

ATOMIC STRUCTURE WORKSHEET-1

1. Fill in the blanks with appropriate words from the given list.
[List: Chemical reaction, hydrogen, two, fusion, nuclear, anu, J.J. Thomson, electrically neutral].
 1. According to Maharishi Kanad, the tiniest of the tiny particle of a pure substance, is called
 2. An atom is the smallest unit of an element which takes part in a
 3. proposed the apple pie pudding model of an atom.
 4. Mass of an electron is $1/1837$ times less than the mass of one atom of
 5. Neutrons are particles having mass equal to one atom of hydrogen.
2. State whether the following statements are true or false. If false, write the correct statement.
 1. The core of an atom is called the nucleus.
 2. An atom always acquires stable configuration of the nearest noble gas by losing electrons from the valence shell.
 3. Helium is the only gas which has 2 electrons in its valence shell.
 4. $^{12}\text{C}_6$ denotes that the element carbon has mass number 6 and atomic number 12.
 5. Non-metals form cations by accepting electrons in their valence shell.
3. Name the following.
 1. The sub-atomic particle with negative charge and negligible mass.
 2. Protons and neutrons present in the nucleus.
 3. The electrons present in the outermost shell.
 4. A phenomenon due to which heavy nucleus splits into lighter nuclei.
 5. Arrangement of electrons in the shells of an atom.
 6. The binding force between atoms in a molecule of a compound.
 7. The number of protons present in the nucleus of an atom.
 8. The sum of the number of protons and neutrons of an atom.
 9. Atoms of the same element with same atomic number but different mass number.
 10. The smallest unit of an element which takes part in a chemical reaction.
4. Give reasons for the following.
 1. As per the modern atomic theory, atoms are divisible.
 2. J.J. Thomson's experiment further led to the discovery of protons.
 3. The maximum number of electrons in the L-shell is 8.
 4. Electronic configuration of calcium whose atomic number is 20 is 2,8,8,2 and not 2,8,10.
 5. Argon — atomic number = 18, is considered a noble gas

5. What are the harmful effects of radioactivity and safety requirements against radioactive radiations?
6. List the properties of α -rays, β -rays and γ -rays.
7. Explain the rule according to which electrons are filled in various energy levels.
8. Name the three fundamental particles of an atom. Give the symbol with charge on each particle.
9. Differentiate between:
 - (a) proton and electron
 - (b) stable and unstable elements
10. Define:
 - (i) Radioactivity
 - (ii) Nuclear fusion
 - (iii) Nuclear fission
 - (iv) Mass number