

The Atom : Worksheet - 20

1) Name the scientist who discovered the following facts about the atom.

- a) He was the first to suggest that matter was composed of small indivisible particles.
- b) He discovered the neutron.
- c) He suggested that most of the mass of the atom was contained in the atomic nucleus.
- d) He suggested that the atom consists of electrons embedded in a positively charged sphere.
- e) He said that atoms combine in simple ratios to form compounds.
- f) He first studied cathode rays in a vacuum tube.
- g) He discovered radioactivity.
- h) He suggested that electrons move around the nucleus just as planets move around the sun.

2)a) What is the mass of the electron in grams ? _____ .

b) What is the mass of the proton in grams ? _____ .

c) What is the mass of the neutron in grams ? _____ .

3)a) What is radioactivity ?

b) Name and describe the three types of radiations emitted by radioactive atoms.

Answers : 1)a) Democritus, b) Chadwick, c) Rutherford, d) Thomson, e) Dalton, f) Crookes, g) Becquerel, h) Bohr, 2)a) 9.11×10^{-28} , b) 1.67×10^{-24} , c) 1.68×10^{-24} (almost the same as the proton), 3)a) Radioactivity occurs when the nucleus of an unstable atom ejects alpha particles, beta particles, or gamma rays., b) alpha particles (helium nuclei,

positively charged), beta particles (fast electrons), and gamma rays (highly penetrating electromagnetic rays).