3. The difference between ΔH and ΔU ($\Delta H - \Delta U$), when the combustion of one mole of heptane(l) is carried out at a temperature T, is equal to:
(JEE Mains, 2019)

A) -4RT
B) 3RT
C) -3RT
D) 4RT

Ans: A) -4RT

Explanation:

$\Delta H - \Delta U = \Delta n_g RT$

$C_7H_{16}(l) + 11O_2(g) \rightarrow 7CO_2(g) + 8H_2O(l)$

Here, $\Delta n_g = 7 - 11 = -4$

$\therefore \Delta H - \Delta U = -4RT$