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EDUCATION

SENIOR PHASE

GRADE 8

JUNE 2025

NATURAL SCIENCES

60 Marks

90 Minutes

Name: _____

Grade: _____

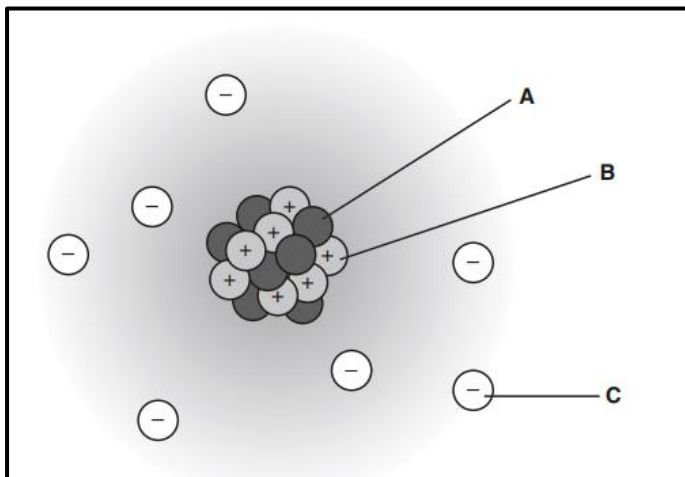
Instructions:

1. Make sure you have EIGHT (8) printed pages, including this cover page.
2. Read all the questions carefully.
3. Set your work out neatly and correctly.
4. Check your spelling.

QUESTION 1**Multiple Choice**

Various options are provided as answers to the following questions. Choose the correct answer and write down only the letter next to the question number.

- 1.1. The chemical symbol for phosphorus is...
 - A. 15.
 - B. P.
 - C. Ps.
 - D. Pb
- 1.2. Hydrogen is located in Group ____ of the Periodic Table.
 - A. 1
 - B. 2
 - C. 3
 - D. 4
- 1.3. A pure substance that cannot be broken down into simpler substances by chemical or physical means.
 - A. Compound
 - B. Element
 - C. Molecule
 - D. mixture
- 1.4. If two objects have the same volume but one has a greater mass, the one with greater mass
 - A. Has a lower density
 - B. Has a higher density
 - C. Will float
 - D. Will sink
- 1.5. If you cut a wooden block in half, each half would have
 - A. Half the density of the original piece
 - B. Twice the density of the original piece
 - C. The same density as the original piece
 - D. No density at all
- 1.6. Which does not belong to the group?
 - A. Mercury
 - B. Copper
 - C. Aluminium
 - D. Iron
- 1.7. If two objects have the same mass but different volumes
 - A. The one with the larger volume has the lower density
 - B. They must have the same density
 - C. The one with the larger volume has the higher density
 - D. The one with the larger volume is twice as dense



- 1.8. The part of an atom labelled B is a(an)...
- proton.
 - neutron.
 - electron.
 - element
- 1.9. Which parts of an atom make up nearly all the mass of an atom?
- A and C
 - A and B
 - B and C
 - A only
- 1.10. Which part of an atom is likely to be transferred?
- B
 - C
 - A
 - Both A and B

(10)

QUESTION 2**Multiple choice questions**

Match the definitions in Column B with the terms in Column A and write the letter of the correct answer in the space provided.

	Column A		Column B	ANSWER
2.1	Matter	A	When a substance becomes smaller and shrinks.	2.1
2.2	Condensation	B	A substance that is made up of one type of particle only.	2.2
2.3	Contraction	C	When a substance swells up and become larger.	2.3
2.4	Chemical bond	D	Anything that takes up space and occupies volume.	2.4
2.5	Expansion	E	when energy is removed and a gas changes state to a liquid	2.5
		F	a special force that holds the atoms in a molecule together	
		G	when energy is added and the particles at the surface of a liquid change state to a gas	

(5)

QUESTION 3**One word answer**

Give one word for each of the following statements.

3.1. The fundamental particles that all matter is made up of. (1)

3.2. The mass of a substance in a given space (volume). (1)

3.3. A pure substance made up only of atoms of the same kind. (1)

3.4. A measure of the amount of matter in an object or material. (1)

3.5. When energy is added and a solid changes state to a liquid. (1)

(5)

QUESTION 4**Elements in the periodic table**

Complete the following table by supplying either the name or symbol for the elements listed, and whether it is a metal, non-metal, or semi-metal.

