4 **(a)** State the evidence for the assumption that

For Examiner's Use

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

.....

.....[1]

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

.....

.....[1]

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

.....

.....

.....

.....

.....[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.

.....

.....

.....[2]