Practice Question Set For GCSE
**Subject : Physics**
**Paper-1 Topic: Particle Model Of Matter (High Demand)**

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**Name of the Student**:_____
**Max. Marks : 26 Marks** **Time : 26 Minutes**

## Q1.

The particle model can be used to explain the properties of gases.

(a) Describe the direction of motion of the particles in a gas.

_____

_____

**(1)**

(b) Explain why heating a gas increases the average speed of the gas particles.

_____

_____

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_____

_____

_____

**(3)**

(c) Water can exist as either a liquid or a gas at 100 °C.

Explain why a mass of gaseous water at 100 °C contains more energy than an equal mass of liquid water at 100 °C.

_____

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_____

_____

_____

_____

**(2)**

(d) Water vapour is a gas. Gases change state when they cool.

The figure below shows condensation on a cold bathroom mirror.

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A volume of $2.5 \times 10^{-5}$ $m^3$ of condensation forms on the mirror.

Density of water = 1000 kg / $m^3$

Specific latent heat of vaporisation of water = $2.26 \times 10^6$ J / kg.

Calculate the energy released when the condensation forms.

Energy released = _____ J

**(5)**

(e) Central heating boilers burn gas and use the energy released to heat water.

Modern condensing central heating boilers take advantage of the energy that is released when water condenses.

Waste water vapour produced when the water is heated in the boiler is used to preheat the cold water entering the boiler.

Give some of the arguments in favour of condensing boilers compared to older non-condensing boilers.

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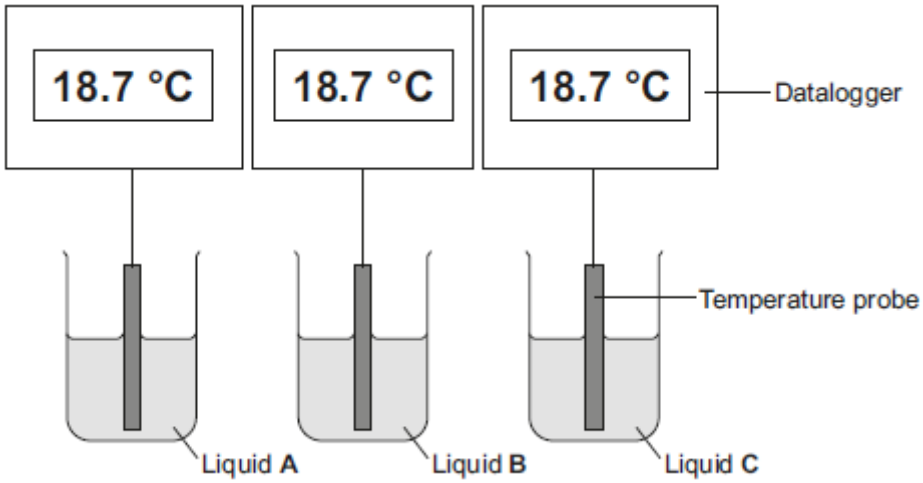
**(4)**

**(Total 15 marks)**

## Q2.

A student investigated the cooling effect of evaporation.
She used the equipment in **Figure 1** to measure how the temperature of three different liquids changed as the liquids evaporated.

**Figure 1**



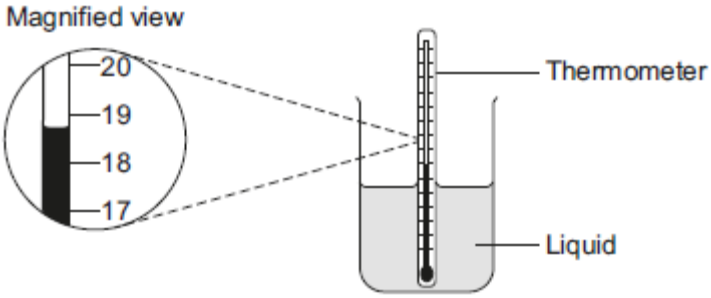

(a) The temperature and volume of each liquid was the same at the start of the investigation.

State **one** further control variable in this investigation.

**(1)**

(b) Give **two** advantages of using dataloggers and temperature probes compared to using the thermometer shown in **Figure 2**.

**Figure 2**

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1. _____

_____

2. _____

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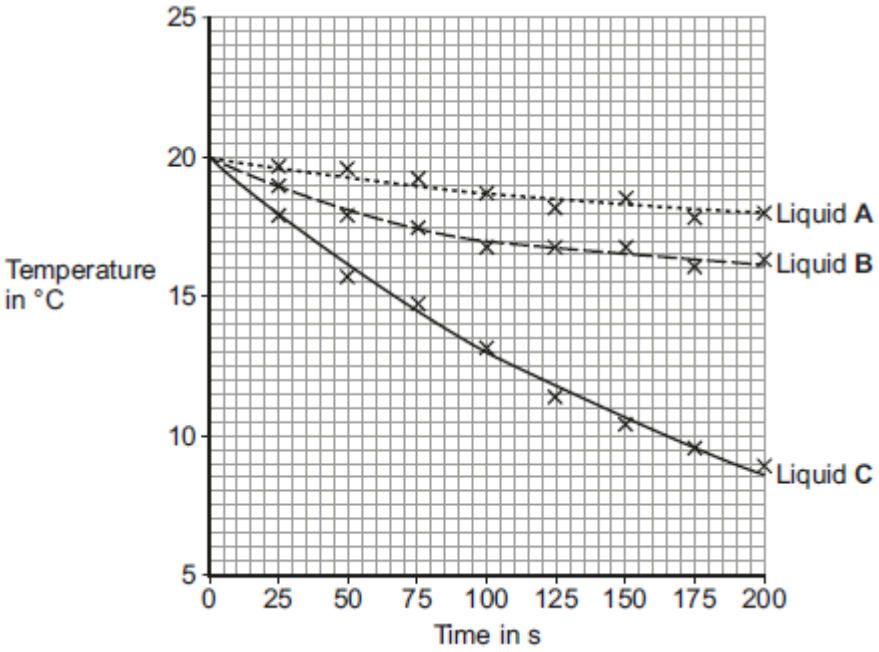
**(2)**

(c) The student's results are shown in **Figure 3**.

**Figure 3**




(i) Calculate the average rate of temperature decrease of liquid **C** between 0 and 100 seconds.

_____

_____

Average rate of temperature decrease = _____ °C / s

**(2)**

(ii) Give **one** conclusion that can be made about the rate of temperature decrease of **all three** liquids from the results in **Figure 3**.

_____

_____

**(1)**

(iii) Which liquid had the lowest rate of evaporation? Give a reason for your answer.

Liquid _____

Reason _____

_____

**(1)**

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(iv) A second student did the same investigation but using a smaller volume of liquid than the first student.

All other variables were kept the same.

What effect would this have on the results of the second student's investigation?

_____

_____

**(1)**

(d) Explain how the evaporation of a liquid causes the temperature of the remaining liquid to decrease.

_____

_____

_____

_____

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_____

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_____

**(3)**

**(Total 11 marks)**

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