Name	Symbol	Metal, non-metal, or semi-metal
Hydrogen	4.1. _____	4.2. _____
4.3. _____	Li	4.4. _____
Copper	4.5. _____	4.6. _____

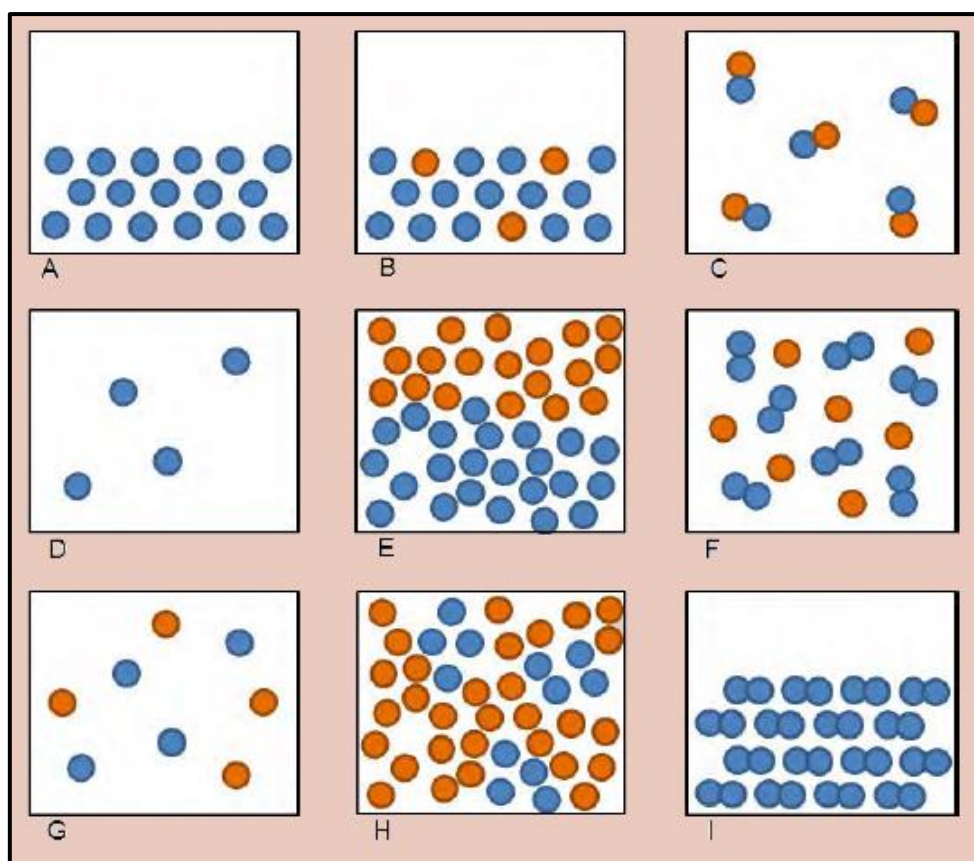
(6)

QUESTION 5**Particle model of matter**

5.1. Draw a structure of the carbon atom. Your picture must show all three different types of sub-atomic particles. Provide a suitable heading for your drawing. (5)



- 5.2. Each of the following blocks below (labelled A to I) contain some matter. You must answer the following questions using the diagrams in the blocks. Each question may have more than one answer! [7 marks]



- Which blocks represent the particles of an element? (2)
- Which block represents the particles of a compound? (1)
- Which block represents the particles of a mixture? (2)
- Which block represents the particles of a pure substance? (2)
- Which block represents diatomic molecules of an element? (1)

(13)

