4 **(a)** Write down an equation to represent the first law of thermodynamics in terms of the heating q of a system, the work w done on the system and the increase ΔU in the internal energy.

....[1]

(b) The pressure of an ideal gas is decreased at constant temperature.
Explain what change, if any, occurs in the internal energy of the gas.

....

....

....

....[3]