

Answer **all** the questions in the spaces provided.

- 1 (a) (i) Define *density*.

.....

.....

- (ii) State the base units in which density is measured.

.....

[2]

- (b) The speed  $v$  of sound in a gas is given by the expression

$$v = \sqrt{\left(\frac{\gamma p}{\rho}\right)},$$

where  $p$  is the pressure of the gas of density  $\rho$ .  $\gamma$  is a constant.

Given that  $p$  has the base units of  $\text{kg m}^{-1} \text{s}^{-2}$ , show that the constant  $\gamma$  has no unit.

[3]