

ASPER

C11 LN Colony, Kolkata

STRUCTURE OF AN ATOM

Class 09 - Science

Time Allowed: 30 minutes

Maximum Marks: 30

1. What are canal rays? [1]
2. If an atom contains one electron and one proton, will it carry any charge or not? [1]
3. On the basis of Thomson's model of an atom, explain how the atom is neutral as a whole. [2]
4. On the basis of Rutherford's model of an atom, which sub-atomic particle is present in the nucleus of an atom? [1]
5. Draw a sketch of Bohr's model of an atom with three shells. [2]
6. What do you think would be the observation if the α -particle scattering experiment is carried out using a foil of a metal other than gold? [2]
7. Helium atom has an atomic mass of 4 u and two protons in its nucleus. How many neutrons does it have? [3]
8. Write the distribution of electrons in carbon and sodium atoms. [2]
9. If number of electrons in an atom is 8 and the number of protons is also 8, then: [2]
 - i. What is the atomic number of the atom?
 - ii. What is the charge on the atom?
10. Write the electronic configuration of any one pair of isotopes and isobars. [2]
11. What are the limitations of Rutherford's model of the atom? [2]
12. Na^+ has completely filled K and L shells. Explain. [2]
13. 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. [2]
14. Which one of the following is a correct electronic configuration of sodium? [1]

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|------------|------------|
| a) 2, 1, 8 | b) 8, 2, 1 |
| c) 2, 8 | d) 2, 8, 1 |
15. Isotopes of an element have [1]

| | |
|-----------------------------|----------------------------------|
| a) Same physical properties | b) Different chemical properties |
| c) Different atomic number | d) Different number of neutrons |
16. The average atomic mass of a sample of element X is 16.2u. What are the percentages of isotopes ${}^{16}_8\text{X}$ and ${}^{18}_8\text{X}$ in the sample? [2]
17. Define valency by taking examples of silicon and oxygen. [2]