परमाणु ऊर्जा शिक्षण संस्था

Atomic Energy Education Society

कार्यपत्रक / Worksheet (2025-26)

कक्षा /Class:VII **विषय /Subject: Science** **अंक/Marks: 40**

दिया गया पाठ्यक्रम/Portion covered: Chapter:7 Particulate Nature of Matter

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Section A: Multiple Choice Questions (10 × 1 = 10 marks)

1. Which of the following proves that matter is made up of small particles?
A) Burning paper B) Melting ice C) Dissolving sugar in water D) Hammering wood
2. What does the interparticle space mean?
A) Distance between two objects B) Space between particles of matter
C) Gap between atoms and electrons D) None
3. Which state of matter has negligible interparticle force of attraction?
A) Solid B) Liquid C) Gas D) Plasma
4. What happens when potassium permanganate is added to water?
A) It floats B) It dissolves slowly C) It settles down D) It disappears and spreads uniformly
5. Gases can be compressed easily because:
A) Their particles are very heavy B) Particles are close together
C) They have large interparticle spaces D) Gases are lighter
6. Which of these best explains Brownian motion?
A) Particles are large B) Particles are heavy C) Particles move randomly D) Particles are visible
7. Which is an example of diffusion in gases?
A) Sugar in water B) Ink in water C) Fragrance of perfume spreading in room D) Sand in water
8. The solid state of matter has:
A) No fixed shape B) No fixed volume
C) Maximum interparticle space D) Minimum interparticle space
9. Why does a liquid take the shape of the container?
A) It has no mass B) It has loosely packed particles C) It is colored D) It is transparent
10. The process of changing directly from solid to gas is:
A) Condensation B) Freezing C) Sublimation D) Boiling

Section B: Assertion and Reason Questions (4 × 1 = 4 marks)

For each question, two statements are given—one labeled Assertion (A) and the other labeled Reason (R). Choose the correct option from the following:
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.

11.**Assertion (A):** The smell of food cooking in the kitchen reaches you even in your room.
Reason (R): The particles of the aroma mix with the particles of air and spread by diffusion.

12.**Assertion (A):** We can easily move our hand through the air, but to do the same through a block of wood, we need a karate expert.
Reason (R): The particles in the air have very strong forces of attraction, while the particles in the block of wood have weak forces of attraction.
13.**Assertion (A):** Gases can be compressed easily.
Reason (R): Gases have large spaces between their particles.
14.**Assertion (A):** When sugar is dissolved in water, the total volume of the solution is less than the sum of the initial volumes of water and sugar.
Reason (R): Sugar particles occupy the intermolecular spaces between water particles.

Section C: Case-Based Questions (4 × 1 = 4 marks)

Case Study: Rita heated a beaker of water and added potassium permanganate to it. She noticed the color spreading faster in hot water than cold water.
15. What does this activity demonstrate?
A) Water changes color when heated B) Heat destroys particles C) Particles move faster with heat D) Heat dissolves solids
16. Why does the color spread faster in hot water?
A) Less water in beaker B) Particles of KMnO4 are heavier C) Faster motion of water particles D) Water boils
17. This experiment supports the idea that:
A) Matter is stationary B) Particles are fixed C) Particles are always moving D) Water is basic
18. Potassium permanganate is used to show:
A) Solid state B) Particle arrangement C) Diffusion in liquids D) Liquid density

Section D: Short Answer Type Questions (5 × 2 = 10 marks)

19. Define interparticle force and give an example to show its effect.
20. Why are gases compressible but solids are not?
21. Describe any two differences between solid and liquid states of matter.
22. What is diffusion? Describe one activity to demonstrate diffusion in liquids.
23. State two observations that support the idea that matter is made up of particles.

Section E: Short Answer Type Questions (4 × 3 = 12 marks)

24. Explain how the strength of interparticle forces determines the state of matter.
25. Describe how the experiment with incense sticks proves the motion of gas particles.
26. Compare the properties of solids, liquids, and gases based on shape, volume, and compressibility.
27. Draw and explain a diagram showing how particles rearrange during the melting and boiling of ice.