

Niscort Fr. Agnel School
Self-Learning Worksheet
Subject- Chemistry Class-9th
Chapter- 4 (Structure Of Atom)

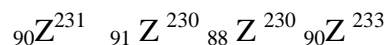
VERY SHORT ANSWER QUESTIONS

1. Draw the electronic structure of the following
 - (i) Calcium
 - (ii) Potassium
2. What was the bold new concept incorporated by Neil's Bohr in the model of the atom?
3. Name the scientist who discovered
 - (i) electron
 - (ii) proton
 - (iii) neutron
4. How does Rutherford's atomic system resemble our solar system?
5. Analogy type questions:
 - a. Goldstein: canal rays; Rutherford:-----
 - b. Cathode rays: negatively charged; anode rays:-----
 - c. Sodium: cation; chlorine:-----
 - d. Mg: 2 valence electrons ; Al:-----

SHORT ANSWER QUESTIONS

6. Compare an electron, and a proton in respect of mass and charge.
7. What is Bohr Bury's rule? Show the distribution of electrons in an atom of the elements with the following atomic numbers: 7, 15, 20.
8. The mass number of an element is 18. It contains 7 electrons. What is the number of protons and neutrons in it? What is the atomic number of an element?
9. An atom of an element X may be written as ${}_4X^9$
 - (i) What do figures 9 and 4 indicate?
 - (ii) What is the number of protons, neutrons and electrons in atom X.

10. Which two of the following nuclei are isotopes of each other?



11. An element has an atomic number of 11 and its mass number is 23. What is the arrangement of electrons in the shells. State nuclear composition of an atom of the element.

12. The element A, B, C, D have atomic numbers of 3, 9, 12, 18 respectively. What are the number of valence electrons in them. Classify them as metals and non metals.

13. Both helium (He) and beryllium (Be) have two valence electrons. Whereas 'He' represents a noble gas element, 'Be' does not. Assign reason.

14. Fill in the gaps:

Mass no.	Atomic no.	No. of protons	No. of electrons	No. of neutrons	Electronic configuration	Name of element	No. of valence electrons	Type of ion formed
12	6							
40	20							
14	7							
24	12							

LONG ANSWER QUESTIONS

15. What name is given to the pair of atoms such as ${}_{7}\text{N}^{14}$ and ${}_{7}\text{N}^{15}$. What are the number of valence electrons in them. Classify them as metals and non metals.

16. Study the data given below and answer the questions which follow:

Particle	Electrons	Protons	Neutrons
A	2	3	4
B	10	9	8
C	8	8	8
D	8	8	10

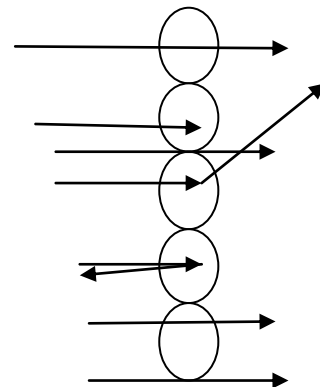
- (i) Write the mass number and atomic number of the particles A, B, C and D.
 - (ii) Which represent a pair of isotopes?
17. (i) Does the atomic number of the element change when its atom gets converted into cation and anion?
- (ii) Calculate the atomic number and mass number of the elements X and Y from the following:
- (a) X ion containing 18 electrons and 18 neutrons.
 - (b) Y^{3+} containing 10 electrons and 14 neutrons.

Name the elements X and Y.

- (iii) What are nucleons ? What is their number called?

18. Look at the adjacent diagram and answer the following questions:

- a. Which famous experiment is being shown here?
- b. Most rays in the above experiment _____
- c. Part 'b' of the question shows that most of the space in an atom is _____
- d. A few rays deflected at _____ angles
- e. Part 'd' of the question shows _____
- f. A very few rays _____ after hitting them
- g. Part 'f' of the question shows _____



VALUE BASED QUESTION

19. Students went to amusement park. First ride could accommodate only 2 students. Teacher decided the first two children alphabetically. Second ride could accommodate 8 children. This time 8 children were selected heightwise. Third ride could have remaining 4 children. All the children were very happy.

- a. Compare the above situation with element. Which element fits into this situation?
- b. Write atomic number of this element.
- c. Is this element metal or a non metal?
- d. What kind of children are there in the above class? What values are possessed by them?
- e. What is the valency of this element?

