Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: GCSE Triple Science_Particle Model Of Matter (Low Demand Questions)

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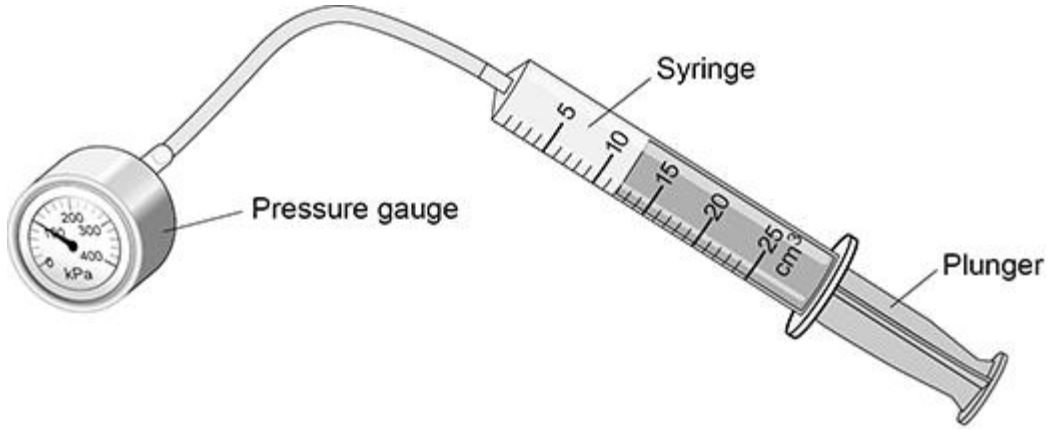
Name of the Student:_____
Max. Marks : 25 Marks **Time : 25 Minutes**

Q1.

A teacher demonstrated the relationship between the pressure in a gas and the volume of the gas.

The figure below shows the equipment used.



(a) What is the range of the syringe?

Tick (✓) **one** box.

From 0 to 1 cm^3 ☐

From 0 to 5 cm^3 ☐

From 0 to 25 cm^3 ☐

(1)

(b) The relationship between the pressure and volume of a gas is given by the equation:

pressure × volume = constant

Complete the sentence.

For this equation to apply, both the mass of gas and the _____ of the gas must stay the same.

(1)

(c) The initial volume of the gas in the syringe was 12 cm^3.

The initial pressure of the gas in the syringe was 101 000 Pa.

Calculate the constant in the equation below.

pressure × volume = constant

_____

_____

_____

Constant = _____ Pa cm^3

(2)

(d) The teacher pulled the plunger slowly outwards and the gas expanded.

The new volume of the gas was 24 cm^3.

Calculate the new pressure in the gas.

The constant has the same value as in part (c)

_____

_____

_____

_____

_____

New pressure = _____ Pa

(3)

(e) Which change occurs when the plunger is pulled slowly outwards?

Tick (✓) **one** box.

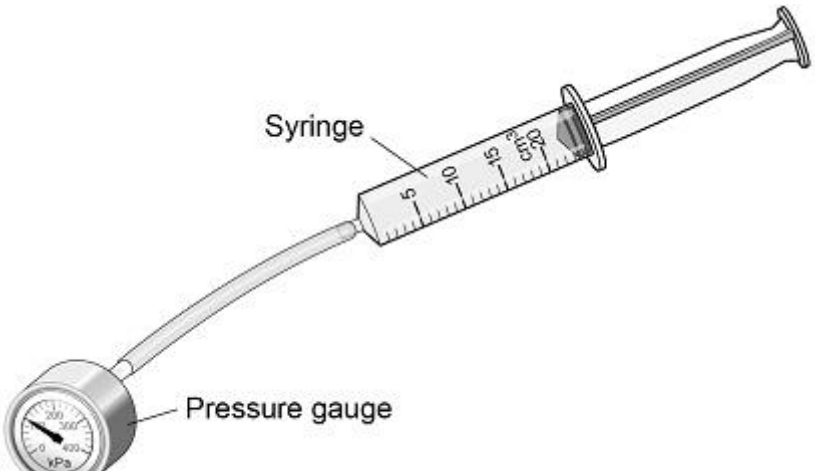
The gas particles stop moving.	☐
There are more frequent collisions between the gas particles.	☐
There is more space between the gas particles.	☐

(1)

(Total 8 marks)

Q2.

