



**First
Semester**

Exam 1

**Unit one
Matter and
Energy**

**Class
PREP 2**

**Subject
Science**



Unit One: Matter and Energy

Q 1

Multiple choice

1. Which of the following is considered matter?

- a) Light
- b) Heat
- c) Sound
- d) Iron

2. A substance that has a definite volume but no definite shape is in the _____ state.

- a) Solid
- b) Liquid
- c) Gaseous
- d) Plasma

3. Sand is not considered a fluid because:

- a) Its particles are too large.
- b) It does not take the shape of its container.
- c) It is a solid.
- d) Its flow does not change the shape of its grains.

4. The ability of gases to reduce in volume under pressure is called:

- a) Diffusion
- b) Compressibility
- c) Viscosity
- d) Flow

5. The movement of particles from an area of high concentration to low concentration is known as:

- a) Brownian Motion
- b) Compression
- c) Diffusion
- d) Flow

6. Which state of matter has the fastest rate of diffusion?

- a) Solids
- b) Liquids
- c) Gases
- d) Plasma





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7. According to the Particle Theory, particles of matter are:

- a) Always visible.
- b) Identical in all substances.
- c) In constant motion.
- d) Without kinetic energy.

8. The random movement of large particles suspended in a fluid is called:

- a) Diffusion
- b) Viscosity
- c) Brownian Motion
- d) Compression

9. The fourth state of matter, consisting of ions and free electrons, is called:

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

10. Which of the following is a chemical change?

- a) Melting of ice
- b) Dissolving sugar in water
- c) Burning wood
- d) Breaking a glass

Q 2

Fill in the blanks with the correct scientific term:

1. Anything that has mass and occupies space is called _____.

Answer:

2. Materials that can flow and take the shape of their container are called _____.

Answer:

3. The ability of fluids to flow easily is known as _____.

Answer:

4. The possibility of reducing the volume of gases when pressure increases is _____.

Answer:

5. The movement of particles from high to low concentration is _____.

Answer:





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6. The random movement of suspended particles in a fluid is _____.

Answer:

7. The state in which gases are a mixture of ions and electrons is _____.

Answer:

8. A change that produces new substances with different properties is a _____ change.

Answer:

9. A change in the state or shape of matter without changing its composition is a _____ change.

Answer:

10. Evidence of a chemical reaction can include change in color, emission of gas, or formation of a _____.

Answer:

Q 3

Write (T) for True or (F) for False. If the statement is false, correct the underlined word

1. Solids have a definite shape and volume.
2. The mass of matter is a variable quantity from one place to another.
3. Liquids and gases are called fluids.
4. The ability of fluids to flow increases with increasing viscosity.
5. Diffusion occurs fastest in solids.
6. The particles of a single substance are identical.
7. The particles of matter are in a state of constant motion.
8. Burning paper is a physical change.
9. Melting ice is a chemical change.
10. Formation of a precipitate is evidence of a physical change.)





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Q 4

Give Reasons

Explain briefly why the following occur:

1. Solids have a definite shape and volume.
2. The movement of sand is not considered flow.
3. Gases are compressible.
4. Diffusion occurs very quickly in gases.
5. Burning sugar is a chemical change.

Q 5

Match the scientific term in Column A with its correct description in Column B

Column A	Column B
1. Matter	a. Ability to reduce volume under pressure.
2. Fluids	b. Anything with mass and volume.
3. Compressibility	c. Movement from high to low concentration.
4. Diffusion	d. Materials that flow and take container's shape.
5. Plasma	e. State of matter with ions and free electrons.





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Q 6

Answer the following questions concisely.

1. **List THREE properties of solids.**

Answer:

2. **What is Brownian Motion? Provide an example.**

3. **State the main points of the Particle Theory of Matter.**

Answer:

4. **Differentiate between a physical change and a chemical change, giving one example of each.**

5. **List FOUR indicators that a chemical reaction has occurred.**

Answer:

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4. The ability of gases to reduce in volume under pressure is called:

- a) Diffusion
- b) Compressibility
- c) Viscosity
- d) Flow

5. The movement of particles from an area of high concentration to low concentration is known as:

- a) Brownian Motion
- b) Compression
- c) Diffusion
- d) Flow

6. Which state of matter has the fastest rate of diffusion?

- a) Solids
- b) Liquids
- c) Gases
- d) Plasma





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7. According to the Particle Theory, particles of matter are:

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- b) Identical in all substances.
- c) **In constant motion.**
- d) Without kinetic energy.

