

**KIRAN TUTORIALS**

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**Std 10 (English)****Science And Technology - I****Date 27-09-20****Time 1HRS****Chapter 3.00****Marks 20****Q.1 Multiple Choice Questions****1**

1 The reaction of iron nail with copper sulphate solution is ..... reaction.

- a. Combination      b. Decomposition  
c. Displacement      d. Double displacement

**Ans** Option c.**Q.2 Find the odd one out****1**1  $\text{MnO}_2$ ,  $\text{PbO}_2$ ,  $\text{F}_2$ ,  $\text{HgCl}_2$ **Ans**  $\text{F}_2$  as it is in gaseous form and rest all are solid.**Q.3 Find co-related terms****1**1  $\text{ZnSO}_4$  : Colourless solution ::  $\text{CuSO}_4$  : .....**Ans**  $\text{ZnSO}_4$  : Colourless solution ::  $\text{CuSO}_4$  : **blue solution**.**Q.4 Match the pair****1**

| 1 | Column "A"                          | Column "B"          |
|---|-------------------------------------|---------------------|
|   | i. Photosynthesis                   | a. Sound            |
|   | ii. Dissociation of water molecules | b. Heat             |
|   |                                     | c. Light            |
|   |                                     | d. Electric current |

|            |                                     |                  |
|------------|-------------------------------------|------------------|
| <b>Ans</b> | i. Photosynthesis                   | Light            |
|            | ii. Dissociation of water molecules | Electric current |

**Q.5 Name the following****1**

1 The gas evolved when sodium metal reacts with ethanol.

**Ans** Hydrogen**Q.6 Give scientific reasons****4**

1 While preparing dilute sulphuric acid from concentrated sulphuric acid in the laboratory, the concentrated sulphuric acid is added slowly to water with constant stirring.

**Ans** i. This is exothermic process.

ii. If we poured conc. sulphuric acid speedily in a water. Water gets evaporated instantaneously and very large amount of heat is liberated which may cause an accident.

iii. To avoid this, and only small amount of heat is liberated at a time it added slowly to water with constant stirring.

2 A chemical change is associated with the evolution or absorption of energy. Explain.

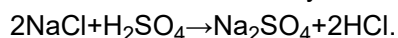
- Ans** i. Energy changes in a chemical change or in a chemical reaction is the difference between chemicals energy of the reactants and the products.  
 ii. Every substances has a stored amount of energy in it. Potential chemical energy.  
 iii. A chemical change is associated with the evolution or absorption of energy which is required to break or form different bonds between the molecules of reactants and products.  
 iv. This energy is in the form of heat, light or electricity.  
 v. Surplus energy is released or absorbed depending on the energy of the product and reactants.

**Q.7 Laws/define/principles**

4

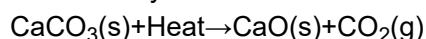
- 1 Explain displacement reaction with example.

**Ans** The reaction in which the place of ion of a less reactive element in a compound is taken by another more reactive element by formation of its own ions, is called displacement reaction.



- 2 Explain Endothermic Reaction with example.

**Ans** Chemical reaction during which the heat is either absorbed from the surroundings or has to be supplied continuously from outside is called Endothermic reaction.



**Q.8 Distinguish between(Any One)**

2

- 1 Explain the similarity and difference in two events, namel adding NaOH to water and adding CaO to water.

|            | Adding NaOH to water  | Adding CaO to water   |
|------------|---|---|
| Similarity | Heat is given away during this process.<br>So, it is an exothermic process. | Heat is given away during this reaction.<br>So, it is an exothermic reaction. |
| Difference | No new substances are formed as the process involves only dissolution.      | New substance (calcium hydroxide) is formed.                                  |

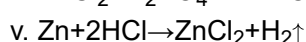
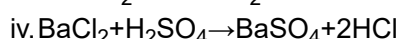
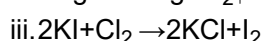
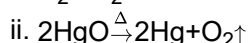
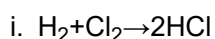
- 2 Endothermic processes and Exothermic processes

|     | Endothermic processes   | Exothermic processes  |
|-----|---|---|
| i.  | During these processes heat from outside is absorbed.           | During these processes heat is given away.                        |
| ii. | eg :- melting of ice dissolution of potassium nitrate in water. | eg :- formation of ice, dissolution of Sodium hydroxide in water. |

**Q.9 Answer the following in detail (Any One)**

5

- 1 Classify the following reactions as combination,decomposition, displacement and double displacement reaction.



**Ans** i. Is combination reaction

- ii. Is decomposition reaction
- iii. Is displacement reaction
- iv. Is double displacement
- v. Displacement

**2** State observations for the following, also give equation for same. (ANY 5)

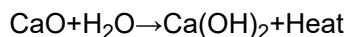
- i. Copper is exposed to air.
- ii. Iron reacts with sulphur.
- iii. Calcium oxide (quick lime) is mixed with water.
- iv. Zinc reacts with copper sulphate.
- v. Ozone is subjected to heat and light.
- vi. When iron rod is exposed to air.

**Ans** i. When copper is exposed to air, copper gets oxidized to form black coloured copper oxide  

$$2\text{Cu} + \text{O}_2 \rightarrow 2\text{CuO}.$$

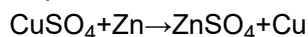
ii. Iron reacts with sulphur to give Iron sulphid ( $\text{Fe} + \text{S} \rightarrow \text{FeS}$ )

iii. Calcium oxide reacts vigorously with water to form calcium hydroxides (slaked lime) Since a large amount of heat is released it is an exothermic reaction.

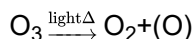


iv. When Zinc reacts with copper sulphate iron being more reactive than copper displaces copper to give colourless zinc sulphate and reddish brown deposit of copper.

SO it is displacement reaction the blue colour of sulphate fades due to the formation of colourless zinc sulphate



v. When ozone is subjected to heat and light, it gives oxygen gas and nascent oxygen.



vi. When iron rod is exposed to air it gets oxidized by oxygen in air in the presence of moisture to form reddish brown coloured hydrated iron oxide.

This process is called rusting of iron. The number of water molecules in the rust varies.

