

## FINAL EXAM 1 REVIEW

### Unit 2 Materials and their structure

**Question 1** Marcus placed a substance in a beaker. He saw that the substance changed shape and took the shape of a beaker. What was the substance?

Tick (/) **one** box.

[1]

Solid

Liquid

Gas

**Question 2** Give the chemical symbols for the following elements.

a Potassium

[1]

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b Argon

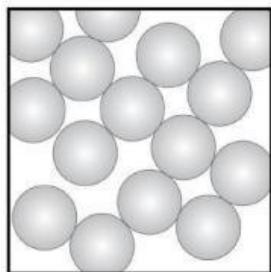
[1]

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**Question 3 a** Which state of matter is represented by this diagram?

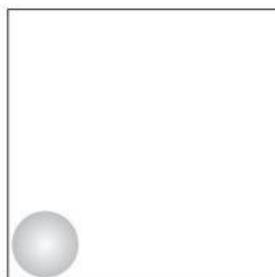


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[1]

b Complete this diagram to show the particles in solid ice.

[1]



**Question 4** What is the difference between a mixture and a compound?

[1]

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**Question 5** When you read the volume of a liquid in a measuring cylinder, how can you make sure you are reading it as accurately as possible?

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**Question 6** Complete the following passage using the list of words. You may use the words once, more than once, or not at all.

properties      warm      boil      melting point      water vapour      ice      cold

If you leave ice in a \_\_\_\_\_ place it melts and becomes liquid water. The

temperature at which a solid melts is called the \_\_\_\_\_.

If you heat water until its temperature reaches 100°C, it will boil. Now, all of the water

rapidly changes to \_\_\_\_\_. 100°C is the boiling point of water.

The temperatures at which a substance melts and boils are two of its \_\_\_\_\_.

[2]

**Question 7** Which of these statements about the Periodic Table is correct?

Tick (✓) **one** box.

[1]

The columns are called periods.

The columns are called groups.

The metals are found on the right of the table.

**Question 8** At what temperature does water change from liquid to gas?

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**Question 9** Give one property of a gas.

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**Question 10** A substance is a grey solid that conducts electricity.

a How many properties of that substance are mentioned in the sentence?

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b Give two other features that would be properties of a substance.

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**Question 11** Here are some examples of changes to materials.

Tick (✓) the boxes of all changes that are **reversible physical changes**.

- A balloon bursting.
- Water freezing.
- Chocolate melting.
- An egg cooking.

**Question 12** Some salt is dissolved in a beaker of water. Which of the following will separate the salt from the water?

Tick (✓) **one** box.

- Filter the solution.

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- Heat the solution and evaporate off the water.
- Use a magnet to separate the salt.

**Question 13** You are going to find out if an ice cube melts more quickly in hot water than in cold water.

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a What will you change in the investigation?

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b What will you measure?

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c What will you keep the same?

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**Question 14** Explain the difference between boiling and evaporation.

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**Question 15** When a metal called sodium is placed in water it reacts and forms sodium hydroxide.

a What is the product in this reaction?

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b What are the reactants?

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**Question 16** A student puts a piece of a metal called magnesium into some acid. There are a lot of bubbles produced and the container becomes hot. Has a chemical reaction taken place? Give a reason for your answer.

**Question 17** Some students want to compare the reactions of a metal in acid. They place a piece of the metal in a

test tube of dilute acid and measure how high the temperature of the acid goes.

a What equipment will they use to measure the temperature?

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b They take the temperature of the acid before they add the metal. Why do they do that?

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c Why must they make sure that the volume and type of acid used is the same each time?

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**Question 18** Which of the following is a property of gases only? [1]

**Tick one box.**

- Has a fixed volume.
- Takes the shape of the container it is in.
- Can be compressed.
- Can be poured.

**Question 19** Which elements are present in the following compounds? [4]

a CaO

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b sulfate

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c Sodium nitrate

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d HCl

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**Question 20** Write the correct name for each hazard symbol. Choose from this list. [2]

toxic



flammable



corrosive



**Question 20** Explain the differences between a compound of iron and sulfur, and a mixture of iron and sulfur. [2]

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**Question 21** What temperature is:

a 20°C higher than 5°C \_\_\_\_\_ [1]

b 20°C lower than 5°C? \_\_\_\_\_ [1]

**Question 22**

*Water has a number of changes of state during the water cycle.*

**a** Complete these sentences to describe how liquid water evaporates from oceans and rivers.

The particles in liquid water are touching one another but not in a regular pattern. The particles can

vibrate and can slide past one another.

As the temperature \_\_\_\_\_, heat energy transfers to the particles.

The particles vibrate and move \_\_\_\_\_.

Eventually, some particles have enough energy to escape the weak forces holding the particles together.

These particles escape as a \_\_\_\_\_ and move into the atmosphere.

**b Name the change of state described below.**

*The particles in snow and ice are arranged in a regular pattern and are held together by strong forces. The particles can vibrate but not move from their position. As the temperature increases, heat energy from the surroundings is transferred to the particles and they vibrate more.*

*Eventually, the particles gain enough energy to overcome the strong forces holding them in place and they start to slide past one another.*

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