8. The random movement of large particles suspended in a fluid is called:

- a) Diffusion
- b) Viscosity
- c) **Brownian Motion**
- d) Compression

9. The fourth state of matter, consisting of ions and free electrons, is called:

- a) Liquid
- b) Solid
- c) Gas
- d) **Plasma**

10. Which of the following is a chemical change?

- a) Melting of ice
- b) Dissolving sugar in water
- c) **Burning wood**
- d) Breaking a glass

Q 2

Fill in the blanks with the correct scientific term:

1. Anything that has mass and occupies space is called _____.

Answer: Matter

2. Materials that can flow and take the shape of their container are called _____.

Answer: Fluids

3. The ability of fluids to flow easily is known as _____.

Answer: Flow

4. The possibility of reducing the volume of gases when pressure increases is _____.

Answer: Compressibility

5. The movement of particles from high to low concentration is _____.

Answer: Diffusion





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6. The random movement of suspended particles in a fluid is _____.

Answer: Brownian Motion

7. The state in which gases are a mixture of ions and electrons is _____.

Answer: Plasma State

8. A change that produces new substances with different properties is a _____ change.

Answer: Chemical

9. A change in the state or shape of matter without changing its composition is a _____ change.

Answer: Physical

10. Evidence of a chemical reaction can include change in color, emission of gas, or formation of a _____.

Answer: Precipitate

Q 3

Write (T) for True or (F) for False. If the statement is false, correct the underlined word

1. Solids have a definite shape and volume. Answer: T

2. The mass of matter is a variable quantity from one place to another.

Answer: F (Correction: fixed)

3. Liquids and gases are called fluids. Answer: T

4. The ability of fluids to flow increases with increasing viscosity.

Answer: F (Correction: decreases)

5. Diffusion occurs fastest in solids.

Answer: F (Correction: slowest)

6. The particles of a single substance are identical.

Answer: T

7. The particles of matter are in a state of constant motion.

Answer: T

8. Burning paper is a physical change.

Answer: F (Correction: chemical)





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9. Melting ice is a chemical change.

Answer: F (Correction: physical)

10. Formation of a precipitate is evidence of a physical change.

Answer: F (Correction: chemical)

Q 4

Give Reasons

Explain briefly why the following occur:

1. Solids have a definite shape and volume.

Answer: Because the attractive forces between their particles are very strong and the distances between them are very small.

2. The movement of sand is not considered flow.

Answer: Because sand is not a fluid, and the transfer of its particles from one place to another does not change the shape of the individual grains.

3. Gases are compressible.

Answer: Because the distances between gas particles are very large, allowing them to be pushed closer together under pressure.

4. Diffusion occurs very quickly in gases.

Answer: Because gas particles move randomly and freely at high speeds with large spaces between them.

5. Burning sugar is a chemical change.

Answer: Because it results in new substances (like carbon and smoke) with properties different from the original sugar.





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Q 5

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1. Matter	a. Ability to reduce volume under pressure.
2. Fluids	b. Anything with mass and volume.
3. Compressibility	c. Movement from high to low concentration.
4. Diffusion	d. Materials that flow and take container's shape.
5. Plasma	e. State of matter with ions and free electrons.

Answers:

1. b
2. d
3. a
4. c
5. e

Q 6

Answer the following questions concisely.

1. **List THREE properties of solids.**

Answer:

- Definite shape and volume.
- Incompressible.
- Particles vibrate in fixed positions.

2. **What is Brownian Motion? Provide an example.**

Answer: Brownian Motion is the random movement of relatively large particles suspended in a fluid due to continuous collisions with the fluid particles. Example: Pollen grains moving randomly in water.





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3. State the main points of the Particle Theory of Matter.

Answer:

- Matter is made of tiny, invisible particles.
- Particles of the same substance are identical.
- There are attractive forces between particles.
- Particles have kinetic energy and are in constant motion.
- There are spaces between particles.

4. Differentiate between a physical change and a chemical change, giving one example of each.

Answer:

- Physical Change: Alters the state or shape without changing composition. Example: Melting ice.
- Chemical Change: Produces new substances with different properties. Example: Burning wood.

5. List FOUR indicators that a chemical reaction has occurred.

Answer:

- Formation of a precipitate.
- Evolution of a gas.
- Change in color.
- Emission of light or heat.

