3-c, 4-b, 5-b

B. Short Answer Questions

1. Write the overall chemical equation for photosynthesis.

2. What is the role of hydrochloric acid in the stomach during digestion?

3. Distinguish between autotrophic and heterotrophic nutrition, giving one example of each.

4. Name the deficiency diseases caused by the lack of Vitamin A, Vitamin D and protein in the diet.

C. Long Answer / Big Questions

1. Describe the mechanism of photosynthesis, briefly mentioning the light reaction and the dark reaction.

2. Draw a labelled diagram of the human digestive system and explain the role of each digestive organ.

3. Explain the process of digestion of food in the human alimentary canal, from the mouth to the small intestine, mentioning the enzymes involved at each step.

Chapter 14: Respiration

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. The site of aerobic respiration inside a cell is the

   (a) Nucleus (b) Mitochondria (c) Ribosome (d) Golgi body

2. The end product formed during anaerobic respiration in human muscle cells is

   (a) Carbon dioxide and water (b) Lactic acid (c) Ethanol and carbon dioxide (d) Glucose

3. The exchange of gases in the human lungs takes place in the

   (a) Bronchi (b) Trachea (c) Alveoli (d) Larynx

4. The respiratory pigment present in human blood is

   (a) Chlorophyll (b) Haemoglobin (c) Melanin (d) Myoglobin only

5. Stomata, through which gaseous exchange mainly occurs in plants, are found mostly on the

   (a) Roots (b) Stem (c) Leaves (d) Flowers

Answer Key: 1-b, 2-b, 3-c, 4-b, 5-c

B. Short Answer Questions

1. Distinguish between aerobic and anaerobic respiration.

2. What is the role of the diaphragm in human breathing?

3. Write the equation for anaerobic respiration (fermentation) in yeast.

4. How do plants exchange gases through stomata and lenticels?

C. Long Answer / Big Questions

1. Describe the mechanism of breathing (inspiration and expiration) in human beings, with reference to the movement of the ribcage and the diaphragm.

2. Draw a labelled diagram of the human respiratory system and explain the function of each part.

3. Explain aerobic respiration, giving the overall chemical equation and the energy released, and compare it with anaerobic respiration.

Chapter 15: Transportation

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. The muscular organ that pumps blood throughout the human body is the

   (a) Lungs (b) Heart (c) Kidney (d) Liver

2. Blood vessels that carry blood away from the heart are called

   (a) Veins (b) Arteries (c) Capillaries (d) Lymph vessels

3. The plant tissue responsible for the transport of water and minerals is the

   (a) Phloem (b) Xylem (c) Cambium (d) Cortex

4. The human heart has

   (a) 2 chambers (b) 3 chambers (c) 4 chambers (d) 1 chamber

5. Translocation of food materials in plants occurs mainly through the

   (a) Xylem (b) Phloem (c) Stomata (d) Cuticle

Answer Key: 1-b, 2-b, 3-b, 4-c, 5-b

B. Short Answer Questions

1. Distinguish between arteries and veins.

2. What is transpiration? State its significance to plants.

3. Explain briefly the mechanism of the ascent of sap in plants.

4. Why is the human heart called a double pump?

C. Long Answer / Big Questions

1. Draw a labelled diagram of the human heart and describe the path of blood flow through its chambers (double circulation).

2. Explain the structure and function of xylem and phloem tissues in the transport of materials in plants.

3. Describe the composition and functions of human blood.

Chapter 16: Excretion

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. The functional and structural unit of the human kidney is the

   (a) Neuron (b) Nephron (c) Alveolus (d) Villus

2. The main nitrogenous waste excreted by human beings is

   (a) Ammonia (b) Urea (c) Uric acid (d) Creatine

3. The organ that stores urine before it is expelled from the body is the

   (a) Kidney (b) Ureter (c) Urinary bladder (d) Urethra

4. Excess water in plants is removed mainly through

   (a) The roots (b) Stomata, by transpiration (c) The flowers (d) The seeds

5. Artificial kidney (dialysis) machines work mainly on the principle of

   (a) Osmosis (b) Dialysis (c) Simple diffusion of solids (d) Filtration by gravity alone

Answer Key: 1-b, 2-b, 3-c, 4-b, 5-b

B. Short Answer Questions

1. Define excretion. Name the main excretory organs in human beings.

2. What is the role of the nephron in the formation of urine?

3. How do plants get rid of their excretory products?

4. What is dialysis? When is it required by a patient?

C. Long Answer / Big Questions

1. Draw a labelled diagram of the human excretory system and explain the process of urine formation.

2. Describe the structure of a nephron and explain the processes of filtration, reabsorption and secretion occurring in it.

