

- 2 (a) On Fig. 2.1, place a tick (\checkmark) against those changes where the internal energy of the body is increasing. [2]

water freezing at constant temperature
a stone falling under gravity in a vacuum
water evaporating at constant temperature
stretching a wire at constant temperature

Fig. 2.1

- (b) A jeweller wishes to harden a sample of pure gold by mixing it with some silver so that the mixture contains 5.0% silver by weight. The jeweller melts some pure gold and then adds the correct weight of silver. The initial temperature of the silver is 27°C . Use the data of Fig. 2.2 to calculate the initial temperature of the pure gold so that the final mixture is at the melting point of pure gold.

	gold	silver
melting point / K	1340	1240
specific heat capacity (solid or liquid) / $\text{J kg}^{-1}\text{K}^{-1}$	129	235
specific latent heat of fusion / kJ kg^{-1}	628	105

Fig. 2.2

$$\text{temperature} = \dots \text{K} \quad [5]$$

- (c) Suggest a suitable thermometer for the measurement of the initial temperature of the gold in (b).

..... [1]