INTERNATIONAL INDIAN SCHOOL BURAIDAH
WORKSHEET OF THE YEAR-2025-26
CLASS-10th /SUBJECT-CHEMISTRY

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CHAPTER-1 CHEMICAL REACTIONS AND EQUATIONS

Q-1 ASSERTION AND REASON BASED QUESTION

Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Q.1. Assertion (A) : Decomposition of vegetable matter into compost is an example of exothermic reactions.
Reason (R) : Exothermic reaction are those reactions in which heat is evolved. **ANSWER-a**

Q.2. Assertion (A) : When HCl is added to zinc granules, a chemical reaction occurs.
Reason (R) : Evolution of a gas and change in colour indicate that the chemical reaction is taking place. .
ANSWER-b

Q.3. Assertion (A) : Calcium carbonate when heated gives calcium oxide and water.
Reason (R) : On heating calcium carbonate, decomposition reaction takes place. . **ANSWER-d**

Q.4. Assertion (A) : Brown fumes are produced when lead nitrate is heated.
Reason (R) : Nitrogen dioxide gas is produced as a byproduct due to the decomposition of lead nitrate. .
ANSWER-a

Q.5. Assertion (A) : White silver chloride turns grey in sunlight.
Reason (R) : Decomposition of silver chloride in presence of sunlight takes place to form silver metal and chlorine gas. . **ANSWER-a**

Q.6. Assertion (A): Pungent smelling gas is produced when sulphur burns in air.
Reason (R) : Sulphur trioxide is formed on reaction of sulphur with oxygen. **ANSWER** –c

Q.7. Assertion (A) : In a reaction of copper with oxygen, copper serves as a reducing agent.
Reason (R) : The substance which gains oxygen in a chemical reaction acts as a reducing agent. . **ANSWER-a**

Q.8. Assertion (A) : In electrolysis of water, the volume of hydrogen liberated is twice the volume of oxygen formed.
Reason (R) : Water (H,0) has hydrogen and oxygen in the ratio of 1:2 by volume. . **ANSWER-c**

Q.9. Assertion (A): Corrosion of iron is commonly known as rusting.
Reason (R) : Corrosion of iron occurs in presence of water and air. . **ANSWER-b**

Q.10. Assertion (A) : The balancing of chemical equations is based on law of conservation of mass.
Reason (R) : Total mass of reactants is equal to total mass of products. . **ANSWER-a**

Q.11. Assertion (A): In a balanced chemical equation, total mass of the reactants is equal to the total mass of the products.
Reason (R): Mass can neither be created nor destroyed during a chemical change. . **ANSWER-a**

Q.12. Assertion (A): Iron articles are painted so as to prevent them from rusting.
Reason (R): When the surface of iron is coated with paint, its surface does not come in contact with oxygen and moisture therefore rusting does not take place. . **ANSWER-a**

Q.13. Assertion (A) : Chemical reaction changes the physical and chemical state of a substance.
Reason (R) : When electric current is passed through water (liquid), it decomposes to produce hydrogen and oxygen gases. . **ANSWER-b**

Q.14. Assertion (A): When calcium carbonate is heated, it decomposes to give calcium oxide and carbon dioxide.
Reason (R): The decomposition reaction takes place on application of heat, therefore, it is an endothermic reaction. . **ANSWER-b**

Q.15. Assertion (A): Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen gas and it is a displacement reaction.
Reason (R): Zinc reacts with oxygen to form zinc oxide. **ANSWER-b**.

Q.16. Assertion (A): Chips manufacturers usually Ilush bags of chips with gas such as nitrogen to prevent the chips from getting oxidised.
Reason (R): This increase the taste ot the chips and helps in their digestion. . **ANSWER-c**

Q.17. Assertion (A): Exposure of silver chloride to sunlight for a long duration turns grey due to the formation of silver by decomposition of silver chloride.
Reason (R): In this process, sublimation of silver chloride takes place. . **ANSWER-c**

Q.18. Assertion (A): Rusting of iron metal is the most common form of corrosion.
Reason (R): The effect of rusting of iron can be reversed if they are left open in sunlight. . **ANSWER-c**

Q.19. Assertion (A): AgBr is used on photographic and X-ray film.
Reason (R): AgBr is photosensitive and changes to Ag and bromine in presence of sunlight and undergoes decomposition reaction. . **ANSWER-a**

Q.20. Assertion (A): Magnesium ribbon keeps on burning in atmosphere of nitrogen.
Reason (R) : Magnesium reacts with nitrogen to form magnesium nitride and this reaction is combination reaction. . **ANSWER-a**

