Chemistry - 11th Class Chemistry Short Questions Chapter 9 Preparation

Q1. Polar solids are not dissolved in on-non-polar solvent,give reason?

Ans 1: There is a general principal that "like dissolve like".That;s why polar compounds are not dissolve in non-polar solvent because their nature matches with each other.

Q2. Why hydration energy of Na^+ Ion is less than Li^+ Ion?

Ans 1: Hydration energy of an ion depends upon two parameters .

1. Ionic Radii
2. Charge density

Greater the ionic radii of monopositive ions, smaller is the heat of hydration and vice versa. Hence Na^+ Has greater size than Li^+ That's why its heat of hydration is low.

Q3. What are the names major parts of apparatus used in Landsberger's method for elevation of boiling point?

Ans 1:

1. An inner tube with a hole in its side.This tube is graduated.
2. A boiling flask which send the solvent vapours into the graduated tube through a rosehead..
3. An outer tube, which receives hot solvent vapours coming from the side hole of the inner tube.
4. A thermometer which can read up to 0.01K.

Q4. Define consulate solution temperature with example (what is consulate temperature)?

Ans 1: Consulate Temperature: The temperature at which two conjugate solutions merge into each other to form homogeneous mixture is called critical solution temperature or consulate temperature.e.g Water -Aniline has consulate temperature 167°C with 15% H_2O.

Q5. What is upper consulate temperature and give one example?

Ans 1: The temperature of 65.9°C at which two conjugate solutions merge into one another is called critical solution temperature or upper consulate temperature .For Example 34% phenol and 66% water solution.

Q6. Fractional crystallization technique is used to purify the chemical products.Justify?

Ans 1: The separation of solid substance from a solution one by one on cooling is called fractional crystallization.Solubilities depends upon temperature.
E.g.Solubility of KNO_3 Rapidly changes with temperature but solubility of KCl and Kbr changes gradually.Thus one substance may precipitate earlier by cooling, leaving behind others.

Q7. Define solubility giving one example?

Ans 1: The solubility is defined as the concentration of the solute in the solution when it is in equilibrium with the solid substance at a particular temperature. Solubility is expressed in terms of number of grams of solute in 100g of solvent. At a particular temperature, saturated solution of NaCl in water at O° C contains 37.5g NaCl in 100g of water.

Q8. Define "heat of solution" and "hydration energy"?

Ans 1: The quantity of heat energy that is absorbed or released when a substance forms solution, is termed as heat of solution. When ionic compound is dissolved in water, the first step is the separation of ions from solid and second step is separated ions are surrounded by solvent molecules.A Hydrated ion is attracted by the solvent dipoles and energy is released, so second step is exothermic. The energy given out by the second step is known as the hydration energy .

Q9. The total volume of the solution by mixing 100 cm^3 Of water 100 cm^3 Of alcohol may not be equal to 200 cm^3 Justify it?

Ans 1: Alcohol and water are mix in all proportions.However, the properties of such solutions are not strictly additive.Generally, the volume decreases ,mixing but in some cases it increases.Heat may be evolved or absorbed during the formation of such solutions.

Q10. What is critical solution temperature? Give the critical solution temperature of phenol water system?

Ans 1: Critical Temperature: The temperature at which two conjugate solutions merge into each other to form homogeneous mixture is called critical solution temperature or consulate temperature.
Phenol-Water system has critical temperature of 65.9°C at which two conjugate solution merge into one another.