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Worksheet: Chemical Reactions and Equations

1. A solution of a substance 'X' is used for whitewashing. (i) Name the substance 'X' and write its formula. (ii) Write the reaction of the substance 'X' named in (i) above with water.
2. What does one mean by exothermic and endothermic reactions? Give examples.
3. A solution of substance 'X' is used for white washing. What is the substance 'X'? State the chemical reaction of 'X' with water.
4. In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal. Write down the reaction involved.
5. What do you mean by a precipitation reaction? Explain by giving examples.
6. What is the difference between displacement and double displacement reactions? Write equations for these reactions.
7. Write a balanced chemical equation with state symbols for the following reactions. (i) Solutions of barium chloride and sodium sulphate in water react to give insoluble barium sulphate and the solution of sodium chloride. (ii) Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride solution and water
8. Why is respiration considered an exothermic reaction? Explain
9. A shiny brown coloured element 'X' on heating in air becomes black in colour. Name the element 'X' and the black coloured compound formed.
10. Oil and fat containing food items are flushed with nitrogen. Why?
11. Why should a magnesium ribbon be cleaned before burning in air?
12. What happens when dilute hydrochloric acid is added to iron fillings? Tick the correct answer. (a) Hydrogen gas and iron chloride are produced. (b) Chlorine gas and iron hydroxide are produced. (c) No reaction takes place. (d) Iron salt and water are produced
13. Why are decomposition reactions called the opposite of combination reactions? Write equations for these reactions
14. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.
15. Identify the substances that are oxidised and the substances that are reduced in the following reactions. (i) $4\text{Na(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{Na}_2\text{O(s)}$ (ii) $\text{CuO(s)} + \text{H}_2\text{(g)} \rightarrow \text{Cu(s)} + \text{H}_2\text{O(l)}$
16. $\text{Fe}_3\text{O}_4 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$ The above reaction is an example of a (a) combination reaction. (b) double displacement reaction. (c) decomposition reaction. (d) displacement reaction.

17. What is a balanced chemical equation? Why should chemical equations be balanced?
18. Write the balanced equation for the following chemical reactions. (i) Hydrogen + Chlorine → Hydrogen chloride (ii) Barium chloride + Aluminium sulphate → Barium sulphate + Aluminium chloride (iii) Sodium + Water → Sodium hydroxide + Hydrogen
19. Why does the colour of copper sulphate solution change when an iron nail is dipped in it?
20. 1 g of copper powder was taken in a China dish and heated. What change takes place on heating? When hydrogen gas is passed over this heated substance, a visible change is seen in it. Give the chemical equations of reactions, the name and the colour of the products formed in each case.