Class 11 Biology – Sample Question Paper

TIME ALLOWED 3 Hours MAXIMUM MARKS 70 Marks

Section A – Multiple Choice Questions 16 × 1 = 16 Marks

Q1. Which of the following is considered the basic unit of classification?

(a) Genus (b) Species (c) Family (d) Order

Q2. Which of the following organisms belongs to Kingdom Monera?

(a) Amoeba (b) Yeast (c) Nostoc (d) Spirogyra

Q3. The dominant phase in the life cycle of bryophytes is:

(a) Sporophyte (b) Gametophyte (c) Embryo (d) Zygote

Q4. Which of the following animals possesses a water vascular system?

(a) Earthworm (b) Cockroach (c) Starfish (d) Hydra

Q5. The placentation found in tomato is:

(a) Marginal (b) Axile (c) Basal (d) Free central

Q6. Which tissue is responsible for the transport of water in plants?

(a) Phloem (b) Xylem (c) Collenchyma (d) Parenchyma

Q7. The functional unit of a skeletal muscle is:

(a) Neuron (b) Sarcomere (c) Nephron (d) Osteon

Q8. Which organelle is known as the powerhouse of the cell?

(a) Ribosome (b) Golgi apparatus (c) Mitochondrion (d) Lysosome

Q9. The bond joining two amino acids is called:

(a) Glycosidic bond (b) Peptide bond (c) Hydrogen bond (d) Phosphodiester bond

Q10. During which phase of the cell cycle does DNA replication occur?

(a) G_1 phase (b) S phase (c) G_2 phase (d) M phase

Q11. The primary photosynthetic pigment in green plants is:

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

Q12. Glycolysis takes place in:

(a) Mitochondrial matrix (b) Cytoplasm (c) Chloroplast (d) Nucleus

Q13. Which plant hormone is responsible for cell elongation?

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

Q14. The exchange of gases in human lungs occurs in:

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

Q15. Which blood component is responsible for clotting?

(a) RBCs (b) WBCs (c) Platelets (d) Plasma

Q16. Which hormone decreases blood glucose level?

(a) Glucagon (b) Insulin (c) Thyroxine (d) Adrenaline

Section B – Very Short Answer Questions 5 × 2 = 10 Marks

Q17. Define taxonomy. Mention any two taxonomical aids.

Q18. Differentiate between prokaryotic and eukaryotic cells on any two points.

Q19. What are enzymes? Mention any two characteristics of enzymes.

Q20. Differentiate between inspiration and expiration in humans.

Q21. What is double circulation? Mention its importance in human beings.

Section C – Short Answer Questions 7 × 3 = 21 Marks

Q22. Explain the three-domain classification system. Name the three domains.

Q23. Differentiate between monocotyledonous and dicotyledonous plants on any three points.

Q24. Describe the structure and functions of the plasma membrane.

Q25. Explain the different stages of mitosis with suitable diagrams.

Q26. Describe the light reaction of photosynthesis. Mention the role of photosystem I and photosystem II.

Q27. Explain the mechanism of urine formation in humans.

Q28. What is a synapse? Explain the transmission of nerve impulses across a chemical synapse.

Section D – Case-Based Questions 2 × 4 = 8 Marks

Q29. Read the passage and answer the following questions.

Green plants prepare their food through photosynthesis. This process takes place in chloroplasts, which contain chlorophyll pigments. Photosynthesis consists of light-dependent and light-independent reactions. The light reaction produces ATP and NADPH, which are used in the Calvin cycle.

Answer the following:

(a) In which organelle does photosynthesis occur? (1)

(b) Name the main photosynthetic pigment. (1)

(c) Where does the Calvin cycle occur? (1)

(d) Name the two products of the light reaction used in the Calvin cycle. (1)

Q30. Read the passage and answer the following questions.

The human heart is a muscular organ that pumps blood throughout the body. It consists of four chambers. The right side receives deoxygenated blood, while the left side receives oxygenated blood. Valves prevent the backward flow of blood.

Answer the following:

(a) Name the largest artery of the human body. (1)

(b) Which chamber receives oxygenated blood from the lungs? (1)

(c) Name the valve present between the right atrium and right ventricle. (1)

(d) What is the normal resting heart rate of an adult human? (1)

Section E – Long Answer Questions 3 × 5 = 15 Marks

Q31. Explain the five-kingdom classification proposed by R.H. Whittaker. Write the important characteristics of each kingdom.

OR

Describe the major characteristics of Kingdom Plantae and explain the classification of the plant kingdom.

Q32. Explain the structure of a typical eukaryotic cell with the functions of its major cell organelles. Draw a neat labelled diagram.

OR

Explain the fluid mosaic model of the plasma membrane with a suitable diagram.

Q33. Describe the structure of the human nephron with a neat labelled diagram. Explain the process of urine formation.

OR

Explain the mechanism of muscle contraction according to the sliding filament theory.