3. Explain the various methods by which plants get rid of their waste products (through leaves, bark, resins, gums, and storage in vacuoles).

Chapter 17: Coordination

(Zoology)

A. Multiple Choice Questions (MCQ)

1. The basic structural and functional unit of the nervous system is the

   (a) Neuron (b) Nephron (c) Axon alone (d) Synapse alone

2. The small gap between two adjacent neurons is called a

   (a) Node of Ranvier (b) Synapse (c) Dendrite (d) Axon

3. The endocrine gland referred to as the master gland of the body is the

   (a) Thyroid (b) Pituitary (c) Adrenal (d) Pancreas

4. The hormone insulin, which regulates blood sugar level, is secreted by the

   (a) Thyroid gland (b) Pancreas (c) Pituitary gland (d) Adrenal gland

5. A quick, involuntary response of the body to a stimulus is called a

   (a) Reflex action (b) Voluntary action (c) Hormonal action (d) Tropic movement

Answer Key: 1-a, 2-b, 3-b, 4-b, 5-a

B. Short Answer Questions

1. Draw a labelled diagram of a neuron.

2. What is a reflex arc? Give one example of a reflex action.

3. Name the hormone secreted by the thyroid gland and state one of its functions.

4. Distinguish between nervous coordination and hormonal (endocrine) coordination.

C. Long Answer / Big Questions

1. Describe the structure of the human brain and explain the functions of its three main parts – forebrain, midbrain and hindbrain.

2. Explain the mechanism of a reflex action, using the example of withdrawing the hand from a hot object, with a labelled diagram of the reflex arc.

3. Explain the role of any three hormones (other than insulin) secreted by the endocrine glands in the human body.

Chapter 18: Reproduction

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. The fusion of a male gamete and a female gamete is called

   (a) Fertilisation (b) Pollination (c) Germination (d) Binary fission

2. Budding, as a method of reproduction, is best seen in

   (a) Amoeba (b) Yeast (c) Planaria (d) Humans

3. The male reproductive part of a flower is the

   (a) Pistil (b) Stamen (c) Sepal (d) Petal

4. The transfer of pollen grains from the anther to the stigma of a flower is called

   (a) Fertilisation (b) Pollination (c) Germination (d) Fusion

5. In human beings, fertilisation normally occurs in the

   (a) Uterus (b) Ovary (c) Fallopian tube (d) Vagina

Answer Key: 1-a, 2-b, 3-b, 4-b, 5-c

B. Short Answer Questions

1. Distinguish between asexual and sexual reproduction, giving one example of each.

2. Draw and label the parts of a bisexual flower.

3. What are the functions of the placenta during human pregnancy?

4. Name and briefly describe two methods of contraception.

C. Long Answer / Big Questions

1. Draw a labelled diagram of the human male reproductive system and describe the function of each part.

2. Draw a labelled diagram of the human female reproductive system and explain the process of fertilisation and implantation.

3. Describe the structure of a flower and explain the process of pollination and fertilisation in flowering plants.

Chapter 19: Coordination in Plants

(Botany)

A. Multiple Choice Questions (MCQ)

1. The growth movement of a plant part in response to a directional external stimulus is called

   (a) A reflex action (b) A tropism (c) A reflex arc (d) Osmosis

2. The bending of a plant shoot towards light is called

   (a) Geotropism (b) Hydrotropism (c) Phototropism (d) Thigmotropism

3. The plant hormone mainly responsible for cell elongation and apical dominance is

   (a) Auxin (b) Cytokinin (c) Gibberellin (d) Abscisic acid

4. The plant hormone that promotes the ripening of fruits is

   (a) Auxin (b) Ethylene (c) Cytokinin (d) Abscisic acid

5. The bending of roots towards water is called

   (a) Phototropism (b) Hydrotropism (c) Geotropism (d) Chemotropism

Answer Key: 1-b, 2-c, 3-a, 4-b, 5-b

B. Short Answer Questions

1. Define tropism. Name four types of tropic movements in plants.

2. Explain the role of auxin when a plant shoot bends towards light.

3. Distinguish between tropic movements and nastic movements in plants.

4. Name any two plant hormones and state one function of each.

C. Long Answer / Big Questions

1. Describe an experiment that demonstrates phototropism in plants, and explain the role of auxin in this movement.

2. Explain the different types of tropic movements in plants – phototropism, geotropism, hydrotropism and thigmotropism – with suitable examples.

