

Q. 04

Can a system be heated and its temperature remains constant?

Sol. If the system does work against the surroundings so that it compensates for the heat supplied, the temperature can remain constant.

It is given that $\Delta T = 0 \Rightarrow \Delta U = 0$

$$\therefore \Delta Q = \Delta U + \Delta W$$

$\Rightarrow \Delta Q = \Delta W$ So heat supplied to the system is utilized in expansion system is isothermal.