SCIENCE (BIOLOGY)
WORKSHEET-200524
CHAPTER 05 THE FUNDAMENTAL UNIT OF LIFE

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

CLASS : IX **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. Which of these sentences are not a function of the Ribosome?
(I) It helps in the manufacture of protein molecules.
(II) It helps in the manufacture of enzymes.
(III) It helps in the manufacture of hormones.
(IV) It helps in the manufacture of starch molecules.
Options:
(a) (I) and (II) (b) (II) and (III) (c) (III) and (IV) (d) (IV) and (I)

2. Which cell organelle plays a crucial role in detoxifying many poisons and drugs in a cell?
(a) Golgi apparatus (b) Lysosomes
(c) Smooth endoplasmic reticulum (d) Vacuoles

3. A cell will swell up if:
(a) The concentration of water molecules in the cell is higher than the concentration of water molecules in surrounding medium.
(b) The concentration of water molecules in surrounding medium is higher than water molecules concentration in the cell.
(c) The concentration of water molecules is same in the cell and in the surrounding medium.
(d) Concentration of water molecules does not matter.

4. Which of these is not related to endoplasmic reticulum?
(a) It behaves as a transport channel for proteins between nucleus and cytoplasm.
(b) It transport materials between various regions in cytoplasm.
(c) It can be the site of energy generation.
(d) It can be the site for some biochemical activities of the cell. A

5. The undefined nuclear region of prokaryotes are also known as:
(a) Nucleus (b) Nucleolus (c) Nucleic acid (d) Nucleoid

6. Which of the following are covered by a single membrane?
(a) Mitochondria (b) Vacuole (c) Lysosome (d) Both (b) and (c)

7. The proteins and lipids, essential for building the cell membrane, are manufactured by
(a) Endoplasmic reticulum (b) Golgi apparatus
(c) Plasma membrane (d) Mitochondria K

8. Select the odd one out.
(a) The movement of water across a semi permeable membrane is affected by the amount of substances dissolved in it.
(b) Membranes are made of organic molecules like proteins and lipids.
(c) Molecules soluble in organic solvents can easily pass through the membrane.
(d) Plasma membranes contain chitin sugar in plants.

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 the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) Assertion is false but the Reason is true.

9. **Assertion (A):** Multicellular organisms have higher survival rate than unicellular organisms.
Reason (R): In Multicellular organism, dead cells are replaced by new cells.

10. **Assertion (A):** Lysosomes are known as suicidal bag of cells.
Reason (R): Lysosomes contain powerful enzymes capable of breaking down all organic material.

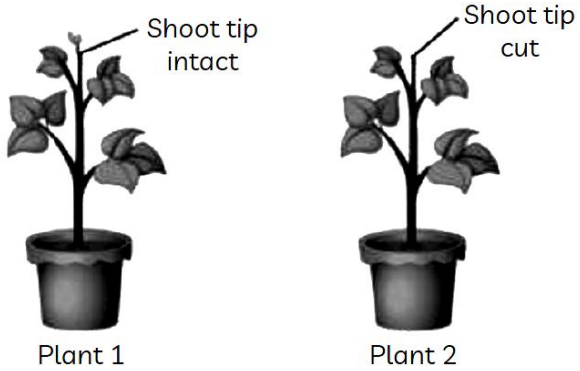
SECTION – B

Questions 11 to 14 carry 2 marks each.

11. In Biology practical class, the teacher asked Renuka and Sahil to keep the onion peel and RBC in two different beakers of hypotonic solution. Renuka noticed that the onion peel swelled while Sahil witnessed the RBCs explode quickly. Why did this happen? Give reason by supporting the activity performed by both of them.

12. (a) Name the two organelles in a plant cell that contain their own genetic material and ribosomes.
(b) If you are provided with some vegetables to cook, you generally add salt into vegetables during the cooking process. After adding salt, vegetables release water. What mechanism is responsible for this?

13. Apical meristem is a type of tissues that helps plants grow in length. Tina took two identical potted plants and cut the shoot tip of one of them. She observed if the two plants grew in height after a week.



What was Tina trying to find out about shoot tips through her experiment?

14. Why does the skin of your finger shrink when you wash clothes for a long time?

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Give reasons:
(a) Mitochondria is called as the 'Powerhouse of the cell'.
(b) Vacuoles act as storage sacs inside a cell.
(c) Why lysosomes are called suicidal bags of the cell?