3. Discuss the role of plant hormones – auxin, gibberellin, cytokinin, abscisic acid and ethylene – in plant growth and developmental processes.

Chapter 20: Heredity

(Zoology)

A. Multiple Choice Questions (MCQ)

1. The branch of biology that deals with heredity and variation is called

   (a) Ecology (b) Genetics (c) Physiology (d) Taxonomy

2. Gregor Mendel conducted his classic breeding experiments on

   (a) Fruit flies (b) Pea plants (c) Guinea pigs (d) Bacteria

3. The alternative forms of a gene occupying the same position on a chromosome are called

   (a) Alleles (b) Chromosomes (c) Genotypes (d) Phenotypes

4. In human beings, the sex of a child is mainly determined by the sex chromosome contributed by the

   (a) Mother (b) Father (c) Both parents equally (d) Neither parent

5. The ratio of dominant to recessive phenotypes obtained in the F2 generation of a monohybrid cross is

   (a) 1:1 (b) 9:3:3:1 (c) 3:1 (d) 1:2:1

Answer Key: 1-b, 2-b, 3-a, 4-b, 5-c

B. Short Answer Questions

1. State Mendel's law of dominance.

2. What are dominant and recessive traits? Give one example.

3. How is the sex of a child determined in human beings?

4. Define variation. Why are variations important for a species?

C. Long Answer / Big Questions

1. Describe Mendel's monohybrid cross experiment on pea plants and explain the law of segregation with a suitable cross diagram.

2. Describe Mendel's dihybrid cross experiment and state the law of independent assortment.

3. Explain how sex is determined in human beings, using a cross diagram to show the possible combinations of sex chromosomes.

Chapter 21: Our Environment

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. All the living and non-living components of a particular area, along with their interactions, together form a/an

(a) Population (b) Community (c) Ecosystem (d) Biome

2. Green plants, which manufacture their own food, are called

(a) Producers (b) Primary consumers (c) Decomposers (d) Secondary consumers

3. Organisms that break down dead and decaying organic matter are called

(a) Producers (b) Consumers (c) Decomposers (d) Herbivores

4. The flow of energy in an ecosystem is

(a) Cyclic (b) Unidirectional (c) Bidirectional (d) Random

5. Depletion of the ozone layer is mainly caused by

(a) Carbon dioxide (b) Chlorofluorocarbons (CFCs) (c) Methane (d) Nitrogen

Answer Key: 1-c, 2-a, 3-c, 4-b, 5-b

B. Short Answer Questions

1. Define an ecosystem. Give two examples of ecosystems.

2. What is a food chain? Give one example of a food chain found in a grassland ecosystem.

3. What is biological magnification? Explain briefly with an example.

4. Distinguish between biodegradable and non-biodegradable substances, with examples.

C. Long Answer / Big Questions

1. Explain the flow of energy in an ecosystem with the help of a food chain, and describe the 10% law of energy transfer.

2. What is a food web? Explain how it differs from a food chain, and describe its importance in an ecosystem.

3. Discuss the causes and effects of ozone layer depletion, and suggest measures to prevent it.

Chapter 22: Natural Resources

(Botany & Zoology)

A. Multiple Choice Questions (MCQ)

1. The three R's advocated for the conservation of natural resources are

   (a) Reduce, Reuse, Recycle (b) Reduce, Repeat, Recycle (c) Renew, Reuse, Reduce (d) Repair, Reuse, Recycle

2. Which of the following is a renewable resource?

   (a) Coal (b) Petroleum (c) Solar energy (d) Natural gas

3. Management of forests and wildlife primarily aims at

   (a) Increasing industries in forest areas (b) Their conservation and sustainable use (c) Increasing urbanisation (d) Large-scale deforestation

4. Rainwater harvesting is a method of conserving

   (a) Forests (b) Water (c) Coal (d) Wildlife

5. Which of the following is a fossil fuel?

   (a) Solar energy (b) Wind energy (c) Coal (d) Hydro energy

Answer Key: 1-a, 2-c, 3-b, 4-b, 5-c

B. Short Answer Questions

1. What is sustainable development? Give one example.

2. Why is it necessary to conserve forests and wildlife?

3. What are the advantages of rainwater harvesting?

4. Distinguish between renewable and non-renewable resources, giving examples of each.

C. Long Answer / Big Questions

1. Explain the need for management of natural resources, and describe the role of forests in maintaining ecological balance.

2. Describe traditional and modern methods of water harvesting, and explain their importance in water conservation.

3. Discuss the measures that can be adopted at the individual and community level to conserve natural resources for future generations.