

## Chemistry Practical Class 9 To carry out the reaction of Zinc with dilute sulphuric acid and classify it as physical or chemical changes Viva Questions with Answers

### Q1. Define Physical Changes.

**Answer.** A physical change occurs when there is no change in the composition of a substance and no change in the chemical nature of the substance.

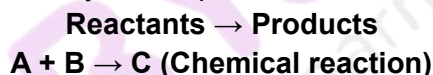
The interconversion of state occurs during physical change.



### Q2. Define Chemical Changes.

**Answer.** It is a change that causes a change in the chemical properties of matter, resulting in the formation of a new substance. As an example, consider the burning of oil or fuel.

Heat is evolved or taken in, the formation of bubbles, gas, and fumes, as well as a change in the colour of the reactants, can take place when they form a product.



### Q3. What is a Chemical Reaction?

**Answer.** A chemical reaction is a chemical change in which the bonds are broken within reactant molecules, and new bonds are formed within product molecules in order to form a new substance. A chemical reaction can be represented by a chemical equation, which specifies the number and type of atoms involved, as well as their arrangement into molecules or ions. The element symbols are used as shorthand notation for the elements in a chemical equation, with arrows indicating the direction of the reaction.

### Q4 How many types of chemical reactions are there?

**Answer.** There are 4 types of chemical reactions. They are as follows-

- Combination Reaction
- Decomposition Reaction
- Displacement Reaction
- Double Displacement Reaction

### Q5. Define Combination reaction.

**Answer.** A reaction in which two or more reactants combine to form a single product is known as a combination reaction. It takes the form of  $X + Y \rightarrow XY$

Combination reaction is also known as a synthesis reaction.

Example of combination reaction:  $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$

**Q6. Define Decomposition Reaction.**

**Answer.** A reaction in which a single compound breaks into two or more simpler compounds is known as a decomposition reaction.

It takes the form of  $XY \rightarrow X + Y$

A decomposition reaction is just the opposite of a combination reaction.

Example of a decomposition reaction:  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$

**Q7. Define Displacement Reaction.**

**Answer.** A chemical reaction in which a more reactive element displaces a less reactive element from its aqueous salt solution. It takes the form  $X + YZ \rightarrow XZ + Y$

It is also called a substitution reaction

Example of displacement reaction:  $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$

**Q8. Define Double Displacement Reaction.**

**Answer.** A chemical reaction in which ions get exchanged between two reactants which form a new compound is called a double displacement reaction. It takes the form of  $XY + ZA \rightarrow XZ + YA$

It is also called a metathesis reaction

Example of a double displacement reaction:

$\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$

**Q9. What is the formula of Zinc?**

**Answer.** The formula of Zinc is Zn.

**Q10. What is the formula of dilute sulphuric acid?**

**Answer.** The formula of dilute sulphuric acid is  $\text{H}_2\text{SO}_4$ .

**Q11. What do you understand by reactivity series?**

**Answer.** The reactivity series of metals, also known as the activity series, refers to the arrangement of metals in the descending order of their reactivities.

**Q12. Note your observations.**

**Answer.** The observations on adding dilute sulphuric acid to zinc granules are as follows-

- A brisk reaction starts and gas bubbles are evolved.
- When a flame is brought near the tube, the gas evolving from the jet burns with a pop sound.

**Q13. Name the gas that evolved in the reaction?**

**Answer.** The gas that evolved in the reaction is hydrogen gas.

**Q14. What happens when zinc reacts with sulphuric acid?**

**Answer.** When zinc reacts with sulphuric acid, it produces hydrogen gas and zinc sulphate.

**Q15. Give the equation for the reaction.**

**Answer.** The equation for the reaction is  $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$ .

**Q16. Are the products formed the same as reactants?**

**Answer.** No, the products  $\text{ZnSO}_4$  and  $\text{H}_2$  have a different chemical composition as well as properties than that of the reactants.

**Q17. How will you confirm that the gas evolved is hydrogen?**

**Answer.** To confirm that the gas evolved is hydrogen, bring a burning matchstick near the mouth of the test tube. If the gas burns with a pop sound, it will confirm the presence of hydrogen gas.

**Q18. Why is there a change in the reaction observed?**

**Answer.** The change in the reaction is observed due to the fact that zinc being more reactive than hydrogen will displace it from dilute acid.

**Q19. What type of reaction is it?**

**Answer.** It is a type of displacement reaction of a non-metal by a metal.

**Q20. Is the reaction a chemical change or a physical change?**

**Answer.** The reaction is a chemical change because new products  $\text{ZnSO}_4$  and  $\text{H}_2$  are formed.

**Q21. List some precautions that should be taken while performing the experiment.**

**Answer.** Some precautions that should be taken are as follows-

- Use caution when handling the chemicals.

- Do not inhale the emitted gas.
- To test hydrogen gas, use a small jet, as hydrogen gas burns instantly with an explosion.

