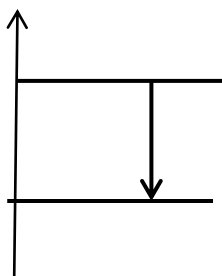# Heat changes associated with chemical reactions.

It can be observed that temperature rises when solid sodium hydroxide is dissolved in water and temperature decreases when solid ammonium chloride is dissolved in water. Reason is that heat changes associated with above chemical reactions.

1. Explain the reason for increasing temperature when solid sodium hydroxide 8s dissolved in water.
2. What is the reason for decreasing temperature when solid ammonium chloride is dissolved in water.
3. Fill in the blanks.

Reactions that occur by releasing heat are called as ……………………

Reactions which occur by absorbing heat are called as ………………….

Energy level diagram for exothermoc reactions.

4. Draw an energy level diagram for following reaction.

$Mg(s) + 2HCl(aq) \longrightarrow MgCl_2(aq) + H_2(g) + heat]$

5. Draw an energy level diagram for an endothermic reaction.

> **Following equation can be used to calculate heat changes associated with a chemical reaction.**
>
> $$Q = m\, c$$

6. Calculate the heat changes associated when 2moldm-3 NaOH 50cm3 and 2moldm-3 50cm3 are mixed together. (Temperature difference is 20°C, c=4200Jkg-1°C-1, density of water is 1gcm-3.

Its important to mention physical states of reactants and products when writing a reaction.

7. Mention endothermic and exothermic nature of following reactions.
- **Burning fuel**
- **Acid and base reaction**
- **Adding water to quick lime**
- **Photosynthesis**
- **Production of quick lime by burning lime stone**