

CLASS VIII — SCIENCE (BIOLOGY)

Time: 3 Hours Maximum Marks: 80

GENERAL INSTRUCTIONS

1. All questions are compulsory unless an internal choice is given.
2. The paper contains objective, short-answer, competency-based and long-answer questions.
3. Draw neat labelled diagrams wherever required.
4. Give scientific reasons wherever asked.
5. Answers should be written according to the marks allotted.

SECTION A — Multiple Choice Questions

16 × 1 = 16 Marks

Q1. Which instrument made it possible for scientists to observe cells and microorganisms?

- (a) Telescope
- (b) Microscope
- (c) Barometer
- (d) Thermometer

Q2. Who first used the term "cell" after observing cork under a microscope?

- (a) Louis Pasteur
- (b) Robert Hooke
- (c) Edward Jenner
- (d) Alexander Fleming

Q3. Which structure controls the activities of a cell?

- (a) Cell wall
- (b) Nucleus
- (c) Vacuole
- (d) Cytoplasm

Q4. Which structure is characteristic of plant cells?

- (a) Cell wall
- (b) Nucleus
- (c) Cytoplasm
- (d) Cell membrane

Q5. A microorganism that is useful in curd formation is:

- (a) Lactobacillus
- (b) Plasmodium
- (c) Amoeba
- (d) Virus

Q6. Which of the following is a unicellular organism?

- (a) Human

- (b) Mango tree
- (c) Amoeba
- (d) Dog

Q7. A group of similar cells performing a particular function is called:

- (a) Organ
- (b) Tissue
- (c) Organ system
- (d) Organism

Q8. Which of the following is an example of a communicable disease?

- (a) Diabetes
- (b) Common cold
- (c) Hypertension
- (d) Genetic disorder

Q9. Which microorganism can cause diseases in humans?

- (a) Some bacteria
- (b) All plants
- (c) All algae
- (d) All fungi

Q10. Vaccination primarily helps the body to:

- (a) Increase height
- (b) Develop protection against specific diseases
- (c) Digest food
- (d) Increase body temperature

Q11. Which of the following is necessary for maintaining good health?

- (a) Balanced diet
- (b) Lack of sleep
- (c) Poor hygiene
- (d) Contaminated water

Q12. Which process allows a living organism to produce new individuals of its own kind?

- (a) Respiration
- (b) Reproduction
- (c) Digestion
- (d) Excretion

Q13. Potato can produce a new plant through:

- (a) Vegetative propagation
- (b) Pollination only
- (c) Fertilisation only
- (d) Seed dispersal

Q14. Which of the following is a component of the biosphere?

- (a) Only rocks
- (b) Only water
- (c) Living organisms and their surroundings
- (d) Only atmospheric gases

Q15. Which of the following is essential for sustaining life on Earth?

- (a) Liquid water
- (b) Absence of atmosphere
- (c) Extremely high temperature
- (d) Complete absence of sunlight

Q16. The variety of living organisms found on Earth is called:

- (a) Biodiversity
- (b) Geodiversity
- (c) Population
- (d) Habitat

SECTION B — Very Short Answer Questions

8 × 2 = 16 Marks

Q17. What is a cell? Why is it called the basic unit of life?

Q18. Write two differences between unicellular and multicellular organisms.

Q19. Name the three basic parts of a typical plant cell.

Q20. What are microorganisms? Give two examples.

Q21. What is a communicable disease? Give one example.

Q22. Why is a balanced diet important for maintaining good health?

Q23. What is reproduction? Why is it essential for the continuation of life?

Q24. Name the four major Earth systems or spheres discussed in the context of sustaining life.

SECTION C — Short Answer Questions

6 × 3 = 18 Marks

Q25. Explain why cells differ in shape and structure. Give two examples of specialised cells.

Q26. Differentiate between plant cells and animal cells on any three points.

Q27. Explain how microorganisms can be both useful and harmful to humans. Give suitable examples.

Q28. What are communicable diseases? Explain three ways by which their spread can be prevented.

Q29. Explain vegetative propagation with three suitable examples.

Q30. Explain how the atmosphere, hydrosphere and biosphere interact to support life on Earth.

SECTION D — Competency / Case-Based Questions

3 × 4 = 12 Marks

Q31. Read the case and answer the questions.

Arjun observed an onion peel under a microscope. He noticed many regularly arranged rectangular structures. Each structure had a boundary, cytoplasm and a nucleus. He then observed a cheek-cell sample and noticed that the cells looked different in shape.

(a) What are the structures observed under the microscope?

- (b) Why do onion cells and cheek cells have different shapes?
- (c) Name the structure that controls the activities of the cell.
- (d) Why are cells considered the basic units of life?

Q32. Read the case and answer the questions.

During the monsoon, several people in a locality developed fever and stomach-related illnesses. The health workers advised people to drink clean water, wash their hands regularly, keep food covered and maintain cleanliness around their homes.

- (a) What type of diseases may spread due to contaminated food or water?
- (b) Why is handwashing important?
- (c) Mention one way in which microorganisms can enter the human body.
- (d) State one preventive measure against communicable diseases?

Q33. Read the case and answer the questions.

A school group studied why Earth can support a huge variety of living organisms. They observed that Earth has liquid water, an atmosphere, suitable temperatures and a large variety of habitats. They also noticed that plants, animals and microorganisms depend on one another.

- (a) Why is liquid water important for life?
- (b) What is meant by the biosphere?
- (c) Why is biodiversity important?
- (d) Give one human activity that threatens biodiversity.

SECTION E — Long Answer Questions

3 × 6 = 18 Marks

Q34. Explain the structure and functions of a typical plant cell. Draw a neat labelled diagram of a plant cell.

OR

Explain the differences between plant, animal and bacterial cells with suitable examples.

Q35. Explain how microorganisms affect human life. Include:

1. Useful microorganisms
2. Harmful microorganisms
3. Food production
4. Diseases
5. Decomposition
6. Importance of maintaining hygiene

OR

Explain the importance of good health. Discuss the role of a balanced diet, personal hygiene, clean surroundings, exercise and disease prevention.

Q36. "Earth is a unique life-sustaining planet." Justify this statement using at least six scientific reasons.

OR

Explain how different Earth systems interact to sustain life. Include the atmosphere, hydrosphere, geosphere and biosphere in your answer.