

SEMESTER—ONE**CHEMISTRY**

Class XI

Student Name:

Date:

Period—I : Topic 1**SOLUTION AND SOLUBILITY****Multiple Choice Questions**

Select and write one most appropriate option out of the four options given for each of the questions 1 – 5.

- Molarity of 0.2 N H_2SO_4 is
 - 0.2
 - 0.4
 - 0.6
 - 0.1
- One molar solution of sulphuric acid is equal to
 - normal solution
 - N/2 solution
 - 2 N solution
 - 4 N solution.
- A 5% solution of cane sugar is isotonic with 1% solution of unknown solute. The molar mass of unknown solute in g mol^{-1} is
 - 34.2
 - 68.4
 - 171.2
 - 136.2
- Which of the following is dependent on temperature?
 - Molarity
 - Mole fraction
 - Weight percentage
 - Molality
- The mole fraction of a solvent in aqueous solution of a solute is 0.8. The molality of the aqueous solution (in mol kg^{-1}) is
 - 13.88×10^{-1}
 - 13.88×10^{-3}
 - 13.88
 - 13.88×10^{-2}

Fill in the Blanks

Fill in the blanks with a suitable word for each of the questions 1 – 5.

1. The ratio of the number of moles of solvent to the total number of moles of solute and solvent is called _____ .
2. Aerated drinks in an example of _____ in _____ solution.
3. Substances whose standard solution cannot be prepared directly are called _____ .
4. Mixing 200 cm^3 of 0.50 M NaOH with 100 cm^3 of 0.50 M NaOH will give a new solution of _____ M.
5. A decimolar solution of NaOH contains _____ g NaOH per litre of the solution.

True or False

State whether the following statements are true or false for each of the questions 1–5.

1. Homogeneous solutions are solutions with non-uniform composition and properties throughout the solution.
2. Molality of a solution is defined as the number of gram mole of the solute present per litre or per cubic decimeter of the solution.
3. A solution having normality equal to unity is called a normal solution.
4. The molality of a solution does not change with change in temperature.
5. The excess hydrostatic pressure which builds up as a result of osmosis is called osmotic pressure.

Theoretical and Numerical Type Questions

Answer each of the questions 1 – 5.

1. What happens to the vapour pressure of water when some table salt is dissolved in it?

2. What is the difference between the freezing point depression of 0.1 M sodium chloride solution and that of 0.1 M glucose solution?

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3. State Henry law. What is the significance of Henry law constant K_H ?

4. Differentiate between osmosis and diffusion.

5. A solution prepared by dissolving 8.95 mg of a gene fragment in water to form 35.0 ml of solution. The osmotic pressure of the solution at 25°C is 0.335 torr. Assuming gene fragment to be non-electrolyte, calculate its molar mass.

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