AECS MYSORE

WORKSHEET: CLASS 9

Matter in our surroundings

1. The physical state of a substance depends upon:

   (a) Temperature only (b) Pressure only (c) Temperature and pressure (d) Volume

2. Evaporation causes:

(a) Rise in temperature (b) Increase in kinetic energy (c) Cooling (d) Formation of ice

3. Which of the following processes involves conversion of gas to liquid?

   (a) Sublimation (b) Condensation (c) Evaporation (d) Freezing

4. Sublimation is a process in which:

   (a) Solid changes to gas (b) Liquid changes to gas (c) Gas changes to solid (d) Both (a) and (c)

5. Latent heat of fusion is:

(a) Heat released during boiling (b) Heat absorbed without a change in temperature during melting (c) Heat released during condensation (d) Heat absorbed during evaporation

6. Which state of matter has the highest kinetic energy?

   (a) Solid (b) Liquid (c) Gas (d) Plasma

7. Which of the following does not affect the rate of evaporation?

   a) Surface area (b) Humidity (c) Temperature (d) Volume of liquid

SECTION B: ASSERTION -REASON TYPE QUESTIONS

Directions: Choose the correct option:
(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.

8. **Assertion:** Gases are highly compressible.
   Reason: There is a lot of space between gas particles.

9. **Assertion:** Water boils at 100°C under normal atmospheric pressure.
   Reason: Boiling point is the temperature at which a substance changes from solid to liquid.

10. **Assertion:** Particles of matter are always in motion.
    Reason: The kinetic energy of particles increases with an increase in temperature.
11. **Assertion:** Evaporation causes cooling.
    Reason: The temperature of the liquid rises during evaporation.
12. **Assertion:** Ice melts at 0°C.
    Reason: At 0°C, ice changes into water by absorbing latent heat.

Section C: Fill in the Blanks

16. _____ has neither a fixed shape nor a fixed volume.
17. The temperature at which a liquid starts boiling is called its _____.
18. Matter is made up of _____.
19. The process of conversion of a solid directly into gas is called _____.
20. The rate of evaporation increases with an increase in _____ area.

Section D: True or False

21. Gases can be compressed easily.
22. Boiling and evaporation are the same processes.
23. Latent heat is the energy absorbed or released during a change of state.
24. The melting point of ice is 0°C.
25. Solids can flow like liquids.

Section E: Short Answer Questions (2–3 marks each)

26. Define matter. Name the three physical states of matter.
27. List two characteristics of gases.
28. What is evaporation? Name two factors that affect it.
29. Why do we feel cool when we sweat?
30. Define latent heat of vaporization.

Section F: Long Answer Questions (4–5 marks each)

(5 Questions)

31.Explain the interconversion of states of matter with suitable diagrams.

32.Describe an activity to show that matter is made up of particles.

33.Explain how pressure and temperature affect the state of matter.

34.Discuss the differences between solids, liquids, and gases in a tabular form.

35.With the help of a labelled diagram, explain the process of evaporation and mention the factors affecting it.

Chapter 2: Is matter around us pure

Section A: Multiple Choice Questions (MCQs)

1. Which of the following will exhibit the Tyndall effect?

   (a) Saltwater (b) Sugar solution (c) Soap solution (d) Distilled water

2. Which of the following is a homogeneous mixture?

   (a) Air (b) Soil (c) Sand and salt (d) Water and oil

3. Which method is used to separate cream from milk?

   (a) Filtration (b) Centrifugation (c) Distillation (d) Sublimation

4. Which of the following is a true solution?

   (a) Milk (b) Blood (c) Sugar dissolved in water (d) Starch solution

5. Which process is used to separate dye from ink?

   (a) Filtration (b) Chromatography (c) Distillation (d) Evaporation

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Section B: Short Answer Questions

6. Define a mixture and provide two examples.
7. Differentiate between homogeneous and heterogeneous mixtures with examples.
8. What is a colloidal solution? Provide an example.
9. Explain why alloys are considered mixtures.
10. Why is air considered a mixture and not a compound?

Section C: Application-Based Questions

11. Describe the method to separate a mixture of sand and salt.

12. How would you separate a mixture of oil and water?
13. What happens when a saturated solution is cooled?
14. Explain the difference between a solution and a suspension.
15. Why can’t the particles in a true solution be seen with the naked eye?

