Section A

Q1. Multiple Choice Questions (5 marks)

1. **The force of attraction between any two objects is called:**
   a) Gravitational force b) Electrostatic force c) Magnetic force d) Nuclear force

2. **The value of universal gravitational constant (G) is:**
   a) 6.67 × 10^-11 Nm^2/kg^2 b) 9.8 m/s^2 c) 3 × 10^8 m/s d) 1.6 × 10^-19 C

3. **The modern periodic law is based on:**
   a) Atomic mass b) Atomic number c) Number of isotopes d) Number of neutrons

4. **Elements in a group of the periodic table have:**
   a) Same number of electrons b) Same number of protons
   c) Same number of neutrons d) Same number of valence electrons

5. **The most reactive metal is:**
   a) Iron b) Copper c) Sodium d) Gold

Section B

Q2. Short Answer Questions (10 marks)

1. **State the universal law of gravitation. (2 marks)**
2. **Explain the concept of acceleration due to gravity. (2 marks)**
3. **What is the significance of the periodic table? (2 marks)**
4. **Describe the trends in atomic size and metallic character across a period. (2 marks)**
5. **What are the properties of alkali metals? (2 marks)**

Section C

Q3. Long Answer Questions (10 marks)

1. **(5 marks) Derive an expression for the acceleration due to gravity (g).**
2. **(5 marks) Explain the periodic trends in valency, ionization energy, and electron affinity.**