

## Class 9 CBSE Test Paper Chapter 3: Structure of atoms - 1

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Q.1: Compare the properties of electrons, protons and neutrons.

Q.2: What are the limitations of J.J. Thomson's model of the atom?

Q.3: What are the limitations of Rutherford's model of atom?

Q.4: Describe Bohr's model of atom.

Q.5: Compare all the proposed models of an atom given in this chapter.

Q.6: Summarize the rules for writing of distribution of electrons in various shells for the first eighteen elements.

Q.7: Define valency by taking examples of silicon and oxygen.

Q.8: Explain with examples (i) Atomic number, (ii) Mass number, (iii) Isotopes and (iv) Isobars. Give any two uses of isotopes.

Q.9:  $\text{Na}^+$  has completely filled K and L shells. Explain.

Q.10: If bromine atom is available in the form of, say, two isotopes  ${}^{79}_{35}\text{Br}$  (49.7%) and  ${}^{81}_{35}\text{Br}$  (50.3%), calculate the average atomic mass of bromine atom.

Q.11: The average atomic mass of a sample of an element X is 16.2 u. What are the percentages of isotopes  ${}^{16}_8\text{X}$  and  ${}^{18}_8\text{X}$  in the sample?

Q.12: If  $Z = 3$ , what would be the valency of the element? Also name the element.

Q.13: Composition of the nuclei of two atomic species X and Y are given as under X Y

Protons = 6 6

Neutrons = 6 8

Give the mass numbers of X and Y. What is the relation between the two species?

Q.14: For the following statements, write T for True and F for False.

- (a) JJ Thomson proposed that the nucleus of an atom contains only nucleons.(F)
- (b) A neutron is formed by an electron and a proton combining together. Therefore, it is neutral.(F)
- (c) The mass of an electron is about  $1/2000$  times that of proton.(T)
- (d) An isotope of iodine is used for making tincture iodine, which is used as a medicine.(T)

Put tick ( $\checkmark$ ) against correct choice and cross (X) against wrong choice in the following questions:

Q.15: Rutherford's alpha-particle scattering experiment was responsible for the discovery of

- (a) Atomic Nucleus  $\checkmark$  (b) Electron
- (c) Proton (d) Neutron.

Q.16: Isotopes of an element have

- (a) the same physical properties (b) different chemical properties
- (c) different number of neutrons  $\checkmark$  (d) different atomic numbers.

Q.17: Number of valence electrons in  $\text{Cl}^-$  ion is:

- (a) 16 (b) 8  $\checkmark$
- (c) 17 (d) 18

Q.18: Which one of the following is a correct electronic configuration of sodium?

- (a) 2,8 (b) 8,2,1
- (c) 2,1,8 (d) 2,8,1 $\checkmark$

Q.19.. The charge on the electron was discovered by

- (a) Fermi (b) Faraday
- (c) Mullikan (d) J. J. Thomson  $\checkmark$

Q. 20. The particle discovered in the anode ray experiments is the

- (a) meson (b) electron
- (c) proton $\checkmark$  (d) neutron