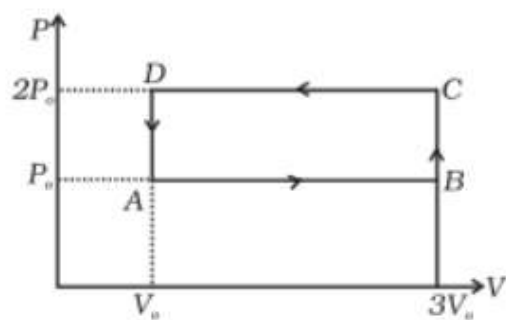


2. An ideal gas undergoes cyclic process ABCDA as shown in given P-V diagram (Fig.). The amount of work done by the gas is



- 1) $6P_0 V_0$
- 2) $-2 P_0 V_0$
- 3) $+ 4 P_0 V_0$
- 4) $+ 2 P_0 V_0$

Sol. 2) $-2 P_0 V_0$

We know that total amount of work done = area under P-V diagram.

According to the P-V diagram,

work done in process ABCDA = area of rectangle ABCDA

$$= AB \times BC$$

$$= (3V_0 - V_0) \times (2P_0 - P_0)$$

$$= 2V_0 \times P_0$$

$$= 2 P_0 V_0$$

\therefore the process is anti-clockwise

\therefore work done by the process is negative.

Hence, amount of work done by the gas = $-2 P_0 V_0$
