Chemistry - FSC Part 1 Chemistry Full Book Short Question Preparation

Q1. **What is the distribution coefficient? To which technique it is applicable.**

Ans 1:

Q2.

Define sublimation with an example?

Ans 1: The vapourization of a solid directly on heating without passing through the liquid phase and the condensation of these vapours on cooling to solid without passing through liquid phase is called sublimation. Naphethalene, Iodive, NH_4CI, Benzoic acid and Camphor undergo sublimation.

Q3. **What the experimental yield is mostly less than the theoretical yield?**

Ans 1:

. Experimental yield is mostly less than theoretical yield due to the following reasons.

(1) Mechanical loss of products due to:

      (a) . Filtration

      (b) Separation by distillation

      (c) Separating by separating funnel

      (d) Washing

      (e) Drying

      (f) Crystallization

(2)Side reaction.

(3)Reversibility of reaction.

Q4. Define pH and pOH.Give its equation?

Ans 1: pH:The negative logarithm of H^+ Ions concentration is called pH.

pH = -LOG$[H^+]$

pOH:The negative logarithm of OH^- Ions concentration is called pOH.

pOH =-log $[OH^-]$

Q5. Differentiate between electrolytic cell and voltaic cell.

Ans 1: Electrolytic Cell:

1. The electrochemical cell in which electrical energy is converted into chemical energy is called Electrolytic cell.
2. In this cell, non-spontaneous reaction occurs.

3. Electric current is used to drive the non-spontaneous oxidation reduction reaction.
4. Electrolysis takes place in this cell.

Example: Down's cell, Nelson"s cell

Ans 2: Voltaic cell:

1. The electrochemical cell in which chemical energy is converted into electrical energy is called Voltaic cell.
2. In this cell, spontaneous reaction occurs.
3. Electric current is produced due to spontaneous reaction.
4. Electric conduction takes place in this cell .

Example: Daniel's cell , Fuel cells.

Q6. Can sugar cannot be dissolved in benzene.Give reason?

Ans 1: Can-sugar is apolar covalent substance and it is soluble in polar solvent like water. Sugar dissolve in water due to the formation of H-bonding between solute-solvent,but not in benzene.As we simply say that solubility based upon principle"Like dissolves like".

Q7. Define the electrochemical serie?

Ans 1: The elements are arranged in the order of their standard electrode potentials on the hydrogen scale, the resulting list is known as electrochemical series. This list have been prepared by comparison with standard hydrogen electrode (SHE).In this list, elements above SHE have negative reduction potential while below have positive reduction potential .

Q8. Na and K can displace hydrogen from acids but Pt, Pd and See you cannot.Comment on it?

Ans 1: Greater the value of standard reduction potential , lesser is the ability to loose electrons.Hence its reactivity is less. Na and K are highly reactive metals.They can easily displace hydrogen from acid whereas Pt, Pd See you are least reactive metal.Therefore cannot easily displace hydrogen.

Q9. **Why the electron affinities of II-A are less then those of I-A?**

Ans 1: The elements of II-A have fulfilled outermost s-orbitals, so electron has to be accommodated in the higher orbitals. Their electron affinities are positive. The elements of I-A can accommodate incoming electron in partially filled s-orbital.

Q10. A porous plate or a salt bridge is not required in lead storage cell.Give reason?

Ans 1: A porous plate or salt bridge is used in those cells where two different electrolytes are used and are required to keep separate.In case of lead storage cell, only dil.H_2SO_4 is used as an electrolyte. Hence, no separation is required by porous plate or salt bridge.

Q11. **Give the main uses of paper chromatrography.**

Ans 1:

i. For the separation of purification of coloured organic compounds.

ii.For checking the purity of the compounds.

iii.In qualitative and quantitative analysis.

iv.For the separation, purification and identification of products of reactions.

Q12. Differentiate between electrolysis and electrolytic conduction?

Ans 1: Electrolysis; The process in which electricity is used to carry out a non-spontaneous redox reaction is called electrolysis. Electrolytic Conduction: The conduction of electricity carried out by ions present in fused or aqueous solution of an electrolyte is called electrolytic conduction.

Q13. Mention the major steps involved in the crystallization.

Ans 1:

i.Preparing the saturated solution.

ii.Filtering the impurities.

iii.Cooling of the filtrate.

iv.Collection of crystals.

v.Drying of crystals.

Decolourinzation

Q14. State ebullioscopeic constant and cryoscopic constant?

Ans 1: Ebullioscopic constant: It is elevation in boiling point which is produced,when 1 mole of solute is dissolved in 1 kg of solvent.It is denoted by K_b. Its value is 0.52C° for water.

Cryoscopic constant: It is depression in freezing point which is produced when q mole of solute is dissolved in 1 kg of solvent. It is denoted by K_f

Its value is 1.86 C° for water

Q15. What is atomic mass unit? Give its values in grams.

Ans 1: It is a unit of mass used for atoms and molecules and is equal to the 1/12 of the mass of an atom of carbon—12. It is obtained by dividing the unity by Avogadro's number (6.02×10^{23}).

Q16. Define the term analysis.

Ans 1: The process of determination of composition of a substance quantitatively or qualitatively is called analysis.

Q17. Give four rules for assigning of oxidation number?

Ans 1:

1. The oxidation number of free elements is zero.For example H, Mg, Na.as charge on the ion.
2. Oxidation number of hydrogen in all its compounds is +1 except metal hydride where it is -1
3. In neutral molecules, the algebric sum of oxidation number of all the elements is zero.

Q18. Define catalytic poisoning with example?

Ans 1: Deactivation of catalyst by small amount of impurities is called catalytic poisoning.It may be temporary or permanent. E.g. In Haber's process of CO as an impurity with hydrogen decreases the catalytic activity of catalyst

Q19. Calculate percentage by weight of NaCl when 2g of NaCl is dissolved in 20g of water?

Ans 1: Mass of NaCl =2g
Mass of water =20g
Mass of solution= 20+2=22g
%by weight of NaCl=2/22x100=9.09%

Q20. Ionization energy of the element is the binding energy of the nucleus and the electron. Why is it measured when the atom is in the gaseous state?

Ans 1: The outermost electrons are attracted by the nucleus. If the atom is closer to some other atom of its own kind or of different kinds, then the outermost electrons are being attracted or repelled by other species as well. In that situation, it is not possible to guess the forces of attractions within the nucleus and the outermost electron.