21 The graph shows the distribution of speeds for the molecules of a gas at a particular temperature.
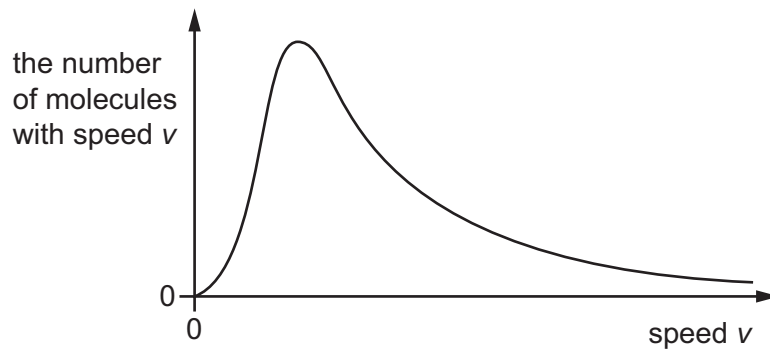

Which statement is correct?

A All the molecules have the same kinetic energy.

B The commonest value of speed is also the average speed.

C The graph shows that the molecules of a gas are widely spaced apart.

D The peak value of the graph would move to the right if the temperature is increased.

22 The Mariana Trench in the Pacific Ocean has a depth of about 10 km.

Assuming that sea water is incompressible and has a density of about 1020 kg m^{-3}, what would be the approximate pressure at that depth?

A 10^5 Pa   **B** 10^6 Pa   **C** 10^7 Pa   **D** 10^8 Pa

23 An elastic material with a Young modulus E is subjected to a tensile stress S. Hooke's Law is obeyed.

What is the expression for the elastic energy stored per unit volume of the material?

A $\dfrac{S^2}{2E}$ **B** $\dfrac{S^2}{E}$ **C** $\dfrac{E}{2S^2}$ **D** $\dfrac{2E}{S^2}$

Space for working