SENIOR SECTION
DEPARTMENT OF CHEMISTRY
CLASS IX
STRUCTURE OF ATOM
WORKSHEET- IV

1 Mark Questions:

1.On the basis of Thomson's model of an atom, explain how the atom is neutral as a whole?
2.Where are electrons found in the atom?
3. What are canal rays?
3.Why is the nucleus of an atom positively charged?
4.Why did Rutherford select a gold foil in his α-ray scattering experiment?
5. If Mg^{2+}has 12 protons and 12 neutrons,what is its atomic number and mass number? (CBSE 2010)
6.What are the limitations of Rutherford's model of the atom?
7.Define valency and Give an example of a monovalent element.
8.An atom of an element has 7 electrons in its L shell,name the element and write it's atomic number?
9.Why Mg atom gets 2+ charge when it loses two electrons ?
10.Name the particles which determine the mass of an atom.
11.Which of the following are isotopes and which are isobars? Argon, Protium, Calcium, Deuterium.

2 Mark Questions:

1.What observations in a scattering experiment led Rutherford to make the following observations:
i) Most of the space in an atom is empty.
ii) Nucleus is positively charged.
iii)Whole mass of an atom is concentrated in its centre.
2.Mention any two drawbacks of Rutherford's model.
3. State the characteristics of nucleus of an atom.
4. Describe Bohr's model of the atom?
5.The atomic number of chlorine is 17 and mass number is 35.
a. What would be the electronic configuration of a negatively charged chloride ion, Cl^- ?
b. What would be the atomic number and mass number of Cl^- ?
6.What is electronic configuration and how is the valency of an atom related to it ?
7.Which of the two would be chemically more reactive element,X of atomic number 18 or element Z of atomic number 16 and why?
8.What are isotopes? Why do isotopes show similar chemical properties but they differ in physical properties?
9.Write isotopes of uranium and its uses.
10.Write one pair of Isobars. Why the chemical properties of isobars are not similar?

3 Mark Questions:

1. Explain Rutherford's gold foil experiment with diagram
2.Write three points of difference between isotopes and isobars.
3.The average atomic mass of a sample of an element 'X' is 16.2μ. What is the percentage of each isotope ^{16}X and ^{18}X in the sample?(At.No. of X =8)
4.Define valency of an element. Find the valency of chlorine and magnesium.

5.i)What is the similarity in the electronic structure of the following set of atoms?
Lithium, sodium and potassium.
ii) Which of the above element is most reactive and why?

6.Complete the following table.

Element	At. No.	Mass No.	Protons	Neutrons	Electrons
A	11	-	-	12	-
B	-	35	-	-	17
C	-	-	9	10	-
D	-	20	-	-	10

7.Give reason for the following

a) An atom is electrically neutral

b) Noble gases show least reactivity

c) Nucleus of an atom is heavy and positively charged.

d) Ions are more stable than atoms.

8. An element has an atomic number 12 and mass number 26.Draw a diagram showing the distribution of electrons in the orbits and the nuclear composition of the neutral atom. If this element X combines with another element Y whose electronic configuration is 2,8,7, what will be the formula of the compound thus formed? (CBSE CCE 2010)

9. Name the Scientists who have contributed the following towards the understanding of the atomic structure.

i) Discovery of electrons

ii) Canal rays

iii) Concept of nucleus

iv) Stationary orbits

v) Indivisibility of atoms

vi) Neutron

Value Based Question :

1.In Kaiga nuclear Power Corporation building,drinking water was found to be contaminated with tritium . It is highly radioactive.

a) What is tritium? Write its atomic number and mass number.

b) It is an isotope of which element?

c) Name the other two isotopes of the same element.

d) What precautions do you suggest so that this type of incident does not occur again?

e) What is meant by radioactive?

2. Most of the children burst crackers during diwali.It creates a lot of noise pollution and air pollution. Asthma patients have tough time during diwali.Many children get hurt due to mishandling of fire crackers.Poisonous gases like sulphur dioxide ,phosphorous pentoxide are formed.

a) Name two elements present in gun powder used in crackers.

b) Government has banned bursting of fire crackers after 10pm.Do you agree? Give reason.

c) Why should we not wear synthetic clothes while bursting crackers?