

TEACHER COPY

Name: \_\_\_\_\_

Teacher: \_\_\_\_\_

Mark: \_\_\_\_\_ /48

Percentage: \_\_\_\_\_ %

## SECTION A:

## MULTIPLE CHOICE

(15 marks)

Select the most correct answer for each question below.

1. Choose the correct missing words in this sentence.

When solids, liquids and gases are heated they expand and take up more space. The \_\_\_\_\_ of the object increases and the \_\_\_\_\_ of the object decreases.

- (a) Space, density.
- ☒ (b) Volume, density.
- (c) The volume, space.
- (d) Density, volume.

2. Rusting is a chemical reaction that is also known as a:

- ☒ (a) Spontaneous reaction.
- (b) Endothermic reaction.
- (c) Non-spontaneous reaction.
- (d) Physical reaction.

3. Choose the correct missing words in this sentence.

When solids, liquids or gases are cooled, they contract and take up less space. The volume of the object \_\_\_\_\_ and the density of the object \_\_\_\_\_.

- (a) Spreads, increases.
- ☒ (b) Decreases, increases.
- (c) Decreases, cools.
- (d) Increases, decreases.

4. When a solute dissolves:

- (a) Its particles are spread evenly through the solute.
- (b) Its particles are spread unevenly through the solvent.
- ☒ (c) Its particles are spread evenly through the solvent.
- (d) Its particles are spread unevenly through the solute.

ANSWER KEY

5. Perfume is sprayed at one end of the classroom and shortly after students at the other end of the room could smell the perfume. This is because a process occurred called:
- (a) Contraction.
  - (b) Evaporation.
  - (c) Sublimation.
  - ☒ (d) Diffusion.
6. Choose the correct definition for 'chemical change'.
- (a) A change that results in reactants being produced.
  - ☒ (b) A change that results in a new substance being formed.
  - (c) A change that does not result in a new substance being formed.
  - (d) A change that does not result in reactants being produced.
7. A build up of lime on the showerhead is an example of:
- (a) Deposition.
  - (b) Solidification.
  - ☒ (c) A precipitate.
  - (d) Condensation.
8. Mixing two substances together is a type of:
- (a) Chemical reaction.
  - (b) Chemical change.
  - (c) Endothermic reaction.
  - ☒ (d) Physical change.
9. Corrosion is a:
- ☒ (a) Chemical reaction where a metal reacts with oxygen.
  - (b) Physical reaction where a metal reacts with oxygen.
  - (c) Physical reaction where a non-metal reacts with oxygen.
  - (d) Chemical reaction where a non-metal reacts with oxygen.
10. Dry ice demonstrates an example of:
- (a) Deposition.
  - (b) Boiling.
  - ☒ (c) Sublimation.
  - (d) Solidification

11. The simplest and cheapest way to protect iron from rusting is to cover iron with a material such as paint, plastic, or another metal such as chromium. This procedure is known as:
- (a) Galvanising.
  - ☒ (b) Coating.
  - (c) Alloying.
  - (d) Plating.
12. Which of the following is not a type of physical change?
- (a) Change in shape.
  - ☒ (b) A gas is given off.
  - (c) Expansion and contraction.
  - (d) Change of state.
13. Choose the correct definition for 'deposition'.
- ☒ (a) A change of state from gas to solid.
  - (b) A change of state from gas to liquid.
  - (c) A change of state from solid to gas.
  - (d) A change of state from liquid to gas.
14. Choose the correct definition for 'sublimation'.
- (a) A change of state from liquid to gas.
  - (b) A change of state from gas to solid.
  - ☒ (c) A change of state from solid to gas.
  - (d) A change of state from gas to liquid.
15. Choose the correct definition for 'evaporation'.
- ☒ (a) A change of state where a liquid changes to a gas at the surface of the liquid.
  - (b) A change of state from a solid to gas.
  - (c) A change of state where a liquid is heated and changes to a gas within the liquid
  - (d) A change of state where a gas is cooled and forms a liquid.