Q.21. Assertion (A): A lead nitrate on thermal decomposition gives lead oxide, brown coloured nitrogen dioxide and oxygen gas.
Reason (R): Lead nitrate reacts with potassium iodide to form yellow ppt. of lead iodide and the reaction is double displacement as well as precipitation reaction. . **ANSWER-b**

Q-2 CASE STUDY BASED QUESTIONS-

Question 1: Corrosion is the phenomenon of deterioration of surface of metal in presence of air and moisture. It is a natural process and in the presence of a moist atmosphere, chemically active metals get corroded. This is an oxidation reaction. Rusting is the process where iron corrodes due to exposure to the atmosphere. The main circumstance of corrosion occurs with iron because it is a structural material in construction, bridges, buildings, rail transport, ships, etc. Aluminium is also an important structural metal, but even aluminium undergoes oxidation reactions. However, aluminium doesn't corrode or oxidize as rapidly as its reactivity suggests. Copper (Cu) corrodes and forms a basic green carbonate.

(i) What is rusting?

(ii) Which two metals do not corrode easily?

(iii) Write the chemical name of the compound formed on corrosion of silver.

(iv) Corrosion is

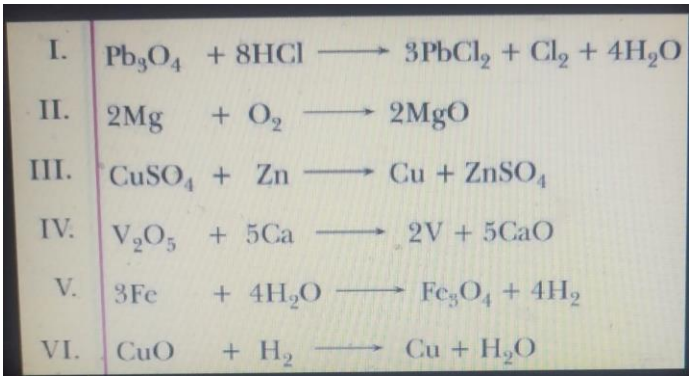
(a) a redox reaction

(b) a reduction reaction

(c) a displacement reaction

(d) an oxidation reaction

Question 2: Oxidation is the process of gaining of oxygen, or losing of hydrogen. Reduction is the process of losing of oxygen or gaining of hydrogen. The substance which undergoes oxidation is the reducing agent while the substance which undergoes reduction is known as the oxidising agent. Oxidation and reduction always take place together and these type of reactions are known as redox reactions. Some of the examples of redox reactions are given below:



(i) Give two examples of oxidation reaction from your everyday life.

(ii) Write the oxidising agent in the reaction III and VI.

(iii) Which of the following is an oxidising agent?

(a) $LiAlH_4$

(b) Alkaline $KMnO_4$

(c) Acidified $K_2Cr_2O_7$

(d) Both (b) and (c)

(iv) Out of oxidation and reduction, which reaction takes place at anode?

Question 3: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.

(i) The chemical reaction in which a single substance breaks down into two or more simpler substances upon heating is known as

(a) thermal decomposition reaction

(b) photo decomposition reaction

(c) electric decomposition reaction

(d) both (a) and (c)

(ii) The massive force that pushes the rocket forward through space is generated due to the
(a) combination reaction
(b) decomposition reaction
(c) displacement reaction
(d) double displacement reaction
(iii) A white salt on heating decomposes to give brown fumes and yellow residue is left behind. The yellow residue left is of
(a) lead nitrate
(b) nitrogen oxide
(c) lead oxide
(d) oxygen gas
(iv) Which of the following reactions represents a combination reaction?
(a) $CaO\ (s) + H_2O\ (l) \rightarrow Ca(OH)_2\ (aq)$
(b) $CaCO_3\ (s) \rightarrow CaO\ (s) + CO_2(g)$
(c) $Zn(s) + CuSO_4\ (aq) \rightarrow ZnSO_4\ (aq) + Cu(s)$
(d) $2FeSO_4(s) \rightarrow Fe_2O_3\ (s) + SO_2(g) + SO_3(g)$
(v) Complete the following statements by choosing correct type of reaction for X and Y.
Statement 1: The heating of lead nitrate is an example of 'X' reaction.
Statement 2: The burning of magnesium is an example of 'Y' reaction.
(a) X- Combination, Y- Decomposition
(b) X- Decomposition, Y-Combination
(c) X- Combination, Y-Displacement
(d) X- Displacement, Y-Decomposition