Corrosion

1. **Correct answer:** (b) Electrochemical phenomenon

- **Corrosion** is the **gradual destruction of metals** due to chemical or electrochemical reactions with their environment.
- Most common corrosion, like **rusting of iron**, occurs via **electrochemical processes** involving **anodic oxidation** and **cathodic reduction** in the presence of water and oxygen.

Therefore, corrosion is essentially an **electrochemical phenomenon**.

2. (d) Rusting of iron is catalysed by $[H^+]$.

3. (d) $HgCl_2$ has corrosive action. It is highly poisonous. It sublimes on heating. It is, therefore, known as corrosive sublimate.

4. (a) $Fe \rightarrow Fe^{2+} + 2e$ (anode reaction)

$O_2 + 2H_2O + 4e \rightarrow 4OH^-$ (cathode reaction)

The overall reaction is

$2Fe + O_2 + 2H_2O \rightarrow 2Fe(OH)_2$

$Fe(OH)_2$ may be dehydrated to iron oxide FeO, or further oxidised to $Fe(OH)_3$ and then dehydrated to iron rust, Fe_2O_3.