

Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

Class 10 - Science
DPP chemical reaction

Maximum Marks: 60

Time Allowed: 2 hours

General Instructions:

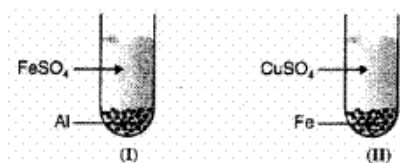
Answer all questions

Section A

1. Give important points of distinction between rusting and burning. 2
2. $16\text{HCl} + 2\text{KMnO}_4 \rightarrow 2\text{MnCl}_2 + 2\text{KCl} + 4\text{H}_2\text{O} + 5\text{Cl}_2$. 2

How many moles of Cl_2 gas will be produced from 3.2 moles of hydrochloric acid?

3. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case. 2
 - i. Nitrogen gas is treated with hydrogen gas in the presence of a catalyst at 773 K to form ammonia gas.
 - ii. Sodium hydroxide solution is treated with acetic acid to form sodium acetate and water.
4. Give the characteristic tests for O_2 . 2
5. The observation in I and II will be: 2



6. Grapes hanging in the plant do not ferment but after being plucked from the plant can be fermented. Under what conditions do these grapes ferment? Is it a chemical or a physical change? 2
7. A silver article generally turns black when kept in the open for a few days. The article when rubbed with toothpaste again starts shining. Why do silver articles turn black when kept in the open for a few days? Name the phenomenon involved. 2
8. Complete the missing components/variables given as * and v in the following reactions: 2

- i. $\text{Pb}(\text{NO}_3)_2(\text{aq}) + 2\text{KI}(\text{aq}) \rightarrow \text{PbI}_2(\text{x}) + 2\text{KNO}_3(\text{y})$
- ii. $\text{Cu}(\text{s}) + 2\text{AgNO}_3(\text{aq}) \rightarrow \text{Cu}(\text{NO}_3)_2(\text{aq}) + \text{x}(\text{s})$
- iii. $\text{Zn}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{x}) + \text{H}_2(\text{y})$
- iv. $\text{CaCO}_3(\text{s}) \xrightarrow{x} \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$

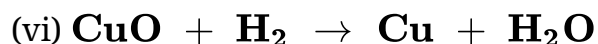
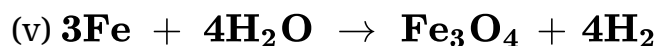
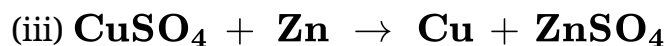
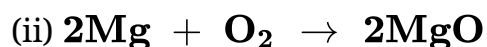
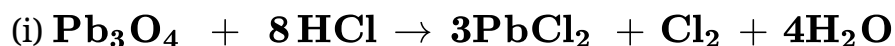
9. Why is the amount of gas collected at one electrode is double of the amount collected at the other electrode in "electrolysis of water" experiment? Name the gases at both the electrodes. 2
10. i. What happens when a solution of potassium iodide is added to a solution of lead nitrate taken in a test tube? 2
 ii. What type of reaction is this?
 iii. Write a balanced chemical equation to represent the above reaction.
11. During the reaction of some metals with dilute hydrochloric acid, following observations were made. 2
 (i) The temperature of the reaction mixture rises when aluminium (Al) is added.
 (ii) The reaction of sodium metal is found to be highly explosive.
 (iii) Some bubbles of a gas are seen when lead (Pb) is reacted with the acid.
 Explain these observations giving suitable reasons.
12. With the help of an activity show that iron metal is more reactive than copper metal. 2
13. What is a balanced chemical equation ? Why should chemical equations be balanced ? 2
14. What is redox reaction according to electronic concept ? 2
15. Balance the following chemical equations:- 2
 (i) $2\text{HNO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{NO}_3)_2 + \text{H}_2\text{O}$
 (ii) $\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$
 (iii) $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$
 (iv) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + \text{HCl}$
16. i. What is the colour of ferrous sulphate crystals? How does this colour change after heating? 2
 ii. Name the products formed on strongly heating ferrous sulphate crystals.
 What type of chemical reaction occurs in this change?
17. Translate the following statement into chemical equation and then balance it. 2
 Aluminium metal replaces iron from ferric oxide giving aluminium oxide and

iron.

18. **DELETE IT**

2

Identify the oxidising agent (oxidant) in the following reactions.

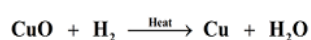


19. Give the characteristic tests for CO_2 .

2

20. Consider the chemical equation given below and answer the questions that follow:

2



i. Name the substance which is getting oxidised.

ii. Name the substance which is getting reduced.

iii. Name the oxidising agent.

iv. Name the reducing agent.

v. What type of a reaction does this equation represent?

21. A substance **X** used for coating iron articles is added to a blue solution of a reddish brown metal **Y**. The color of the solution fades away. Identify **X** and **Y** and the type of the reaction involved.

2

22. A reddish brown metal **X**, when heated in the presence of oxygen, forms a black compound **Y** which is basic in nature and when heated with hydrogen gas gives back **X**. Identity **X** & **Y**. Write the chemical reaction between **Y** & H_2 Identify the substance being oxidized & reduced.

2

23. Identify the type of chemical reaction taking place

2

i. on mixing a solution of potassium chloride with silver nitrate, an insoluble white substance is formed.

ii. on heating iron sulphate crystals strongly.

24. A silver article generally turns black when kept in the open for a few days. The article when rubbed with toothpaste again starts shining. Why do silver articles turn black when kept in the open for a few days? Name the phenomenon involved.

2

25. Why are food items packed in aluminium foils?

2

26. What are the methods to prevent rusting.

2

27. Write the balanced chemical equation for the following reaction and identify the type of reaction. 2
Hydrogen (g) + Chlorine (g) → Hydrogen chloride (g)
28. Predict whether gold can displace copper from copper sulphate solution. 2
29. Translate the following statement into a chemical equation and then balance it : 2
Barium chloride reacts with aluminium sulphate to give aluminium.
30. What is a redox reaction? 2