QB365 Question Paper Software
10th Standard - Science
Chemical Reactions and Equations Assertion and Reason

Exam Time: 01:00:00 Hrs | Date: 2025-05-27
Total Marks: 10

Questions:

Assertion and reason

1. **Assertion:** Ferrous sulphate crystals ($FeSO_4 \cdot 7H_2O$) lose water when heated.
Reason: The colour of the crystals changes and it is a decomposition reaction.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

2. **Assertion:** White silver chloride turns grey in sunlight
Reason: In sunlight, silver chloride reacts with oxygen to form silver oxide.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

3. **Assertion:** Chemical reaction in test tube concluded with the fall in the temperature of the reaction.
Reason: The reaction has absorbed heat from surroundings and is called exothermic reaction.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

4. **Assertion:** Reactant X reacts with other reactant Y to give blue colour precipitate.
Reason: In this reaction, physical properties of the reactants have changed.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

5. **Assertion:** $CO + 2H_2 \xrightarrow[\triangle]{340\ atm} CH_3OH(l)$

Reason: It is a combination reaction because CO combines with H_2 to form CH_3OH i.e., two substances combine to form a single compound.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

6. **Assertion:** In the reaction, $Zn_{(s)} + 2H^+_{(aq)} \rightarrow Zn^{2+}_{(aq)} + H_{2(g)}$ ' zinc acts as an oxidising agent and H^+ acts as a reducing agent.

Reason: An oxidising agent accepts electrons while a reducing agent loses electrons.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

7. **Assertion:** $2H_2\ S_{(g)} + O_{2(g)} \longrightarrow 2\ S_{(s)} + 2H_2O_{(l)}$

It is a redox reaction.

Reason: In redox reaction, oxidation and reduction take place simultaneously.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

8. **Assertion**: The reaction during which hydrogen is lost is called oxidation reaction.

Reason: Reducing agent removes hydrogen from another substance.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

9. **Assertion:** Corrosion of iron is commonly known as rusting.

Reason: Corrosion of iron occurs in presence of moist air.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

10. **Assertion:** Following reaction describes the rusting of iron and is a redox reaction

$4Fe + 3O_2 \rightarrow 4Fe^{3+} + 6O^{2-}$

Reason: The metallic iron is oxidised to Fe^{3+}.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.
(d) A is false, but R is true.

Answers Key:

Assertion and reason

1. (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
2. (c) If assertion is true and reason is false.
3. (c) If assertion is true and reason is false.
4. (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
5. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
6. $(d) : \mathrm{Zn}_{(s)} + 2\mathrm{H}^{+}_{(aq)} \rightarrow \mathrm{Zn}^{2+}_{(aq)} + \mathrm{H}_{2(g)}$
   In this reaction, zinc loses electrons and so it is a reducing agent, while H^+ gains electrons and so it is an oxidising agent.
7. **(a)** Both A and R are true, and R is correct explanation of the assertion.
8. **(c):** Reducing agent gives hydrogen to another substance.
9. **(b)** Both A and R are true, but R is not the correct explanation of the assertion
10. **(a):** Fe is oxidised to Fe^{3+} and acts as reducing agent.