A student used the equipment in the image below to investigate how the pressure of a gas varies with the volume of the gas.



The syringe is filled with air.

The table below shows the results.

Volume in cm^3	Pressure in kPa
24	100
20	120
12	200
10	240

(a) Describe how the student could use the equipment in the image above to obtain the data shown in the table.

(4)

(b) Describe what happens to the pressure of the air when the volume of the air is halved.

(2)

(c) The temperature of the air in the syringe remained constant during the student's investigation.

Which **two** properties of the air particles would change if the temperature increased?

Tick (✓) **two** boxes.

kinetic energy	☐
mass	☐
shape	☐
speed	☐
volume	☐

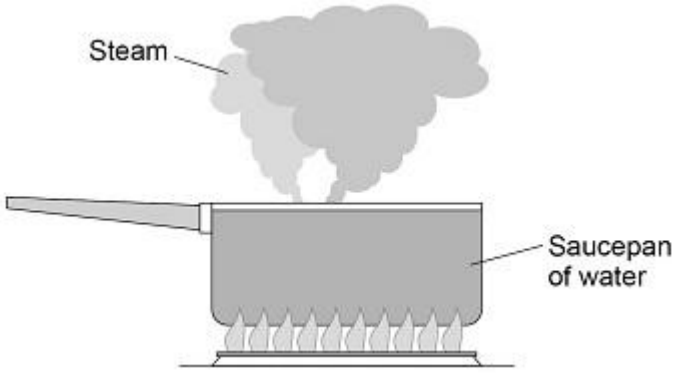
(2)

(Total 8 marks)

Q3.

Figure 1 shows water being heated. Eventually the water changed into steam.

Figure 1



(a) Complete the sentences.

Choose answers from the box.

Each answer may be used once, more than once or not at all.

greater than	**less than**	**the same as**

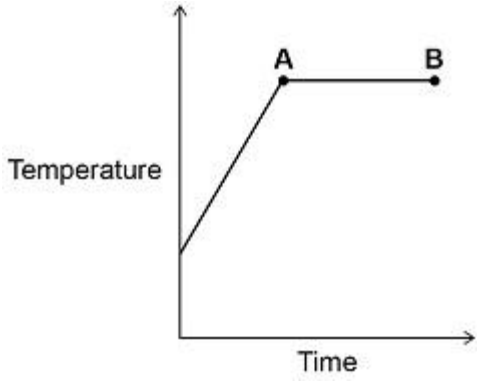
The distance between the particles in steam is _____ the distance between the particles in liquid water.

The density of steam is _____ the density of liquid water.

(2)

Figure 2 shows how the temperature of the water varied with time.

Figure 2



(b) What is the name of the process that is taking place between points **A** and **B**?

Give a reason for your answer.

Process _____

Reason _____

_____

(2)

(c) A mass of 0.063 kg of water was turned into steam.

The specific latent heat of vaporisation of water is 2 260 000 J/kg

Calculate the thermal energy transferred to the water to turn it into steam.

Use the equation:

thermal energy for a change of state = mass ×specific latent heat

_____

_____

_____

Energy = _____ J

(2)

(d) The mass of the steam was 0.063 kg

The volume of the steam was 0.105 m^3

Calculate the density of steam.

Use the equation:

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

Choose the unit from the box.

kg	**m^3 / kg**	**kg / m^3**

_____

_____

_____

Density = _____ Unit _____

(3)

(Total 9 marks)