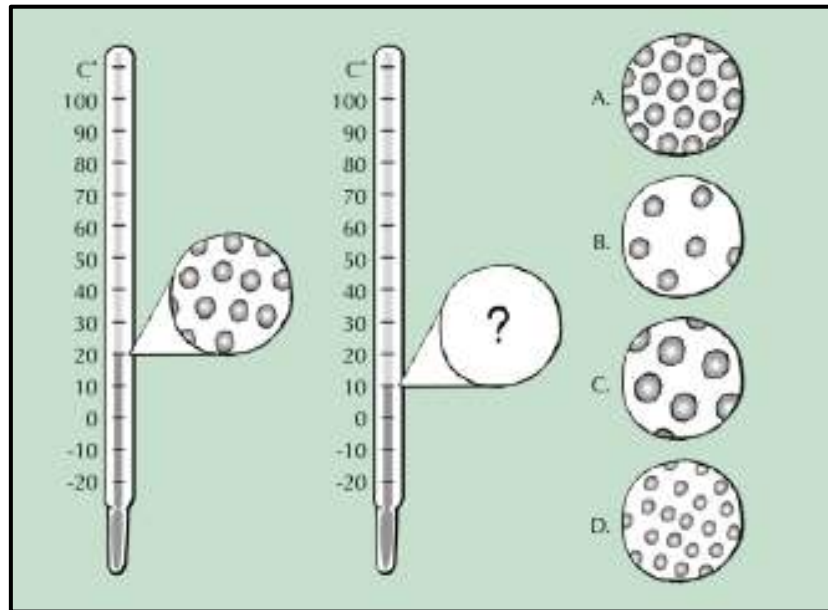
QUESTION 6**Expansion and Contraction**

Read the following information about thermometers and answer the questions that follow.

Thermometer

The common glass thermometer is called a bulb thermometer. All bulb thermometers have a fairly large bulb that is connected to a long, thin tube. The thermometer has a brightly coloured liquid on the inside. Some thermometers contain mercury as it expands and contracts quite a lot when heated or cooled.

Look carefully at the following set of diagrams. They represent the same thermometer at two different temperatures.



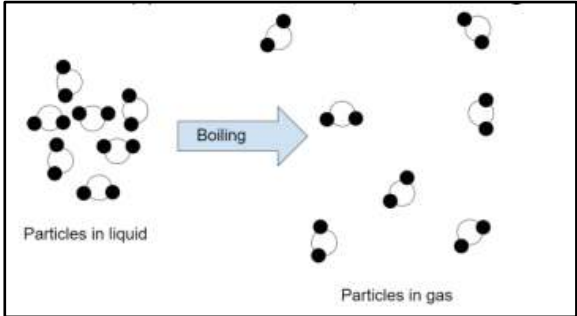
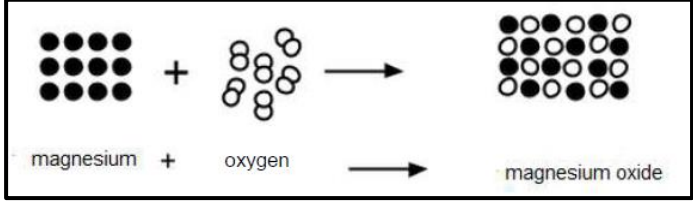
- 6.1. The drawings represent the particles in the liquid inside a thermometer. What is the temperature measured on the thermometer on the left? (1)
-
- 6.2. The drawing on the right is of the same thermometer, but slightly different. Can you tell the difference? (1)
-
- 6.3. Which of the circles (A, B, C, or D) is the best representation of the liquid in the thermometer on the right? Why did you choose this one? (2)
-
- 6.4. Does a material have less mass when it has contracted? Explain. (2)
-
-
- 6.5. If the temperature was raised and the thermometer read 30°C , which circle would now best represent the particles in the liquid of the thermometer? Why? (2)
-
-
- 6.6. How does the volume change when a material is heated? Explain. (2)
-
-
- 6.7. How does the density change when a material is heated? Why? (2)
-
-

(12)

QUESTION 7

Chemical Reactions

Study the two experiments below and answer the questions that follows:

Experiment 1.	Experiment 2
Water is heated. It starts to boil. After a while vapour is seen above the water. The volume of the water inside the container decreases. The diagram below illustrates what happens to the water particles during this experiment. 	Magnesium ribbon burns in air and magnesium oxide is formed. 

- 7.1. Refer to the arrangement of particles and explain why **Experiment 1** is not a chemical reaction, while **Experiment 2** is an example of a chemical reaction. (3)

- 7.2. What change did you observe during experiment 1? (2)

- 7.3. How did the water molecules change during experiment 1? (1)

- 7.4. Write the name of the reactant(s) for Experiment 2. (2)

- 7.5. Write the name of the product(s) for this reaction. (1)

(9)

TOTAL: 60