Class: IX

Chapter: Structure of the Atom

Time: 1 Hour | Maximum Marks: 30

Section A: Multiple Choice Questions

(5 × 1 = 5 marks)

Q1. The discovery of the nucleus was made by:

a) J.J. Thomson

b) Rutherford

c) Bohr

d) Chadwick

Q2. Which subatomic particle has no charge?

a) Proton

b) Electron

c) Neutron

d) Positron

Q3. The maximum number of electrons in the M shell is:

a) 8

b) 18

c) 32

d) 2

Q4. An atom with atomic number 11 belongs to which group?

a) Noble gases

b) Halogens

c) Alkali metals

d) Alkaline earth metals

Q5. The mass number of an atom is the total number of:

a) Electrons only

b) Protons only

c) Neutrons only

d) Protons and neutrons

Section B: Very Short Answer Questions

(2 × 2 = 4 marks)

Q6. Define atomic number.

Q7. What are isotopes? Give one example.

Section C: Short Answer Questions

(4 × 3 = 12 marks)

Q8. State Rutherford's model of an atom (any three points).

Q9. Write the limitations of Rutherford's atomic model.

Q10. Define valency. How is valency related to the electronic configuration of an atom?

Q11. Calculate the number of protons, neutrons, and electrons in an atom of calcium (Atomic number = 20, Mass number = 40).

Section D: Long Answer Question

(5 × 1 = 5 marks)

Q12. Answer the following subparts:

a) Who discovered the electron?

b) Name the scientist who proposed the Bohr model.

c) Write the charge of a proton.

d) Write the formula to calculate the maximum number of electrons in a shell.

e) Which shell is filled first?

Section E: Case-Based Question

(4 × 1 = 4 marks)

Q13.

An element X has atomic number 17 and mass number 35.

a) How many protons are present in element X?

b) How many electrons are present in element X?

c) How many neutrons are present in element X?

d) Write the electronic configuration of element X.