ATOMIC ENERGY CENTRAL SCHOOL – MYSORE

Session: 2025-26

Class: IX **worksheet** **Sub: Biology**

Name of the chapter: CELL THE FUNDAMENTAL UNIT OF LIFE

1. **Which plastids are colourless?**
    a. Chromoplasts
    b. Chloroplast
    c. Leucoplasts
    d. All of the above
    e. None of the above
2. **An unripe green fruit changes colour when it ripens. The reason being:**
    a. Chromoplasts changes to chlorophyll
    b. Chromoplasts changes to chromosomes
    c. Chromosomes changes to chromoplasts
    d. Chloroplast changes to chromoplasts
    e. None of the above
3. **The phenomenon where cytoplasms shrink in a hypertonic medium is called:**
    a. Frontolysis
    b. Plasmolysis
    c. Acidolysis
    d. Allolysis
    e. None of the above
4. **_____ is called the energy currency of the cell**
    a. Endoplasmic reticulum
    b. Oxygen
    c. ATP
    d. Mitochondria
    e. None of the above
5. **_____ is called the powerhouse of the cell**
    a. Mitochondria
    b. ATP
    c. Lysosomes
    d. Red blood cells
    e. None of the above

6. **_____ coined the term "cell."**
    a. Gorbachev
    b. Himmler
    c. Robert Hooke
    d. Antonie van Leeuwenhoek
    e. None of the above
7. **Which of the following statements is incorrect?**
    a. Cytoplasm is also known as protoplasm
    b. Lysosomes are known as the suicide bags of the cell
    c. Mitochondria has its own DNA
    d. All of the above are incorrect
    e. None of the above
8. **Which of the following is not a function of the vacuole in plants?**
    a. They store toxic metabolic wastes
    b. They help with the process of cell division
    c. They help to maintain turgidity
    d. They provide structural support
    e. None of the above
9. **Where are the essential proteins and lipids required for cell membrane, manufactured?**
    a. Lysosome
    b. Chromosomes
    c. Endoplasmic reticulum
    d. Mitochondria
    e. None of the above
10. **The process by which water moves through a semi-permeable membrane from a region of high concentration to a region of lower concentration, thereby equalizing water concentration is called:**
    a. Evaporation
    b. Diffusion
    c. Osmosis
    d. All of the above
    e. None of the above

One Mark questions:

1. Plasma membrane is made up of which two components?
2. What is hypotonic solution?
3. What is hypertonic solution?
4. What is isotonic solution?
5. Cell wall is made up of which component?

6. Give an example of unicellular organism.
7.Give an example of multicellular organism.
8. What is active transport?
9.What is the intracellular source of digestive enzyme?
10. What is endocytosis?

Two marks questions:

1.Describe the microscopic structure of the cell.
2. How can you calculate the magnification of a microscope?.
3. What is a cell wall and how is it formed?
4. Why were the scientists not able to observe most of the cell organelles before 1940?.
5. There would be no plant life if chloroplasts did not exist. Justify.
6. Why is the Golgi apparatus called the secretary organelle of the cell?
7. What are the functional regions of a cell?
8. What is cell sap? Give its composition.
9. What is cytosol and cytoskeleton?
10. What are secretory proteins? Give an example of secretory protein.

Three marks question:

1.Differentiate between diffusion and osmosis.

2. Differentiate between rough and smooth endoplasmic reticulum. How is endoplasmic reticulum important for membrane biogenesis ?

3.What is membrane biogenesis? How is plasma membrane formed during this process?

4. Write the name of different plant parts in which chromoplast, chloroplast and leucoplast are present.

5. What is cell division? Give the types of cell division.

5 Marks questions:

1. Draw a labelled diagram of mitochondria. Write the functions of mitochondria.
2. What is active transport? Differentiate between active and passive transport.
3. Illustrate only a plant cell as seen under electron microscope. How is it different from animal cell?
4. In brief state what happens when:
   (a) dry apricots are left for sometime in pure water and later transferred to sugar solution?
   (b) a red blood cell is kept in concentrated saline solution?

(c) the plasma membrane of a cell breaks down?
(d) Rheo leaves are boiled in water first and then a drop of sugar syrup is put on it?
(e) Golgi apparatus is removed from the cell?

5. What are the functional differences between a plasma membrane and cell wall?