Section A

Q1. Multiple Choice Questions (5 marks)

1. A chemical reaction in which heat is released is called:
   a) Endothermic reaction b) Exothermic reaction c) Combination reaction d) Decomposition reaction

2. The process of coating iron with a layer of zinc to protect it from rusting is called:
   a) Galvanization b) Anodizing c) Electroplating d) Painting

3. The SI unit of electric current is:
   a) Volt b) Ampere c) Ohm d) Watt

4. The heating effect of electric current is utilized in:
   a) Electric bell b) Electric motor c) Electric heater d) Electric generator

5. The magnetic effect of electric current is utilized in:
   a) Electric bulb b) Electric iron c) Electric fan d) Electric motor

Section B

Q2. Short Answer Questions (10 marks)

1. Define a chemical equation. What are the different types of chemical reactions? (2 marks)
2. Explain the concept of oxidation and reduction with examples. (2 marks)
3. State Ohm's law. Draw a circuit diagram to verify Ohm's law. (2 marks)
4. Describe the working of an electric motor. (2 marks)
5. What are the advantages of using LED bulbs over incandescent bulbs? (2 marks)

Section C

Q3. Long Answer Questions (10 marks)

1. (5 marks) Balance the following chemical equations:
   (a) $Fe + H_2O \rightarrow Fe_3O_4 + H_2$
   (b) $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$
   (c) $CaCO_3 \rightarrow CaO + CO_2$
   (d) $Zn + HCl \rightarrow ZnCl_2 + H_2$
   (e) $Mg + O_2 \rightarrow MgO$

2. (5 marks) Explain the working of an electric generator.
   Differentiate between AC and DC generators.