

4 (a) State the evidence for the assumption that

(i) there are significant forces of attraction between molecules in the solid state,

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.....[1]

(ii) the forces of attraction between molecules in a gas are negligible.

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.....[1]

(b) Explain, on the basis of the kinetic model of gases, the pressure exerted by a gas.

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.....[4]

(c) Liquid nitrogen has a density of 810 kg m^{-3} . The density of nitrogen gas at room temperature and pressure is approximately 1.2 kg m^{-3} .
Suggest how these densities relate to the spacing of nitrogen molecules in the liquid and in the gaseous states.

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.....[2]