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]**

_____

b Argon **[1]**

_____

_____

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

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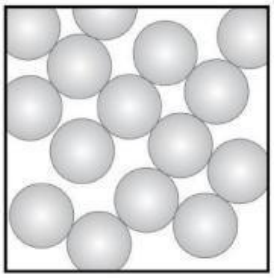

_____ **[1]**

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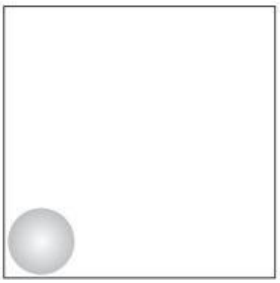
b Complete this diagram to show the particles in solid ice. **[1]**



Question 4 What is the difference between a mixture and a compound? **[1]**

_____

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?

_____

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]

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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?

_____

Question 9 Give one property of a gas.

_____

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

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

_____

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

_____

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.

_____

a What will you change in the investigation?

_____

b What will you measure?

_____

c What will you keep the same?

_____

Question 14 Explain the difference between boiling and evaporation.

_____

_____

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?

_____

b What are the reactants?

_____

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.

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_____

_____

_____

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?

_____

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

_____

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

_____

_____

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

_____

b Copper sulfate

_____

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c Sodium nitrate

_____

d HCl

_____

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]

_____

_____

_____

_____

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.

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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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