

Chem11 Exothermic/Endothermic Reactions : W.S. - 150

- 1) Define : Exothermic reaction.
- 2) Define : Endothermic reaction.
- 3) Classify the following as exothermic or endothermic.
 - a) forming a bond b) breaking a bond c) burning
 - d) photosynthesis e) digestion
 - f) when NaOH is added to water, the temperature increases
 - g) when NH₄Cl is added to water, the temperature decreases
 - h) decomposition of water
- 4) Classify these reactions as exothermic or endothermic.
 - a) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g}) + 92 \text{ kJ}$
 - b) $\text{CaCO}_3(\text{s}) + 556 \text{ kJ} \rightarrow \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$
 - c) $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) + \text{energy} \rightarrow 2\text{NO}$
 - d) $\text{NaClO}_3(\text{s}) + \text{energy} \rightarrow \text{NaCl}(\text{s}) + \text{O}_2(\text{g})$
 - e) $\text{Mg}(\text{s}) + \text{O}_2(\text{s}) \rightarrow \text{MgO}(\text{s}) + \text{heat}$
 - f) $\text{HCl}(\text{g}) + \text{I}_2(\text{g}) + 118 \text{ kJ} \rightarrow \text{HI}(\text{g}) + \text{Cl}_2(\text{g})$
 - g) $\text{C}_2\text{H}_2(\text{g}) + \text{H}_2(\text{g}) \rightarrow \text{C}_2\text{H}_4(\text{g}) + 175 \text{ kJ}$

Answers : 1) It releases energy, 2) It absorbs energy, 3)a) exo, b) endo, c) exo, d) endo, e) endo, f) exo, g) endo, h) endo. 4)a) exo, b) endo, c) endo, d) endo, e) exo, f) endo, g) exo.