QB365 Question Paper Software
11th Standard - Chemistry
Redox Reactions Assertion and reason

Exam Time: 00:20 Hrs | Date: 2025-10-11
Total Marks: 10

Questions:

Assertion and reason

1. **Assertion:** Among halogens fluorine is the best oxidant.
Reason: Fluorine is the most electronegative atom.
Codes:
(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Both Assertion and Reason are false.

2. **Assertion:** $HClO_4$ is a stronger acid than $HClO_3$.
Reason: Oxidation state of Cl in $HClO_4$ is +VII and in $HClO_3$ +V.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

3. **Assertion:** In the reaction $2Na(s) + Cl_2(g) \rightarrow 2NaCl(s)$ sodium is oxidised.
Reason: Sodium acts as an oxidising agent in given reaction.
Codes:
(a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
(b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
(c) Assertion is correct, reason is incorrect
(d) Assertion is incorrect, reason is correct.

4. **Assertion:** Fluorine exists only in ?1 oxidation state.
Reason: Fluorine has 2s22p5 configuration.
Codes:
A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

5. **Assertion:** HClO4 is a stronger acid than HClO3
Reason: Oxidation state of Cl in HClO4 is +VII and in HClO3+V.
Codes:

A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

6. **Assertion: In a reaction** $Zn(s)+CuSO4(aq)\rightarrow ZnSO4(aq)+Cu(s)$, Zn is a reductant but itself get oxidized.
Reason: In a redox reaction, oxidant is reduced by accepting electrons and reductant is oxidized by losing electrons.
Codes:
A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

7. **Assertion:** The oxidation numbers are artificial, they are useful as a ?book-keeping? device of electrons in reactions.
Reason: The oxidation numbers do not usually represent real charges on atoms, they are simply conventions that indicate what the maximum charge could possibly be on an atom in a molecule.
Codes:
A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

8. **Assertion:** $3ClO^- \rightarrow ClO_3^- + 2Cl^-$ is an example of dissociation reaction.
Reason: ClO^- gets oxidised as well as reduced.
Codes:
A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

9. **Assertion:** Copper sulphate solution is not stored in zinc vessel.
Reason: Zinc forms complex with copper sulphate.
Codes:
A) If both assertion and reason are true and the reason is the correct explanation of the assertion.

B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

10. **Assertion:** Oxidation number of C in HCHO is zero.
Reason: Formaldehyde is a covalent compound.
Codes:
A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
C) If assertion is true but reason is false.
D) If the assertion and reason both are false.
E) If assertion is false but reason is true.

Answers Key:

Assertion and reason

1. (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
2. (b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
3. (c) Assertion is correct, reason is incorrect
4. B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
Explanation:
It is correct that fluorine exists only in ?1 oxidation state because it has 1s22p5 electronic configuration and thus shows only ?1 oxidation state in order to complete its octet. Hence, both assertion and reason are true and reason is not a correct explanation of assertion.
5. B) If both assertion and reason are true but reason is not the correct explanation of the assertion.
Explanation:
Both assertion and reason are true but reason is not the correct explanation of assertion. Greater the number of negative atoms present in the oxy-acid make the acid stronger. In general, the strengths of acids that have general formula (HO)mZOn can be related to the value of n. As the value of n increases, acidic character also increases. The negative atoms draw electrons away from the Z-atom and make it more positive. The Z-atom, therefore, becomes more effective in with drawing electron density away from the oxygen atom that bonded to hydrogen. in turn, the electrons of H−O bond are drawn more strongly away from the H-atom. The net effect makes it easier from the proton release and increases the acid strength.
6. A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
7. A) If both assertion and reason are true and the reason is the correct explanation of the assertion.
8. D) If the assertion and reason both are false.
9. C) If assertion is true but reason is false.

10. B) If both assertion and reason are true but reason is not the correct explanation of the assertion.