WORKSHEET 1

CHAPTER 4 – ATOMIC STRUCTURE AND CHEMICAL BONDING

A. Tick (✓) the correct option.

1. The fundamental particle discovered by Chadwick is
   a. electron. b. proton. c. neutron. d. nucleus.
2. The number of valence electrons in neon is
   a. 2. b. 6. c. 7. d. 8.
3. The correct electronic configuration of phosphorus is
   a. 2, 8, 3. b. 2, 8, 4. c. 2, 8, 5. d. 2, 8, 6.
4. The element with atomic number 7 and mass number 14 is
   a. silicon. b. oxygen. c. nitrogen. d. fluorine.
5. In an ionic bond, electrons are
   a. lost by an atom. b. gained by an atom.
   c. shared between the atoms. d. transferred between the atoms.

B. Fill in the blanks from the choices given within the brackets.

1. An atom with electronic configuration 2, 6 will have _____ (6/2/8) protons.
2. Isotopes have same _____ (number of neutrons/atomic masses/electronic configuration)
3. The elements having stable octet are called _____ (metals/non-metals/noble gases)
4. In $^{24}_{12}Mg$, there are _____ (12/36/24) neutrons.
5. Rutherford's scattering experiment discovered _____ (proton/atomic model/nucleus)

C. Give one word for the following.

1. The number of protons present in the nucleus of an atom.
2. Arrangement of electrons around the nucleus of an atom.
3. The shell of an atom which can accommodate a maximum of two electrons.
4. The element which does not contain any neutron in its nucleus.
5. The charged particle formed by the donation of electrons from the valence shell.

D. Match the following.

1. Neutron	Ionic compound
2. Valence electrons	Noble gas
3. $CaCl_2$	Electrically neutral
4. Argon	Same number of neutrons
5. Isobars	Determine the chemical properties

Name: ..... Teacher's signature: .....

Class: IX Date: .....

E. Answer the following questions.

1. An atom usually contains three particles. Name the particles and state their masses.
2. What is meant by the statement that atomic number of magnesium is 12?
3. An atom of fluorine is represented as $^{19}_{9}F$. Write down the
   a. number of protons.
   b. number of neutrons.
   c. number of electrons in atom of fluorine.
4. Distinguish between an atom X and an ion X^+.
5. Draw the electron dot structure showing the formation following compounds.
   a. $MgCl_2$ b. CCl_4

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. c
2. d
3. c
4. c
5. d

B. Fill in the blanks from the choices given within the brackets.

1. 8
2. electronic configuration
3. noble gases
4. 12
5. nucleus

C. Give one word for the following.

1. Atomic number
2. Electronic configuration
3. K-shell
4. Hydrogen
5. Cation

D. Match the following.

1. Neutron	Electrically neutral
2. Valence electrons	Determine the chemical properties
3. $CaCl_2$	Ionic compound
4. Argon	Noble gas
5. Isobars	Same number of neutrons

E. Answer the following questions.

1.

Particles	**Masses**
Electron	9.107×10^{-28} g
Proton	1.673×10^{-24} g
Neutron	1.672×10^{-24} g

2. The given statement means that magnesium atom contains 12 protons and 12 electrons.
3. a. Number of protons : 9

   Number of neutrons : 19 – 9 = 10

   Number of electrons : 9

4.

Atom 'X'	**Ion X^+**
X is electrically neutral particle.	X^+ is a positively charged particle.
In X, number of electrons is equal to the number of protons.	In X^+, the number of electrons are smaller than the number of protons.

5. a. Refer Figure 4.16 on page 54 of the textbook.

   b. Refer Figure 4.25 on page 57 of the textbook.