Chapter-4 (ATOMIC STRUCTURE)

SUB TOPIC – DALTON'S ATOMIC THEORY,DISCOVERY OF ELECTRONS, PROTONS AND NEUTRONS, THOMSON'S MODEL, RUTHERFORD'S MODEL AND BOHR'S MODEL, THEIR LIMITATIONS .

I. VERY SHORT QUESTIONS: (1 MARK)

1. What are cathode ray ? which charge does it contain ?
2. Why protons are called canal rays ?
3. Write the charge and mass of an electron ? Determine its e/m ratio?
4. Mention two limitations of Dalton's Atomic Theory.
5. Who did discover the following subatomic particles : electron, proton and neutron.
6. Why did Rutherford take thin gold foil for alpha-particle scattering experiment ?
7. Write two limitations of Thomson's Atomic model>

SHORT ANSWER TYPE QUESTIONS (3 MARKS)

1. What are three postulates of Dalton's Atomic Theory. Explain all with proper explanation.
2. Mention three observations and three conclusions of Rutherford's Alpha-particle Experiment.
3. Write three contradictory properties of electrons and protons.
4. Why Rutherford's Model could not explain the stability of an atom ?
5. What is Bohr Bury Scheme ? What is maximum possibility of keeping electrons in 3rd shell of an atom ?
6. Draw with a neat diagram the atomic structure of Rutherford's model.
7. Show the schematic diagrams of Bohr's models of following atoms of Elements: Ca, N and Ne.

LONG ANSWER TYPE QUESTIONS :(5 MARKS)

1. Describe in detail the Experiment of Alpha-particle scattering of Rutherford showing its observations and conclusion.
2. Write the major postulates of Bohr's Atomic model. Show the Bohr's model of Li, Al and S.
3. State the main postulates of – Dalton's atomic theory. Explain

how the modern atomic theory contradicted Dalton's atomic theory.

Sub topic –Symbol,Atomic No, Mass No, Isotopes, Isotopes and Electronic Configuration, Valency, Variable Valencies and Radicals, Molecular Formulas.I

VERY SHORT QUESTIONS: (1 MARK and 2 MARKS)

1. Give difference between Atomic No and Mass No giving one example from each.
2. Is there any difference between atomic mass and mass no ? Explain with genuine examples.
3. Write the valence electrons and valency of P ?
4. What is Variable Valency ? Give two such examples .
5. Write the electronic configurations of atoms of following elements : Chlorine and Argon and show their structure as well.
6. Represent the no of electrons, protons and neutrons in atoms of following elements : He, O and Mg.
7. What are the different isotopes of Hydrogen ? Write the no of electrons, protons and neutrons in them.
8. Write the MF of following compounds : Silver Bromide, Calcium Sulphate, Aluminium Chloride and Magnesium Bicarbonate.
9. Write the following radicals with their symbols : Nitrite, Sulphite and Zincate.
10. Define the term – 'atomic number' of an atom. If an atom 'A' has an

atomic number of – eleven, state the number of protons & electrons it contains.

11. Define the term – 'mass number' of an atom. If an atom 'B' has mass number 35 & atomic number 17, state the number of protons, electrons & neutrons it contains.

LONG TYPE QUESIONS 3/5-MARKS

1. State how electrons are distributed in an atom. Explain in brief the rules which govern their distribution.

2. Valency is also the number of electrons – donated or accepted by an atom so as to achieve stable electronic configuration of the nearest noble gas'. With reference to this definition –
   a. State what is meant by 'stable electronic configuration'.
   b. State why the valency of –
   i. sodium, magnesium & aluminium is : +1, +2 & +3 respectively.
   ii. chlorine, oxygen & nitrogen is : -1, -2 & -3 respectively.

3. With reference to formation of compounds from atoms by electron transfer – electro-valency, state the basic steps in the conversion of sodium & chlorine atoms to sodium & chloride ions leading to the formation of the compound – sodium chloride.

4. Determine : Atomicity, Valency, Electronic Configuration and No of neutrons present in S ?

5. Write the MF of following Compounds :

   a) Calcium Hydroxide,

   b) Zinc Carbonate

   c) Chromium Oxide

   d) Potassium Dichromate.