



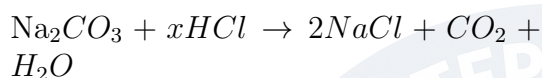
# SmartSteps Academy

College Masjid Road, Near College Masjid, Hailakandi Town W/N-3, Hailakandi

## Chemical Reactions and Equations

### DPP 2

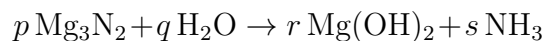
1. In the following equation:



The value of  $x$  is:

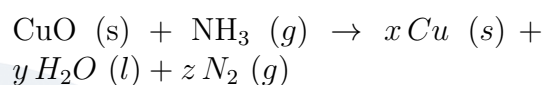
- A. 1
  - B. 2
  - C. 3
  - D. 4
2. When lead nitrate reacts with potassium iodide, yellow precipitate of \_\_\_\_\_ is formed.
- A.  $\text{PbI}_2$
  - B.  $\text{KNO}_3$
  - C.  $\text{Pb}(\text{NO}_3)_2$
  - D.  $\text{PbIO}_3$

3. Consider the following reaction:



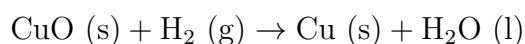
When the equation is balanced, the coefficients  $p, q, r, s$  respectively are:

- A. 1, 3, 3, 2
  - B. 1, 6, 3, 2
  - C. 1, 2, 3, 2
  - D. 2, 3, 6, 2
4. Copper(II) oxide reacts with ammonia to give copper, water and nitrogen. What must the values of  $x, y,$  and  $z$  be in order to balance this equation?

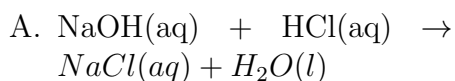
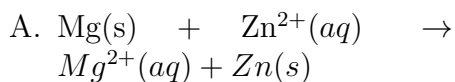
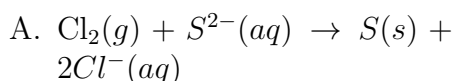
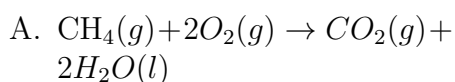


- A.  $x = 1, y = 2, z = 3$
  - B.  $x = 1, y = 3, z = 2$
  - C.  $x = 3, y = 2, z = 1$
  - D.  $x = 3, y = 3, z = 1$
5. What happens when ferrous sulphate crystals are heated?
- A. A gas having the smell of burning sulphur is evolved
  - B. No gas is evolved
  - C. Brown coloured gas is evolved
  - D. Colourless and odourless gas is evolved

6. Identify the substance that is oxidised and the substance that is reduced in the following reaction:



- A.  $\text{CuO}, \text{H}_2$
  - B.  $\text{H}_2, \text{CuO}$
  - C.  $\text{H}_2\text{O}, \text{Cu}$
  - D.  $\text{Cu}, \text{H}_2\text{O}$
7. Which of the following is not an oxidation or reduction reaction?



8. What happens when ferrous sulphate crystals are heated?

- A. A gas having the smell of burning sulphur is evolved
- B. No gas is evolved
- C. Brown coloured gas is evolved
- D. Colourless and odourless gas is evolved

9. When copper turnings are added to silver nitrate solution, a blue coloured solution is formed after some time. It is because copper—

- A. oxidises silver from the solution
- B. forms a blue coloured complex with  $\text{AgNO}_3$
- C. is oxidised to  $\text{Cu}^{2+}$
- D. is reduced to  $\text{Cu}^{2+}$

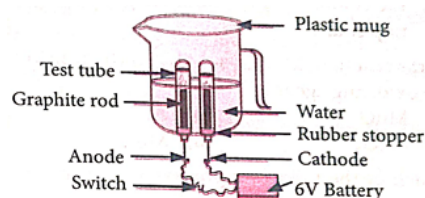
10. Which of the following examples is a decomposition reaction?

