Section A

I. Each question carriers 1 mark **10 X 1 = 10M**

1. To make a saturated Solution, 36 gm of sodium chloride is dissolved in 100 gm of water at 293 K. Find its concentration at this temperature.
2. How will you separate a mixture containing kerosene and petrol (difference in their boiling points is more than 25ºC), which are miscible with each other?
3. Name the technique to separate (a) butter from curd, (b) salt from sea-water, (c) camphor from salt.
4. On the basis of Thomson's model of an atom, explain how the atom is neutral as a whole?
5. Name the three sub-atomic particles of an atom.
6. If K and L shells of an atom are full, then what would be the total number of electrons in the atom?
7. Where is apical meristem found?
8. What does a neuron look like?
9. What do you mean by acceleration due to gravity?
10. What do you mean by buoyancy?

II. Each question carriers 2 marks: **8 X 2 = 16 M**

1. Calculate the number of aluminium ions present in 0.051 g of aluminium oxide. (Hint: The mass of an ion is the same as that of an atom of the same element. Atomic mass of Al = 27 u)
2. Why solid ice does changes its state when it is kept at room temperature and also explain when does it get evaporated?
3. What are canal rays?
4. On the basis of Rutherford's model of an atom, which subatomic particle is present in the
5. nucleus of an atom?
6. Write the difference between mixture and a compound?
7. Write the distribution of electrons in carbon and sodium atom?
8. What are the limitations of Rutherford's model of the atom?

III. Each question carriers 3 marks: **8 X 3 = 24M**

1. Why is the weight of an object on the moon 1/6th its weight on the earth?
2. An object thrown at a certain angle to the ground moves in a curved path and falls back to the ground. The initial and the final points of the path of the object lie on the same horizontal line. What is the work done by the force of gravity on the object?
3. A battery lights a bulb. Describe the energy changes involved in the process.
4. Write an expression for the kinetic energy of an object.
5. Give reasons for the following observation: The smell of hot sizzling food reaches you several metres away, but to get the smell from cold food you have to go close.
6. Give reasons
   (a) A gas fills completely the vessel in which it is kept.
   (b) A gas exerts pressure on the walls of the container.
7. Convert the following Temperature to Celsius scale:
   a. 300 K
   b. 573 K
8. Suggest a method to liquefy atmospheric gases.

Each question carriers 5 marks **5 x 3 = 15 M**

1. Arrange the following substances in increasing order of forces of attraction between the particles - water, sugar, oxygen.
2. Give two reasons to justify
   a. Water at room temperature is a liquid.
   b. An iron almirah is a solid at room temperature.
3. Differentiate between homogeneous and heterogeneous mixtures with examples.

Section B:

IV. Choose the correct answers: **15x 1= 15 M**

1. Which of the following will show “Tyndall effect”?
   A. Salt Solution
   B. Milk
   C. Copper sulphate Solution
   D. Starch Solution
2. Identify the Solutions among the following mixtures.
   A. Soil
   B. Sea water
   C. Air

D. Coal
E. Soda water

3. Calculate the number of moles of sodium hydroxide, NaOH, corresponding to 10.84×10^{23} formula units of NaOH.

   A. 1.8 mol
   B. 0.56 mol
   C. 65 mol
   D. 1.5 mol

4. Reptiles are _____blooded animals
   A. Cold- blooded animals
   B. Warm blooded animals
   C. Both A & B
   D. None of these
5. Iron rusts as iron atoms react with oxygen in the air. Which of the following forms of iron would rust the fastest?
   A. Iron fillings
   B. Iron nail
   C. Thin iron plate
   D. Solid iron cube
6. A chlorine atom has the electron configuration of $[Ne]3s^2 3p^5$.
   According to the valence-bond theory, the covalent bond in a molecule of chlorine (Cl_2) forms from

   A. A 3*p* orbital from one chlorine atom only.
   B. A hybrid of 3*p* orbitals and 2*p* orbitals.
   C. The overlap of two 3*p* orbitals, one from each chlorine atom.
   D. A hybrid between a 3*s* orbital and a 3*p* orbital.
   E. The overlap of two 3*s* orbitals, one from each chlorine atom.
7. Which of these values is smallest?
   A. The number of known atoms
   B. The numbers of mixtures
   C. The number of known elements
   D. The number of pure substances
8. The chemical symbol for chlorine is Cl. The symbol below describes chlorine–In every neutral atom, the number of protons always equals the number of

   A. Electrons plus or minus 1.
   B. Electrons.
   C. Neutrons
   D. Electrons plus neutrons.
   E. Neutrons minus electrons.

9. During which of the following processes is energy absorbed?

I. Boiling
II. condensing
III. evaporating
IV. freezing
V. melting
VI. sublimating

A. I, II, V, VI only
B. II and IV only
C. I, IV, and V only
D. II, III, and IV only

10. Which of the following elements has the highest electronegativity?

A. sulfur (S)
B. chlorine (Cl)
C. oxygen (O)
D. fluorine (F)

11. Newton's _____ law of motion states that "The acceleration of an object as produced by a net force is directly proportional to the magnitude of the net force, in the same direction as the net force, and inversely proportional to the mass of the object."

A. First
B. Second
C. Third
D. Fourth

12. A group of tissues working together is _____

A. a cell
B. organelle
C. a compound
D. an organ

13. Who is considered as “father of Taxonomy

A. Carl Linnaeus
B. Whittaker
C. Charles Darwin
D. Mendel

14. Hydra belongs to _____Phyla.
    A. Porifera
    B. Nematoda
    C. Platyhelminthes
    D. Coelenterate
15. Give the names of the elements present in the following compounds:
    (a) Quick lime
    (b) Hydrogen bromide
    (c) Baking powder
    (d) Potassium sulphate