National Institute of Open Schooling
Secondary Course
Lesson 3 - Atoms and Molecules
Worksheet-3

1. Pure water contains 11.11 of hydrogen and 88.89% of oxygen by mass. What will be the composition of salts such as ammonia, carbon dioxide, sodium chloride and hydrogen sulphide.

2. Analyse if everything is made of atoms. How could scientists be sure that there was not anything smaller than an atom? Explain by using your knowledge of Chemistry.

3. Atoms were thought to be indivisible, later as per studies, we now know that they are made of smaller particles, can we still consider them as building blocks of matter. Give reasons in support of your answer.

4. Nitrogen and Hydrogen combine in the ratio 14:3 by mass to form ammonia molecule. Find the formulae of ammonia molecule by calculating the molar ratio?

5. $C_6 H_{12} O_6$ is the formula for Glucose. What information do you get from this formula.

6. As we know our body constituted approximately 80% of water . Calculate the number of water molecules which are present in the body of a young person whose weight is 62 kg.

7. Calculate the molecular mass of the following compounds:
   $MgO, CaCO_3, NH_3, H_2SO_4.$

8. These are different forms of oxygen ie $2O$, O_2 and O_3). What is the difference between $2O$, O_2 and O_3.

9. Atomic number of uranium is 92. If uranium has three isotopes having 141,143 and 145 neutrons in their nucleus. How would they be the symbol of the isotopes? How does isotopes different from isobars?

10. "A sample of a pure substance always consists of the same elements combined in the same proportion by mass." Which law has proposed this? Explain the law in details.