

**ATOMIC ENERGY CENTRAL SCHOOL-
KUDANKULAM**

Worksheet –Module-3/5

Subject-Chemistry

Class-XI

Lesson No.-Unit-6 (Thermodynamics)

**Name of the topic-Enthalpy,Enthalpy of
Transition,Enthalpies of Reaction**

1. For the reaction $\text{H}_{2(\text{g})} + \frac{1}{2} \text{O}_{2(\text{g})} \rightarrow \text{H}_2\text{O}_{(\text{l})}$ $\Delta H_o = -68 \text{Kcal at } 298\text{K}$.

What is the standard enthalpy of $\text{H}_2\text{O}_{(\text{l})}$.

2. For the reaction $\text{N}_{2(\text{g})} + 3\text{H}_{2(\text{g})} \rightarrow 2\text{NH}_{3(\text{g})}$ $\Delta H_o = -92.2 \text{KJ at } 298\text{K}$.

What is the value of ΔU if the reaction is carried out at constant pressure of 40 atm and volume change is -1.12 L.

3. ΔH_{of} of PCl_5 and PCl_3 are respectively x_1 and x_2 . What is ΔH_o of the reaction. $\text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g}) \rightarrow \text{PCl}_5(\text{g})$

4. If ΔH_{of} of $\text{C}_2\text{H}_4(\text{g}) = 12.4 \text{Kcal mol}^{-1}$, $\text{CO}_2(\text{g}) = -94 \text{Kcal mol}^{-1}$, $\text{H}_2\text{O}(\text{l}) = -68 \text{Kcal mol}^{-1}$. Calculate heat of combustion of $\text{C}_2\text{H}_4(\text{g})$.

5. The enthalpy of formation of $\text{H}_2\text{O}(\text{l})$ is $-285.77 \text{KJ mol}^{-1}$ and enthalpy of neutralisation of a strong acid and strong base is $-56.07 \text{KJ mol}^{-1}$. What is the enthalpy of formation of OH^{-1} ion.

6. Heat of combustion of H_2 is -242KJ mol^{-1} and that of CH_4 is -802KJ mol^{-1} . Which will produce more heat due to combustion of 1 gm of each.

7. If bond energy of Cl—Cl bond, H—H bond and H—Cl bond are 243, 435 and 431 KJ mol^{-1} , what is ΔH_{of} of HCl.

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