



CHEMISTRY

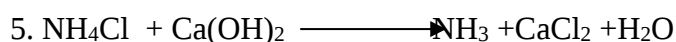
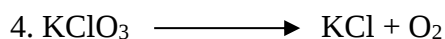
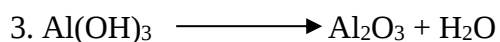
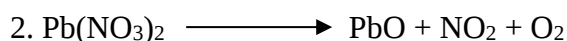
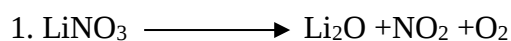
CH: 1 CHEMICAL REACTIONS AND EQUATIONS

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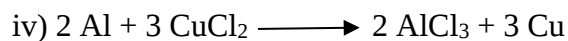
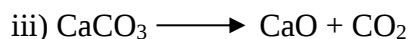
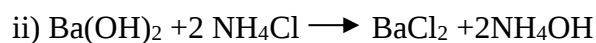
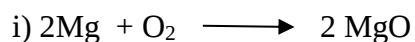
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Class: XSec: ____

1. Balance the following equations



2. Identify the type of reaction.



3. Balance the following reaction by specifying its state symbol and identify the type of reaction

a) Reaction between potassium chloride and silver nitrate solution.

b) Reaction between Zinc metal and copper sulphate solution

4. What happens when

a) FeSO_4 is heated?



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- b) quick lime is added to water?
- c) silver chloride is exposed to air?

Justify with equation.

5. Give reasons.

- a) Silver articles become black after some time when exposed to air.
- b) Copper sulphate solution turns colourless when zinc metal is dipped in it and kept for some time.

6. Identify the substance oxidized and reduced in the following reactions.

- a) $\text{Fe}_2\text{O}_3 + 2\text{Al} \longrightarrow 2\text{Fe} + \text{Al}_2\text{O}_3$
- b) $\text{SnO} + \text{Cu} \longrightarrow \text{CuO} + \text{Sn}$
- c) $\text{PbO} + \text{C} \longrightarrow \text{Pb} + \text{CO}$
- d) $\text{SO}_2 + 2\text{H}_2\text{S} \longrightarrow 2\text{H}_2\text{O} + 3\text{S}$

7. Write down the oxidizing and reducing agents in the following reactions.

- a) $2\text{Mg} + \text{CO}_2 \longrightarrow 2\text{MgO} + \text{C}$
- b) $2\text{H}_2\text{S} + \text{O}_2 \longrightarrow 2\text{H}_2\text{O} + 2\text{S}$
- c) $3\text{Fe} + 4\text{H}_2\text{O} \longrightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$
- d) $\text{Fe}_2\text{O}_3 + 3\text{C} \longrightarrow 2\text{Fe} + 3\text{CO}$
- e) $4\text{NH}_3 + 5\text{O}_2 \longrightarrow 4\text{NO} + 6\text{H}_2\text{O}$

8. Translate the following reaction into chemical equation, balance it and represent the

Equation with state symbols.

- a) Aluminium metal when added to sulphuric acid produces aqueous solution of aluminium sulphate and hydrogen gas.
- b) Ammonia gas combines with oxygen gas to form nitrogen gas and liquid water.

9. Write the balanced equation and classify them as exothermic and endothermic reaction

- a. When calcium oxide is added to water calcium hydroxide is produced and a rise in temperature is



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observed.

b. When barium hydroxide is mixed with ammonium chloride, barium chloride and ammonium hydroxide are produced and a fall in temperature is observed.

10 On heating copper nitrate powder gives black powder of copper oxide, oxygen and nitrogen dioxide. Name the following.

- a) the gas evolved when lead nitrate is heated.
- b) the taste and smell of the food changes due to oxidation reaction.
- c) the chemicals used in black and white photography.
- d) the black substance obtained when sugar is heated in a dry test tube.

11. A shining metal M, on burning gives a dazzling white flame and changes to a white powder N

- a) Identify M & N
- b) Represent the above reaction in the form of a balanced chemical equation.
- c) Does M undergo oxidation or reduction in this reaction? Justify your answer.

12. Assertion and reason questions

- i) Both A & R are true and R is the correct explanation of A
 - ii) Both A & R are true and R is not the correct explanation of A
 - iii) A is true, but R is false
 - iv) A is false, but R is true
- 1) Assertion: Calcium carbonate when heated gives calcium oxide and water
Reason: On heating calcium carbonate undergoes decomposition reaction.
 - 2) Assertion: Brown fumes are produced when lead nitrate is heated
Reason: NO_2 is produced as a by product due to the decomposition of lead nitrate.
 - 3) Assertion: White silver chloride turns green in sunlight
Reason: Decomposition of silver chloride in the presence of sunlight gives silver metal and chlorine gas.
 - 4) Assertion: Pungent smelling gas is produced when sulphur is burned.
Reason: SO_3 is formed on reaction of sulphur with oxygen.
 - 5) Assertion: In a reaction copper with oxygen, copper serves as reducing agent
Reason: The substance which loses oxygen acts as reducing agent.

Case based questions

13. Whenever quick lime is mixed with water we get a solution and on touching the test tube it feels hot. That is quick lime when mixed with water undergoes certain chemical change. Similarly iron articles undergo a chemical change and develop a layer of rust on their surface. It reacts with oxygen present in air and moisture and develop rust. These are all chemical reactions. A chemical reaction can be categorized into several types. The following diagram displays a chemical reaction. Observe



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Carefully and answer the following questions given below.



- i) Identify the type of chemical reaction that will take place in the above diagram and define it.
- ii) What do you observe in the reaction?
- iii.a) Write the balanced chemical equation of the above reaction .

OR

iii.b) Mention the commercial use of this salt. Name another salt which behaves like silver chloride in sunlight.

14. A chemical reaction is a representation of chemical change in terms of symbols and formulae of reactants and products. There are various types of chemical reactions like combination, decomposition, displacement, double displacement, oxidation and reduction reactions.
- Reactions in which heat is released along with the formation of products are called exothermic chemical reactions. All combustion reactions are exothermic reactions.
- In decomposition reactions, a single reactant breaks down to form two or more products.
- Decomposition reaction is opposite to reaction. Thermal decomposition reactions use energy in the form of heat for decomposition of reactants. Electrolytic decomposition reactions involve the use of electrical energy for the decomposition of reactant molecules.
- Photolysis or photochemical decomposition reactions involves the use of light energy for the purpose of decomposition.



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- (i) Silver chloride on exposure to sunlight for a long duration turns grey. Write balanced chemical equation for this reaction
- (ii) Decomposition reactions are endothermic in nature. Explain
- (iii) Write two differences between combination and decomposition reactions

OR

A white salt on heating decomposes to give brown fumes and a residue is left behind.

- (a) Name the salt.
- (b) Write the equation for the decomposition reaction.
15. A student put some pieces of lead metal in a blue solution of copper.
- a) Identify the type of reaction
- b) Write the reaction involved.

What colour change you can notice in the above reaction and why?