16. (a) Write two points of difference between nuclear region of a bacterial cell and nuclear region of an animal cell.
(b) Which structure present in the nuclear region of a living cell bear genes?

17. How does Amoeba take its food?

SECTION – D

Questions 18 carry 5 marks each.

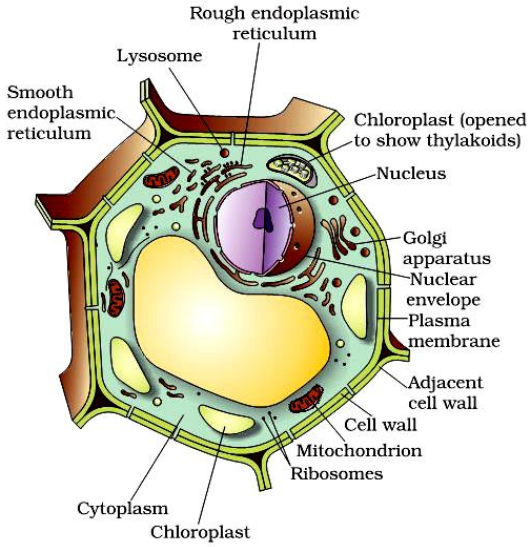
18. (a) Draw the structure of a plant cell and label the part which:
(i) have cisternae-like structures for transport and synthesis.
(ii) is a place where most biochemical reactions occur.
(iii) packages and delivers the material synthesised in a cell.
(iv) acts as a kitchen of the cell.
(b) Also differentiate this cell from an animal cell based on:
(i) Outer membranes
(ii) Presence of centrioles

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Read the following information and answer the questions based on information and related studied concepts.

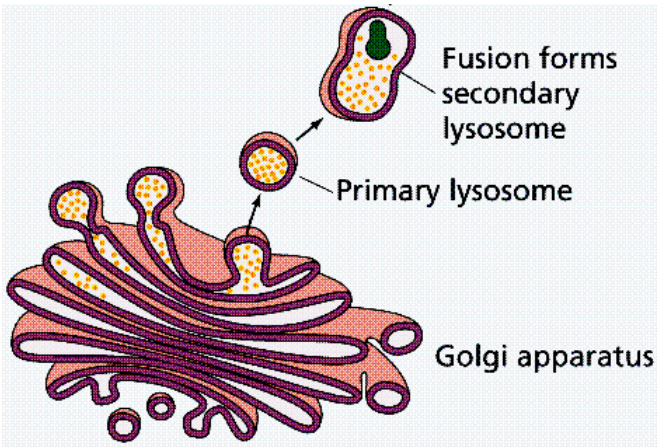
A membrane surrounds each cell, separating its contents from the outside world. To sustain their sophisticated structure and function, large and complex cells, such as those seen in multicellular animals, require a lot of chemical activity. These cells use membrane-bound tiny structures within themselves to keep different kinds of activities apart from one another. The cytoplasm is a jelly-like fluid that fills the space between the plasma membrane and the plasma membrane's outer layer, and it includes a variety of specialised cell organelles. Endoplasmic reticulum, Golgi apparatus, Lysosomes, Ribosomes, Nucleus, Chloroplast, Mitochondria, and Plastids are some of the organelles found in cells. For the cell, each of these organelles has a distinct purpose. An electron microscope is required to see some of these organelles. They're significant since they play a key role in cell function.



(a) Name any five cell organelles. (1)
(b) Name the jelly-like fluid substance present in cells. (1)
(c) What name is given to the functional segments of DNA? What is the function of these functional segments? (2)

20. Read the given passage and answer the questions that follow based on the passage and related studied concepts.

Camilo Golgi was the first to define the Golgi apparatus, which consists of a system of membrane-bound vesicles (flattened sacs) stacked almost parallel to each other called cisternae. These membranes are frequently coupled to the ER membranes, making up a complicated cellular membrane system. The Golgi apparatus packages and transports the material synthesised near the ER to numerous targets inside and beyond the cell. Storage, modification and packing of objects in vesicles are among its functions. Complex sugars can be produced from simple sugars in the Golgi apparatus in some instances. The development of lysosomes is also aided by the Golgi apparatus.



(a) What will happen if the organelle shown above is removed? (2)
(b) Name the cell organelle which has (i) Cristae (ii) Cisternae (1)
(c) What is the importance of cell sap present in vacuoles of plant cell? (1)