

## STRUCTURE OF THE ATOM

### REVISION WORKSHEET

#### CLASS IX

#### SECTION A( 1 mark questions )

##### (A) Multiple Choice Questions

**Q1.** Rutherford's alpha scattering experiment resulted in the discovery of :

- a. Electron
- b. Proton
- c. Nucleus in the atom
- d. Atomic mass

**Q2.** Which of the following is are true for an element

- a. Atomic number = number of protons + number of electrons
  - b. Mass number = number of protons + number of neutrons
  - c. Atomic mass = number of protons = number of neutrons
  - d. Atomic number = number of protons = number of electrons
- i. a & b   ii. a & c   iii. b & c   iv. b & d

**Q3.** Elements with valency 1 are

- a. always metals
- b. always metalloids
- c. either metals or non metals
- d. always non metals

**Q4.** Isotopes contain

- a. Same nuclear charge but different mass number
- b. Different nuclear charge but same mass number
- c. Same nuclear charge and same mass number
- d. Same number of neutrons

##### (B) Assertion and Reasoning

**Direction :** in the following questions , a statement of assertion (A) is followed by a statement of reason (R) . Mark the correct choice as :

- a. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)
- b. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A)
- c. Assertion (A) is true but reason(R) is false
- d. Assertion (A) is false but reason(R) is true

**Q5.** Assertion: calcium and argon are isobars .

. Reason : calcium and argon have the same mass numbers .

**Q6.** Assertion: the number of valence electrons in oxygen atoms is 6 .

Reason : the valency of oxygen atom is 6

**Q7.** Assertion: most of the alpha particles in Rutherfords experiment passed  
straight through the gold foil

Reason : the centre of the atom is positively charged

**(C)Answer very briefly**

**Q9.** Give an application of radioactive e isotope ?

**Q10.** The atomic number of phosphorus is 15. what is the electronic configuration of  
Of  $P^{3-}$  ion ?

**Q11.** The atom as a whole is electrically neutral was proposed by \_\_\_\_\_.

#### **SECTION B (3 mark questions )**

**Q12.** Answer as directed

- a. Why did Rutherford select a gold foil in his alpha scattering experiment ?
- b. Write the name and symbol of the particle chosen by Rutherford for bombardment against the gold foil experiment .

**Q13.** For an element X , it is given that atomic number = 17 and mass number = 35

- a. Write the electronic configuration of the element X .
- b. Find the valency .
- c. What will be the formula of the compound formed between X and Y having valency 3 ?

**Q14.** Answer as directed

- a. What is isobars ?
- b. Atomic number of an element Y is 17.
  - i. Write its electronic configuration
  - ii. What is the number of valency electrons in Y
  - iii. How many electrons are needed to complete the octet of Y
  - iv. Is it a metal or a non metal
- c. The valency of Na is 1 and not 7 . give reason

**Q15.** Two metals elements X and Y combine in the ratio of 3 : 8 by mass and the

compound Z is formed , Z is one of the essential components for photosynthesis to take place . If Z is also a green house gas then

- a. Identify X , Y and Z
- b. Write the electronic configuration of X and Y

**Q16.** State the major drawback in Rutherford's model of the atom . mention two features of Bohr's model that have helped to compensate this drawback .

### SECTION C ( 5 marks )

**Q17.** Answer as directed

- a. Write any two observations that support the fact that atoms are divisible
- b. Enlist the conclusions drawn by Rutherford from his alpha scattering experiment
- c. Write about Rutherford's model of the atom

**Q18.** Answer as directed

- a. What are isobars . give examples
- b. Read the table and answer the questions below

Element	A	B	C	D	E
Mass no.	1	7	14	40	40
Atomic no	1	3	7	18	20

- i. Select a pair of isobars from the table
- ii. Which two sub- atomic particles are equal in number in neutral atoms