SCIENCE

WORKSHEET_070526

CHAPTER 02 THE INVISIBLE LIVING WORLD: BEYOND OUR NAKED EYE

SUBJECT: SCIENCE **MAX. MARKS : 40**

CLASS : VIII **DURATION : 1½ hrs**

General Instructions:

(i). **All** questions are compulsory.

(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.

(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.

(iv). There is no overall choice.

(v). **Use of Calculators is not permitted**

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. A student observes a microorganism from a pond water sample under a microscope. The student notes that the organism is green and moves using specialized structures. Based on the description in the textbook, which category of microorganism is the student most likely observing?.
(a) Amoeba (b) Fungi (c) Algae (d) Bacteria

2. Which of the following statements about plant and animal cells is correct, based on the chapter?
(a) Both plant and animal cells have a cell wall.
(b) Animal cells have a large central vacuole, while plant cells do not.
(c) Plant cells have chloroplasts and a cell wall, which animal cells lack.
(d) Both plant and animal cells have plastids that store substances.

3. If a laboratory has only a foldscope, what is its primary limitation when studying microorganisms compared to a high-powered laboratory microscope?.
(a) It cannot be used to observe unicellular organisms.
(b) It does not provide the same level of detail as a high-powered microscope.
(c) It cannot be used to observe the nuclei of cells.
(d) It is not foldable and is difficult to transport.

4. A farmer observes that his crop yield is consistently low. Based on the chapter, which microorganism, when grown with his legume crops, can help improve the soil naturally without chemical fertilizers?
(a) Lactobacillus (b) Rhizobium (c) Bread mould (d) Yeast

5. A group of scientists is studying a newly discovered organism. They find that its cells are prokaryotic, meaning they lack a well-defined nucleus with a nuclear membrane. According to the textbook, which of the following is most likely this organism?
(a) Algae (b) Yeast (c) Protozoa (d) Bacteria

6. You have a piece of dough that you want to make soft and fluffy for baking. Based on the activity in the chapter, which ingredient is essential for this purpose and why?.
(a) Sugar, because it acts as a food source for the yeast to grow.
(b) Warm water, because it helps the yeast produce lactic acid.
(c) Yeast, because it releases carbon dioxide gas which forms bubbles.
(d) Salt, because it acts as a preservative and prevents the dough from going bad.

7. Which of the following best describes the function of a cell wall in a plant cell?
(a) It controls the movement of substances in and out of the cell.
(b) It provides rigidity and strength to the plant.
(c) It contains chlorophyll for photosynthesis.
(d) It is the site where most life processes take place.

8. Based on the levels of organization described in the chapter, what is the correct hierarchy from the simplest to the most complex level?
(a) Organ → Cell → Tissue → Organ System → Organism
(b) Organism → Organ System → Organ → Tissue → Cell
(c) Cell → Organ → Tissue → Organ System → Organism
(d) Cell → Tissue → Organ → Organ System → Organism

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

9. **Assertion (A):** The ostrich egg is considered the largest single cell in the living world.
Reason (R): All complex living organisms, whether plants or animals, begin their life as a single cell.

10. **Assertion (A):** Robert Hooke's invention of a microscope, which could magnify objects 200 to 300 times, was a groundbreaking scientific discovery.
Reason (R): This tool enabled him to observe and name the basic unit of life, the 'cell', for the first time.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Explain how the shape and structure of a nerve cell are specifically adapted to its function in the human body.

12. A person prepares a pickle by adding a high concentration of salt to vegetables. Explain, based on the information in the chapter, why this method prevents microbial growth and spoilage.

13. Explain the difference between unicellular and multicellular organisms with examples mentioned in the chapter.

14. How do some microorganisms, like bacteria and fungi, act as "key players in cleaning the environment"?.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Describe the three basic parts of a cell and briefly explain the function of each part.

16. A student observes a microscopic slide of a plant cell and an animal cell side-by-side. Based on the chapter, list three key differences the student would observe between the two cells.

17. The process of curdling milk into curd is a common household phenomenon. Explain the role of the microorganism responsible for this process, including the specific conditions required for it to thrive.

SECTION – D

Questions 18 carry 5 marks each.

18. Imagine you are a scientist trying to find a new way to deal with waste from a local farm. Based on the chapter, explain how you could use microorganisms to help solve this problem. Detail the process, the microorganisms involved, and the potential products that could be created from this process.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Case Study-1: The Tiny Food Factory

Rohit, a young chef, was fascinated by the fermentation process. He learned that many of his favorite foods, from bread to idli, rely on tiny, invisible organisms. He decided to experiment with making his own sourdough bread, which requires a starter culture of microorganisms. Rohit knew that these microbes need specific conditions to work their magic. He prepared a dough by mixing flour, water, and a pinch of sugar, and then added a small amount of yeast. He kept the bowl in a warm corner of his kitchen, away from drafts. To his delight, after a few hours, the dough had risen, become fluffy, and had a distinctive smell.

Based on the passage and the chapter, answer the following questions:

(a) What is the function of the sugar and warm water in Rohit's dough preparation?

(b) How did the yeast make the dough rise and become fluffy?

(c) What is the name of the process by which the yeast broke down the sugar?

(d) Besides yeast, name another microorganism mentioned in the chapter that helps in the fermentation of food items.

20. Case Study-2: The Ocean's Unseen Powerhouse

A marine biologist, Dr. Anya, was studying the health of a coral reef. She explained to her team that the ocean's ecosystem is heavily dependent on microscopic plant-like organisms. These tiny organisms are so abundant that they produce a significant portion of the Earth's oxygen supply. She highlighted their importance not just for oxygen production but also as a food source for aquatic life and even for humans as a health supplement. Dr. Anya also warned that their existence is threatened by human activities like pollution.

Based on the passage and the chapter, answer the following questions:

(a) What are the microscopic organisms that Dr. Anya is referring to?

(b) How do these organisms produce oxygen?

(c) Name two other uses of these organisms mentioned in the chapter.

(d) Why is it important to conserve these tiny organisms?