SCIENCE –CHEMISTRY TOTAL- 20 Marks

1) Which postulate of Dalton's atomic theory can explain the law of definite proportion? **1M**
2) Write the formula of ammonium carbonate. **1M**
3) How many atoms are present in H2S molecule and PO4 3- ion? **2M**
4) If K and L shells of an atom are full, then what would be total number of electron in an atom? What is the valency of this element? **2M**
5) Define atomic mass unit. **1M**
6) What is law of conservation of mass ? **2M**
7) From Rutherford's α - particle scattering experiment give the experimental evidence for deriving the conclusion that
   (i) Most of the space inside the atom is empty.
   (ii) Whole mass of an atom is concentrated in its centre.
   (iii) The nucleus of an atom is positively charged. **3M**

8) An element has mass number 31 and atomic number 15 find **:** **2M**

(i) the number of neutrons in the element, and
(ii) (ii) the number of electrons in the outermost shell.

9) (a) How many electrons are present in the valence shell of nitrogen, oxygen and argon ? **3M**

(b) Nucleus of an atom has 5 protons and 6 neutrons. What is the atomic number, mass number and electronic configuration of the atom?

10) Verify by calculating that: **2M**

a) 5 moles of CO2 has higher mass than 5 moles of H2O.

b) 120g of calcium and 120g magnesium elements have a mole ratio of 3:5