INDIAN SCHOOL NIZWA - WORKSHEET

CHEMISTRY

CH: 4 Structure of atom

Name: _____ Date:_____ Class: IX Sec: ___

Answer the following

1. How many electrons, protons and neutrons are present in the element $^{19}_{9}X$?
   What will be the valency of the element? Identify the element.
2. An atom of an element has 3 electrons in its 3rd orbit which is the outermost shell.
   Write its a) electronic configuration b) atomic number c) valency d) Name of the element
3. Why atomic mass of chlorine is 35.5 u and not a whole number?
4. Why do Helium, Neon and Argon have zero valency?
5. Give reasons for the following;
   a) Isotopes of an element are chemically similar
   b) An atom is electrically neutral.
   c) Nucleus of an atom is heavy and positively charged
   d) Inert gas shows least reactivity
6. If $_{6}^{14}X$ is an isotope of element Y and has 2 neutrons less than X.
   a) Write the symbol of element showing its mass number and atomic number.
   b) Write the valency for these elements.
   c) What relation is given for the chemical properties of X and Y.?
7. An element P has 3 valence electrons. What would be the nature and value of charge on the ion formed if all the electrons are removed from the outermost shell?
8. The relative atomic mass of copper is 63.5 u and its atomic number is 29. It exists as two isotopes with atomic masses 63 and 65. Calculate the percentage of each isotope present in it.
9. An atom of an element has 7 electrons in its valence L shell .
   a) What is its atomic number b) State its valency c) Identify the element.
10. Assertion : Cathode rays get deflected towards the positive plate of electric field.
    Reason : Cathode rays consist of negatively charged particles known as electrons.
11. Assertion : The number of electrons gained, lost or shared by the atom of an element so as to complete its octet is called the valency of the element.
    Reason : Elements having the same number of valence electrons in their atoms possess different chemical properties.

12. Assertion : Electrons moving in the same orbit will not lose or gain energy.
Reason : On jumping from higher to lower energy level, the electron will gain energy.

Competency based questions

13. In the following table the mass number and the atomic numbers of certain elements are given;

Element	A	B	C	D	E
Mass Number	1	7	14	40	40
Atomic number	1	3	7	18	20

a) Select a pair of isobars from the given table

b) What would be valency of B? Is it a metal or non-metal?

c)Give the electronic configuration of D and E and identify the elements?

14. The following data represents the distribution of electrons, protons and neutrons in atoms of 4 elements A, B, C and D?

Element	Protons	Neutrons	Electrons
A	19	21	19
B	17	18	17
C	17	20	17
D	18	22	18

Answer the following questions;

a) Write the electronic configuration of B

b) Is element B a metal or non-metal and why?

c) Which two elements form a pair of isotopes?

d) Which two elements form a pair of isobars?

15. The electronic configuration of element X is 2.
The element Y has 3 electrons in M shell
Atomic number of element Z is 17.
(a) State the valence number of electrons of:
Element X _____
Element Y _____
Element Z _____
(b) State the valency of:
Element X _____
Element Y _____
Element Z _____

16. Elements X, Y and Z have atomic numbers 6, 9 and 12 respectively. Which among these

a) forms an anion (b) forms a cation (c) is a metal (d) has four electrons in the valence shell