4 **(a)** State

    (i) the meaning of the term *internal energy*,

        ....

        ....[2]

    (ii) the first law of thermodynamics.

        ....

        ....[1]

(b) An ideal gas undergoes a cycle of changes A → B → C → A, as shown in Fig. 4.1.
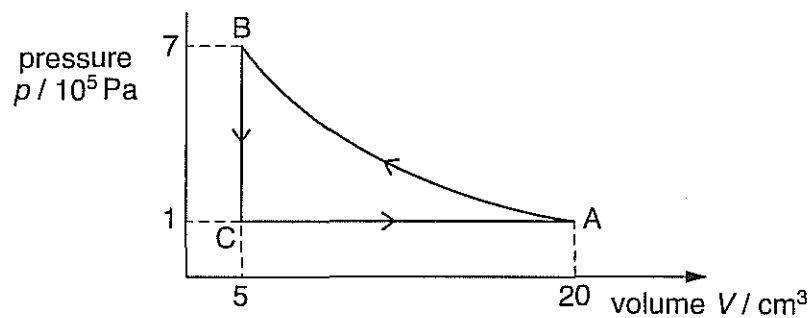
Fig. 4.1

    (i) Calculate the work done by the gas during the change C → A.

        work done by the gas = ...J [2]

        9745/03/O/N/08

(ii) Fig. 4.2 is a table of energy changes during one cycle. Complete Fig. 4.2.

section of cycle	heating supplied to gas / J	work done on gas / J	increase in internal energy of gas / J
A → B	zero	4.2	
B → C	– 8.5		
C → A			

Fig. 4.2

[4]

     [Turn over