Kinetic Particle Model of Matter

Question Paper

Course	CIE IGCSE Physics
Section	2. Thermal Physics
Topic	Kinetic Particle Model of Matter
Difficulty	Medium

Time Allowed 10

Score /4

Percentage /100

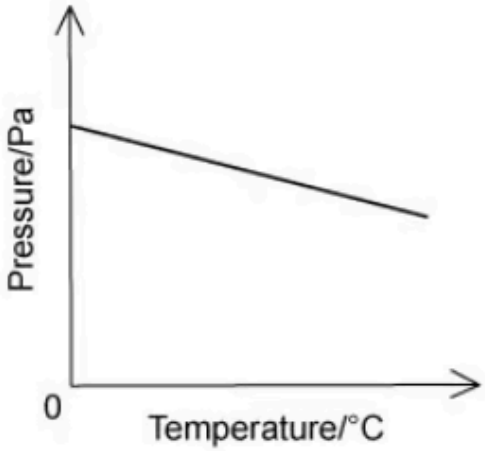
Question 1

Air is trapped inside a cylinder. The volume of the cylinder cannot change.

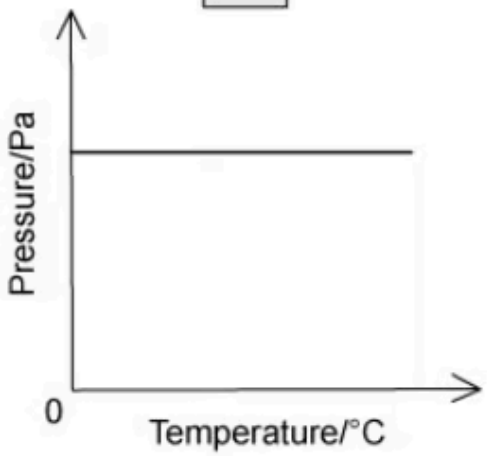
The temperature of the air is increased.

Which of the graphs below shows the correct relationship between pressure and temperature?

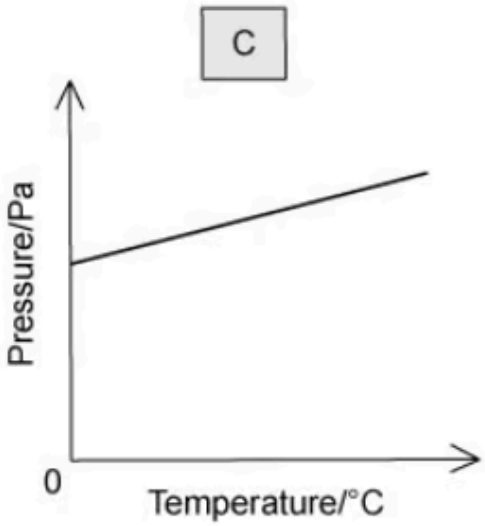
A



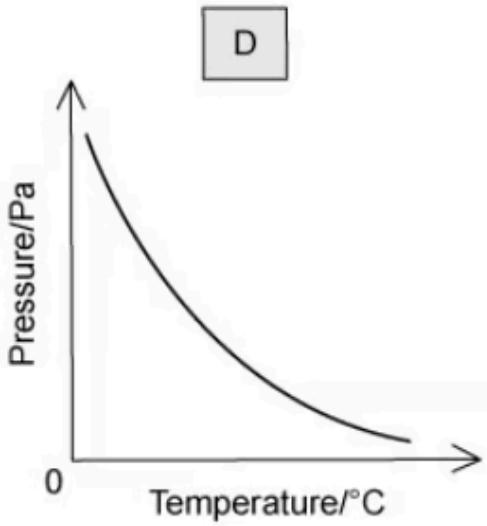
B



C



D



[1 mark]

Question 2

A beaker of water, at its boiling point of 100 °C, is heated so that the liquid starts to become a gas, also at 100 °C.

Which row of the table correctly compares the liquid phase with the gas phase under these conditions?

	Average distance between the particles	**Average speed of the particles**
A	the same in the liquid and the gas	the same in the liquid and the gas
B	greater in the liquid	greater in the gas
C	greater in the gas	greater in the liquid
D	greater in the gas	the same in the liquid and the gas

[1 mark]

Question 3

A sealed yet empty (except for air) plastic drinks bottle is left outside in the sunshine on a warm day.

Which row of the table correctly describes what happens to the average speed of the air molecules, and to the pressure inside the bottle?

	Average speed of particles	**Pressure inside bottle**
A	increases	increases
B	increases	decreases
C	decreases	increases
D	decreases	decreases

[1 mark]

Question 4

A car tyre is inflated with air.

As the car drives, the temperature of the tyre increases, which also causes the temperature of the air inside the tyre to increase. This increases the pressure of the air inside the tyre.

Which of the following is a correct explanation as to why?

A. The mass of air inside the tyre has increased.

B. The area of the tyre has decreased, thus increasing the pressure.

C. The air molecules collide with each other less frequently.

D. The average kinetic energy of the air molecules has increased.

[1 mark]