

## Chemistry - 11th Class Chemistry Short Questions Chapter 7 Preparation

Q1. How the temperature of the system change during exothermic and endothermic reactions?

**Ans 1:** In an exothermic reaction, heat is evolved which increases the temperature of the system. In an endothermic reaction, heat is absorbed, so the temperature of the system falls down. These statements are true when the system is isolated.

Q2. Burning of a candle is a spontaneous process. Justify?

**Ans 1:** A reaction will also be called spontaneous process if it needs energy to start with. Burning of candle also a spontaneous process which needs energy to start. Once the candle is made to lit with match spark, it continues to burn afterwards. Therefore burning of candle is a spontaneous process.

Q3. What is a spontaneous process?

**Ans 1:** The process which takes place on its own is called spontaneous process. No external assistance is required. It moves from non-equilibrium state. It is unidirectional and irreversible.

Q4. Define Thermochemistry.

**Ans 1:** That branch of chemistry which deals with the heat energy changes along with the phase changes and occurring of the chemical reactions, is called thermochemistry.

Q5. Acid-base neutralization process is always exothermic. Give reasons?

**Ans 1:** The standard enthalpy of neutralization is the amount of heat evolved when one mole of hydrogen ions  $H^+$  from an acid, react with one mole of hydroxide ions from a base to form one mole of water. For example, the enthalpy of neutralization of sodium hydroxide by hydrochloric acid is  $-57.4 \text{ kJ mol}^{-1}$ . Thus heat is evolved in acid base neutralization process is always exothermic.

Q6. Define Born-Haber cycle and lattice energy?

**Ans 1:** Born-Haber cycle: The sum of energy changes for a closed cyclic process is zero, if the initial and final states are same. Lattice Energy: The amount of energy released when gaseous ions of opposite charges combine to give one mole of a crystalline ionic compound.

Q7. What are thermochemical reactions, give their types?

**Ans 1:** Thermochemical Reaction: Those reactions in which energy is either evolved or absorbed during a chemical change are called thermochemical reactions.

Two types of those reactions:

1. Exothermic reactions
2. Endothermic reactions

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Q8. Spontaneous reaction always proceed in the forward direction. Give reason?

**Ans 1:** Spontaneous process are unidirectional, irreversible and real processes. These can take place without any external assistance. That's why reactions always proceed in forward direction.

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Q9. Why in exothermic reaction, heat is released from the system?

**Ans 1:** In a chemical change if enthalpy of product is less than the enthalpy of reactant. Heat is released from the system to surrounding. Hence heat is released in an exothermic reaction.

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Q10. Differentiate between law of conservation of energy and Hess's law?

**Ans 1:** Energy can neither be created nor destroyed, can be changed from one form to another is called Law of Conservation of Energy.  
If a chemical change takes place by several different routes, the overall energy change is the same, regardless of the route by which the chemical change occurs, provided the initial and final conditions are the same is known as Hess's Law.

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