**SECTION B:**

**SHORT ANSWER**

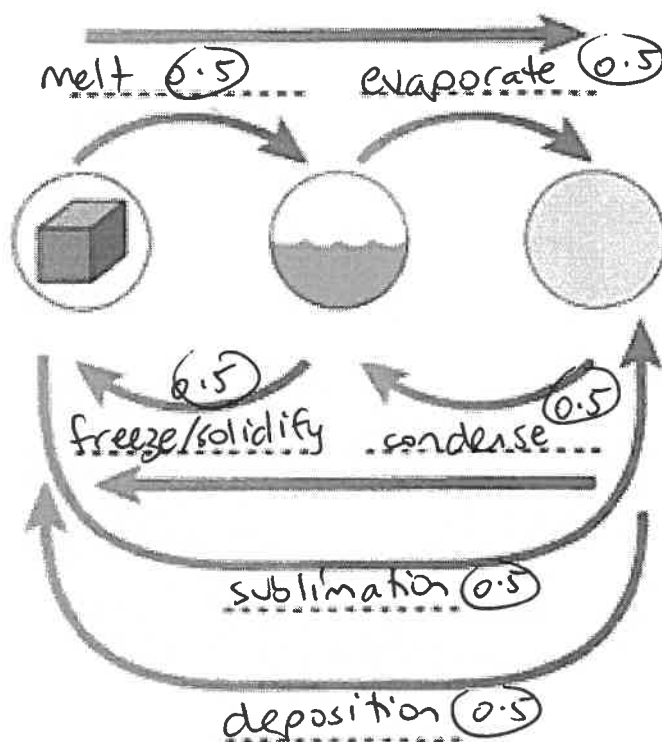
**(33 marks)**

1. Explain the main difference between physical and chemical changes. (2 marks)

Physical change does not result in a new substance being formed whereas  $\textcircled{1}$  a chemical change does result in a  $\textcircled{1}$  new substance being formed.

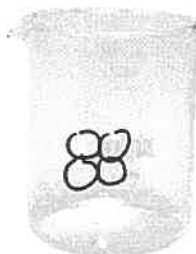
2. Label the diagram below (for the dotted lines only).

(3 marks)



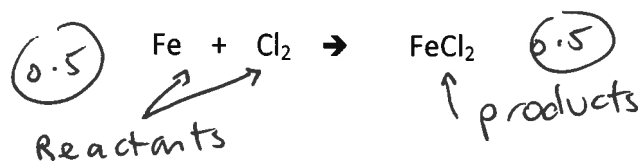
3. In the beaker below, draw a molecule with four atoms.

(1 mark)



4. Label the products and the reactants for the chemical reaction below.

(1 mark)



5. When sodium hydroxide (NaOH) is mixed with hydrochloric acid (HCl), a salt called sodium chloride (NaCl), and water (H<sub>2</sub>O) are produced.

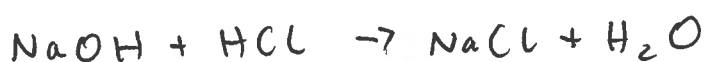
- a) Write the word equation for this reaction.

(1 mark)

sodium hydroxide + hydrochloric acid → sodium chloride + water

- b) Write the formula equation for this reaction.

(1 mark)



6. When iron oxide (FeO) is heated in the presence of carbon monoxide (CO), they combine to produce carbon dioxide (CO<sub>2</sub>) and pure iron metal (Fe).

a) Write the word equation for this reaction. (1 mark)

iron oxide + carbon monoxide → carbon dioxide + iron

b) Write the formula equation for this reaction. (1 mark)



7. State where the energy released from a reaction is stored. (1 mark)

in the bonds between atoms

8. Atoms can be created and destroyed during a chemical reaction. (1 mark)

(Circle your answer)

True or false

9. The glass below contains a solution of salty water. (2 marks)

a) What is the solvent in this solution?

water (1)

b) What is the solute in this solution?

salt (1)



10. List the three ways that the rusting of iron can be minimised. (3 marks)




coating (1)

galvanising (1)

Alloying (1)

11. Fill in the table below, which relates to the particle model.

(5 marks)

	Solids 	Liquids 	Gases 
Shape	Hold their own shape.	flow to shape of container (0.5)	fills its container (0.5)
Compressibility	very low (0.5) (not very compressible)	Are incompressible.	high (very compressible) (0.5)
Strength of bonds between particles	strong (0.5)	weak (0.5)	None.
Movement of particles	Vibrate on the spot.	medium (0.5)	fast (0.5)
Space between particles	none (0.5)	Almost none.	a large amount (0.5)

12. Explain the difference between exothermic and endothermic reactions and include an example of both. (Minimum of four sentences) (4 marks)

- Exothermic reactions release energy (1)
- Endothermic reactions absorb energy (1)

- exothermic - fireworks (1)

- endothermic - cold pack on skin (1)

13. List two observations that could be made when a chemical change has occurred. (2 marks)

change in colour      seeing a new solid (precipitate)  
smelling a gas      observing energy produced or absorbed  
seeing bubbles

Any 2  
1 mark each

14. In the table below, write whether the processes are physical or chemical changes. (4 marks)

Process	Chemical change or physical change
Crushing a can	Physical change (0.5)
An egg rotting	Chemical change (0.5)
Burning a match	Chemical change (0.5)
Snapping a pencil in half	Physical change (0.5)
Mixing blue and red paint together to form a purple colour	Physical change (0.5)
Mixing milo in milk	Physical change (0.5)
Green apple ripening to turn red	Chemical change (0.5)
An ice-cream melting	Physical change (0.5)