



SHIKSHA CLASSES

Subject : Science

Question Paper

Total Marks : 30

Class : IX

4. Structure of the Atom

Time : 1 Hr.

Section A(Each 1 marks)

- Q.1) If k and L shells of an atom are full, then what would be the total number of electrons in atom.
a) 18 b) 12 c) 8 d) 10

OR

Covalency is the number of electrons.

- a) Sharing with other atoms b) Lost by an atom
c) Gain by an atom d) Compound by an atom
- Q.2) An atom has atomic number 13, what is its valency and name the element?

OR

What is an atomic number?

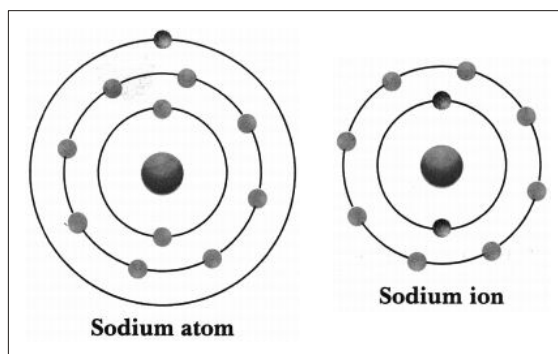
For question numbers 3 to 5 two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- a) Both A and R are true, and R is correct explanation of the assertion.
b) Both A and R are true, but R is not the correct explanation of the assertion.
c) A is true, but R is false.
d) A is false, but R is true
- Q.3) **Assertion (A)** : All isotopes of a given element show the same type of chemical behaviour.
Reason (R) : The chemical properties of an atom are controlled by the number of electrons in the atom.
- Q.4) **Assertion(A)**: Atom is electrically neutral.
Reason(R): A neutral particle, neutron is present in the nucleus of atom.
- Q.5) **Assertion(A)**: Electrons moving in the same orbit will lose or gain energy.
Reason(R): On jumping from higher to lower energy level, the electron will gain energy
- Q.6) The electronic configuration of chlorine is
a) 2,7 b) 2, 8, 8, 7 c) 2, 8, 7 d) 2, 7, 8

OR

Give two important applications of radioactive isotopes.

Q.7) Observe the following electronic configuration of sodium and answer any two question from 5(i) to 5(iii) (2)



- i) What is the atomic number of sodium?
 - a) 11 b) 12 c) 17 d) 13
- ii) In sodium ion figure how many electrons are present?
 - a) 11 b) 10 c) 12 d) none of these
- iii) Charge on the sodium is -----
 - a) Positive b) Negative c) Neutral d) both a and b

Q.8) Match column A with column B.

Column A	Column B
Atomic number	Valency
(A) 12	(i) 3
(B) 17	(ii) 0
(C) 10	(iii) 2
(D) 15	(iv) 1

- a) A - ii, B - iv, C - iii, D - i b) A - iii, B - iv, C - ii, D - i
- c) A - iii, B - iv, C - i, D - ii d) A - iii, B - ii, C - i, D - iv

Q.9) Identify the decreasing order of specific charges of the particles: Electron(e), proton(p), neutron(n) and a particle.

- a) e, p, n, a b) p, e, n, a c) e, p, a, n d) n, a, p, e

Q.10) The correct electronic configuration of potassium is _____?

- a) 2, 8, 4 b) 2, 8, 8, 6 c) 2, 8, 8, 18 d) 2, 8, 8, 1

Q.11) The ion of an element has 3 positive charges. Mass number of the atom is 27 and the number of neutrons is 14. What is the number of electrons in the ion?

- a) 13 b) 10 c) 14 d) 16

Q.12) An atom with 3 protons and 4 neutrons will have a valency of

- a) 3 b) 7 c) 1 d) 4.

Q.13) Which of the following statement is always correct?

- a) An atom has equal number of electrons and protons.

- b) An atom has equal number of electrons and neutrons.
- c) An atom has equal number of protons and neutrons.
- d) An atom has equal number of electrons, protons and neutrons.

Q.14) The nucleons are

- a) Protons and electrons b) Neutrons and electrons
- c) Protons and neutrons d) None of these

Section B (Each 2 marks)

Q.15) An element 'X' contains 6 electrons in 'M' shell as valence electrons. What is the atomic number of 'X'?

OR

Predict the valency of the following elements

- i) A (Atomic number 5) ii) B (Atomic number 12)
- iii) C (Atomic number 14) iv) D (Atomic number 17)

Q.16) The atomic number of lithium is 3. Its mass number is 7.

- a) How many protons and neutrons are present in a lithium atom?
- b) Draw the diagram of a lithium atom.

Section C (Each 3 marks)

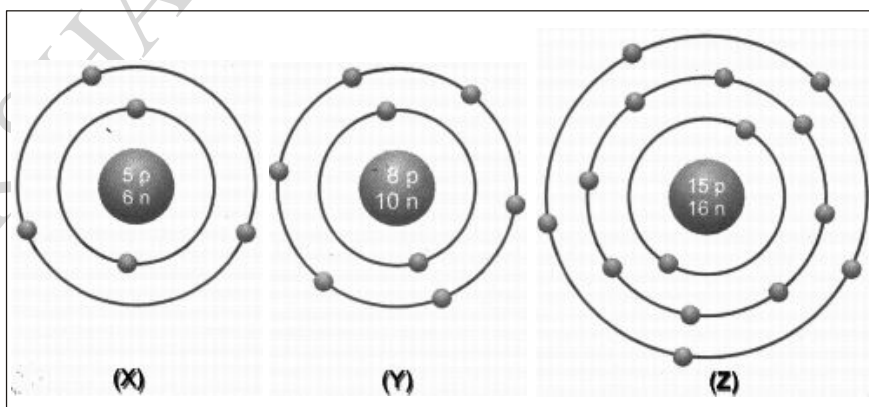
Q.17) Write the conclusions drawn by Rutherford when he observed the following :

- i) Most of the α - particles passing straight through the gold foil.
- ii) Some α - particles getting deflected from their path.
- iii) Very small fraction of α - particles getting deflected by 180° .

OR

Atomic mass of aluminium is 27 u and the atomic number is 13, find the number of protons and number of neutrons in aluminium.

Q.18) What information do you get from the figures about the atomic number, valency of atoms X, Y and Z? Give your answer in a tabular form.



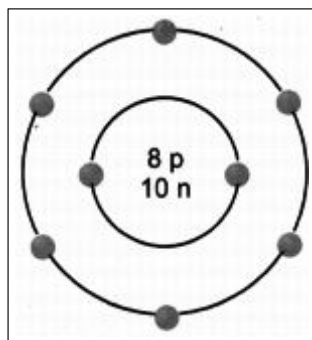
Section D(5 marks)

- Q.19) i) What is an octet rule? How do elements attain octet?
ii) Make a schematic atomic structure of magnesium and phosphorus.
(Given number of Protons of magnesium = 12 and that of phosphorus is 15)

OR

The given figure depicts the atomic structure of an atom of an element 'X'.

Write the following information about the element 'X'.



- a) Atomic number of 'X' b) Atomic mass of 'X'
c) Valence electrons d) Valency of 'X'
e) 'X' should be metal or non-metal.

SHIKSHA CLASSES, B

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