Particles of Matter Are Continuously Moving

An agarbatti's smell reaches the next room without a fan. The particles of matter never stop moving, and they move faster when it is hotter.

Name: Date: Score: ____ / 17

A. Fill in the blanks

1. Particles of matter are continuously ____.

2. Moving particles have ____ energy.

3. The intermixing of particles on their own is called ____.

4. Diffusion is fastest in ____.

B. True or False

5. Diffusion is faster in hot water than in cold water. True / False

6. Diffusion is fastest in solids. True / False

7. The smell of incense spreads because of diffusion. True / False

8. Particles stop moving when matter is at rest. True / False

C. Assertion and reason

9. Assertion (A): Diffusion is faster in hot water.
Reason (R): Particles move faster at higher temperature.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

10. Assertion (A): Diffusion is fastest in solids.
Reason (R): Particles in solids are tightly packed.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

D. Choose the correct option

11. Ink spreads faster in:

(a) cold water
(b) hot water
(c) ice
(d) oil

Answer: _____

12. Diffusion is slowest in:

(a) gases
(b) liquids
(c) solids
(d) all equal

Answer: _____

13. Raising the temperature makes particles:

(a) slower (b) faster

(c) stop (d) larger

Answer: _____

14. The smell of food reaching you from the kitchen is due to:

(a) evaporation (b) diffusion

(c) condensation (d) sublimation

Answer: _____

E. Short answer questions

15. What is diffusion? Give two examples.

16. Why is diffusion faster in gases and at higher temperature?

F. Match the columns

17. Match each item in Column A with the correct item in Column B.

Column A	Column B	Your answer
1. Continuous movement	(a) Kinetic energy	1 → ____
2. Particles mixing on their own	(b) Faster diffusion	2 → ____
3. Fastest diffusion	(c) Diffusion	3 → ____
4. Higher temperature	(d) Gases	4 → ____

Detailed solutions

1. moving

2. kinetic

3. diffusion

4. gases

5. True. Higher temperature, faster particles.

6. False. It is slowest in solids.

7. True. Gas particles move and mix with air.

8. False. They move continuously.

9. (a) More kinetic energy speeds mixing.

10. (d) A is false; R is true and is why diffusion is slowest in solids.

11. (b) hot water. More kinetic energy.

12. (c) solids. Particles are tightly held.

13. (b) faster. Kinetic energy rises.

14. (b) diffusion. Gas particles mix with air.

15. Intermixing of particles of different substances on their own. Examples: smell of perfume spreading; ink spreading in water.

16. Gas particles are far apart and move freely; heat increases their kinetic energy, so they move and mix faster.

17. 1 → (a), 2 → (c), 3 → (d), 4 → (b). Moving particles explain diffusion.