Redox Reactions

1. **Assertion (A):** $3ClO^- \rightarrow ClO_3^- + 2Cl^-$ is an example of dissociation reaction.

   Reason (R): ClO^- gets oxidised as well as reduced.

   (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

   (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

   (3) (A) is true but (R) is false

   (4) Both (A) and (R) are false

2. **Assertion (A):** A substance which gets reduced can act as reducing agent.

   Reason (R): An oxidising agent itself gets oxidised.

   (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

   (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

   (3) (A) is true but (R) is false

   (4) Both (A) and (R) are false

3. **Assertion (A):** Copper sulphate solution is not stored in zinc vessel.

   Reason (R): Zinc forms complex with copper sulphate.

   (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

   (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

   (3) (A) is true but (R) is false

   (4) Both (A) and (R) are false

4. **Assertion (A):** The Daniell cell becomes dead after sometime.

   Reason (R): Oxidation potential of zinc anode decreases and that of copper cathode increases.

   (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

   (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

   (3) (A) is true but (R) is false

   (4) Both (A) and (R) are false

5. **Assertion (A):** In iodometric titration, starch is used as an indicator.

   Reason (R): Starch is a polysaccharide.

   (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

   (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

   (3) (A) is true but (R) is false

   (4) Both (A) and (R) are false

6. **Assertion (A):** Oxidation state of hydrogen in H_2O is + 1 and in CaH_2 it is -1.

   Reason (R): CaH_2 is metal hydride and for hydrides, hydrogen is assigned the oxidation state of -1.

   (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

   (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

   (3) (A) is true but (R) is false

   (4) Both (A) and (R) are false

7. **Assertion (A):** Oxidation number of C in HCHO is zero.

Reason (R): Formaldehyde is a covalent compound.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

8. **Assertion (A):** Oxygen has oxidation state of -2 in both O_2 and O_3.

Reason (R): Oxygen is assigned an oxidation state of -2 in almost all its compounds.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

9. **Assertion (A):** Oxidation number of phosphorus in P_4 is zero.

Reason (R): Phosphorus has oxidation state zero in all its compounds.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

10. **Assertion (A):** Redox reactions are also called neutralisation reactions.

Reason (R): The number of electrons gained or lost in the reaction are balanced.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

11. **Assertion (A):** In the titrations of Na_2CO_3 with HCl using methyl orange indicator, the volume required at the equivalence point is twice that of acid required using phenolphthalein indicator.

Reason (R): Two moles of HCl are required for complete neutralization of one mole of Na_2CO_3.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

12. **Assertion (A):** Addition of water to a solution containing solute and solvent cannot change it's normality or molarity

Reason (R): The milliequivalent and millimoles of the solute are changed on dilution.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

13. **Assertion (A):** The oxidation state of central sulphur in H_2SO_5 is +6

Reason (R): No peroxy linkage is present in H_2SO_5

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

14. **Assertion (A):** HNO_3 acts as oxidizing agent.

Reason (R): Oxidation no. of nitrogen is +5, no increase in oxidation no. beyond +5 can occur. The oxidation no. of HNO_3 can only decrease.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

15. **Assertion (A):** The oxidation state of oxygen in F_2O is +2.

Reason (R): Electronegativity of F is more than that of oxygen.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	3	1	2	1	2	4	3	4	2	4	3	1	1