- A. Evaporation of water
- B. Exposure of photographic film in the presence of light
- C. Heating sulphur in the presence of oxygen
- D. Dissolving salt in water

11. Iron nails were dipped in a solution kept in a test tube. After half an hour, it was observed that the colour of the solution had changed. The solution present in the test tube was that of:

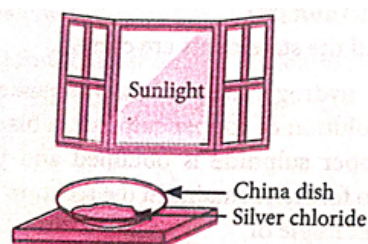
- A. zinc sulphate
- B. copper sulphate
- C. iron sulphate
- D. aluminium sulphate

12. Observe the given diagram and identify the correct statements.



- (i) At anode, oxygen gas is evolved.
  - (ii) In the test tube covering the anode, the amount of gas collected is double than that of the gas collected in the test tube covering the cathode.
  - (iii) At cathode, hydrogen gas is evolved.
  - (iv) It is a decomposition reaction.
- A. (i), (ii) and (iii)
  - B. (i), (iii) and (iv)
  - C. (iii) and (iv)
  - D. All the statements are correct

13. Observe the given figure and answer the question that follows: State True (T) or False (F) for the following statements:



- (i) It is a photodecomposition reaction.
- (ii) Silver chloride turns grey in sunlight to form silver metal.
- (iii) It is an exothermic reaction.
- (iv) Silver bromide also behaves in the same way and is used in black and white photography.

- A. T, T, T, T  
B. T, F, T, F  
C. T, F, F, T  
D. T, T, F, T
14. Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is:
- A. 1:1  
B. 2:1  
C. 4:1  
D. 1:2

### A&R Corner

**Directions:** In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

- A. If both assertion and reason are true and reason is the correct explanation of assertion.  
B. If both assertion and reason are true but reason is not the correct explanation of assertion.  
C. If assertion is true but reason is false.  
D. If both assertion and reason are false.
15. Assertion (A): The food items containing oil and fat are flushed with nitrogen. Reason (R): Oil and fat become rancid on oxidation which has a bad taste and smell.
16. Assertion (A): Nitrogen and hydrogen combine together to form ammonia. Reason (R): It is an exothermic reaction.
17. Assertion (A): Vegetable matter changing into compost is an endothermic reaction.

Reason (R): In an endothermic reaction, energy in the form of heat or light is released.

18. Assertion (A): Balancing of chemical equations is based on law of conservation of mass. Reason (R): In a balanced chemical equation total mass of reactants is equal to total mass of products.
19. Assertion (A): Silver bromide is stored in dark bottles in the labs. Reason (R): Silver bromide decomposes when exposed to light.

## CASE BASED QUESTIONS (CBQs)

**Case 1:** Read the given passage and answer the following questions:

Redox reactions are those reactions in which oxidation and reduction occur simultaneously. A redox reaction is made up of two half reactions. In the first half reaction, oxidation takes place and in the second half reaction, reduction occurs. Oxidation is a process in which a substance loses electrons and in reduction, a substance gains electrons. The substance which gains electrons is reduced and acts as an oxidising agent. On the other hand, a substance which loses electrons is oxidised and acts as a reducing agent.

20. Which of the following is a redox reaction?
- A.  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$   
B.  $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$   
C.  $\text{CaO} + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O}$   
D.  $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
21. Identify the reaction in which  $\text{H}_2\text{O}_2$  is acting as a reducing agent.

- A.  $\text{H}_2\text{SO}_3 + \text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{SO}_4 + \text{H}_2\text{O}$   
B.  $2\text{HI} + \text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{I}_2$   
C.  $\text{Cl}_2 + \text{H}_2\text{O}_2 \rightarrow 2\text{HCl} + \text{O}_2$   
D.  $2\text{FeCl}_2 + 2\text{HCl} + \text{H}_2\text{O}_2 \rightarrow 2\text{FeCl}_3 + 2\text{H}_2\text{O}$

22. For the following reactions, identify the one in which  $\text{H}_2\text{S}$  acts as a reducing agent.

- A.  $\text{CuSO}_4 + \text{H}_2\text{S} \rightarrow \text{CuS} + \text{H}_2\text{SO}_4$   
B.  $\text{Cd}(\text{NO}_3)_2 + \text{H}_2\text{S} \rightarrow \text{CdS} + 2\text{HNO}_3$   
C.  $2\text{FeCl}_3 + \text{H}_2\text{S} \rightarrow 2\text{FeCl}_2 + 2\text{HCl} + \text{S}$   
D. None of these

## HIGHER ORDER THINKING SKILLS (HOTS)

23. A metal nitrate 'A' on heating gives yellowish brown coloured metal oxide along with brown gas 'B' and a colourless gas 'C'. Aqueous solution of 'A' on reaction with potassium iodide forms a yellow precipitate of compound 'D'. Identify 'A', 'B', 'C', 'D'. Also identify the types of both the reactions. Metal present in 'A' is used in alloy which is used for soldering purposes.

