Kinetic Molecular of Matter – 2019 Nov

1. 0625/21/O/N/19/No.16

A bubble of gas is formed deep under water. The bubble has a volume of 40 cm^3 and the pressure inside the bubble is *P*.

The bubble rises up through the water. The volume of the bubble increases to 56 cm^3 and the pressure becomes 100 kPa. The temperature of the gas does not change.

What is the initial pressure *P*?

A 71 Pa **B** 71 kPa **C** 140 Pa **D** 140 kPa

2. 0625/22/O/N/19/No.16

Which row describes the arrangement and the motion of the molecules in a gas?

	arrangement	motion
A	far apart	move freely
B	far apart	vibrate only
C	tightly packed	move freely
D	tightly packed	vibrate only

3. 0625/22/O/N/19/No.17

A bubble of air of volume 3.0 mm^3 is under water. The bubble is at a depth where the pressure of the air inside the bubble is four times atmospheric pressure.

The temperature of the air in the bubble stays the same as it rises to the surface.

What is the volume of the air in the bubble as it reaches the surface?

A 3.0 mm^3 **B** 9.0 mm^3 **C** 12 mm^3 **D** 15 mm^3

4. 0625/23/O/N/19/No.15

Which row compares the separation and the motion of the molecules of a hot gas with those of a cool liquid? (Both the gas and the liquid are at the same pressure.)

	separation	motion
A	greater for a gas	faster for a gas
B	greater for a gas	slower for a gas
C	smaller for a gas	faster for a gas
D	smaller for a gas	slower for a gas

5. 0625/23/O/N/19/No.16

A fixed mass of gas has a volume of 25 cm^3. The pressure of the gas is 100 kPa.

The volume of the gas is slowly decreased by 15 cm^3 at constant temperature.

What is the change in pressure of the gas?

A 67 kPa **B** 150 kPa **C** 170 kPa **D** 250 kPa