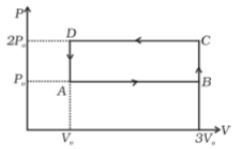
QUES 02.

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) $6P_o V_o$
2) $-2 P_0 V_o$
3) $+4 P_o V_o$
4) $+2 P_o V_o$

Sol. 2) $-2 P_0 V_o$
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
$= AB \times BC$
$= (3V_0-V_0) \times (2 P_0-P_0)$
$= 2V_0 \times P_0$
$=2 P_0V_0$
$\because$ the process is anti-clockwise
$\therefore$ work done by the process is negative.
Hence, amount of work done by the gas = $-2 P_0V_0$