

Chemistry - FSC Part 1 Chemistry Full Book Short Question Preparation

Q1. How does a Gooch crucible increase the rate of filtration?

Ans 1: This crucible is made up of porcelain. It has perforated base covered with a filter paper or asbestos mate. Filtration can be done quickly if this crucible is placed in a suction filtering apparatus.

Q2. What is meant by mother liquor?

Ans 1: The solution which remains behind after the formation of the crystals is called mother liquor.

Q3. Why the electron affinities of II-A are less than 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.

Q4. The energy difference between adjacent levels goes on decreasing sharply. Why?

Ans 1:

If we put the value of n as 1,2,3,4 we get the energies of various orbits of hydrogen atom. These values are as follows:

$$E_1 = -2.18 \times 10^{-18} \text{J}$$

$$E_2 = -0.54 \times 10^{-18} \text{J}$$

$$E_3 = -0.24 \times 10^{-18} \text{J}$$

$$E_4 = -0.14 \times 10^{-18} \text{J}$$

As is clear from these values that energy differences between adjacent levels go on decreasing from lower to the higher level.

Q5. What are application of buffer in daily life?

Ans 1: Buffers are important in many areas of chemistry and allied science like molecular biology, microbiology, cell biology, soil science, nutrition and the clinical analysis.

Q6. What is the distribution coefficient? To which technique it is applicable.

Ans 1:

Q7.

Solid sodium chloride does not conduct electricity, but, when electric current is passed through molten sodium chloride or its aqueous solution, electrolysis takes place. Give reason.

Ans 1: In solid, NaCl, the oppositely charged ions are fixed at their positions. So they do not conduct electricity in the solid state. In the molten state or solution state the ions are free to move towards the respective electrodes.

Q8. Compare order of reaction and molecularity?

Ans 1: Order:

1. The number of molecules whose concentration change in a chemical reaction.
2. It is an experimental quantity.
3. It may be fractional.
4. It may be zero.

Ans 2: Molecularity:

1. The number of molecules involved in a chemical reaction.
 2. It is a theoretical quantity.
 3. It always whole number.
 4. It is never zero.
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Q9. What is R_f value?

Ans 1:

Ans 2:

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Q10. Why every series of H-spectrum is a convergent series?

Ans 1:

The lines of the every series of H-spectrum are not equally spaced. The reason is that energy levels are not equally spaced. Energy levels become close to each other from lower to the higher levels. For this reason, the lines start coming close to each other. The non-equivalent energy differences make the convergent series.

Q11. 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.

Q12. In Joule-Thomson effect sudden expansion of the gas molecules needs energy. Why?

Ans 1: In the compressed state, there are sufficient attractive forces among the molecules of the gas. During sudden expansion, the energy is required to overcome the intermolecular attractions. Moreover, the molecules need extra energy to run away in vacuum.

Q13.

Mention various experiment techniques which are used for the purification of substances?

Ans 1:

The techniques are as follows:

- (i) filtration
 - (ii) Crystallization
 - (iii) Sublimation
 - (iv) Solvent extraction in depends upon the nature of the substances, that which technique is to be used.
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Q14. **Molecular solids are soft and easily compressible. Why?**

Ans 1: The molecules in such crystals are present at the lattice points. There are van der waal's forces among the molecules of such solids. There forces are weak. So, there solids are soft and easily compressible.

Q15. **Distinguish between actual and theoretical yield.**

Ans 1:

Q16. A mixture of NH_4OH and NH_4Cl gives a basic buffer. Justify the statement ?

Ans 1: A buffer which consists of a weak base and its salt with strong acid is called basic buffer. Since NH_4OH is a weak base and NH_4Cl is its salt with strong acid. Therefore it is basic buffer.

Q17. How can you determine K_{sp} From solubility?

Ans 1: Solubility are given in number of grams of solute per 100g of H_2O . Since density of H_2O is 1 g cm^{-3} . Therefore solubility can be written as number of grams of solute/100 cm^{-3} Of solvent. From the amount of solute/ dm^3 is calculated. Then amount in grams is converted into moles and using equilibrium K_{sp} Can be calculated.

Q18. **The abnormality of bond length and bond strength in HI is less prominent than that of HCl. Give reason.**

Ans 1: Chlorine has higher electronegativity than iodine. So, the polarities of HCl and HI bonds are unequal. Therefore, abnormality of bond length and bond strength of HCl is more prominent than HI.

Q19. What are buffer solutions? How a basis buffer can be prepared?

Ans 1: The solution that resists in pH changes when small amount of an acid or a base is added to it is called buffer solution. Basic buffers are formed by mixing a weak base and its salt with strong acid. Such solution will give basic buffers with pH more than

7. Mixing of NH_4OH and NH_4Cl is one of the best example of such a basic buffer.

Q20. State Le-Chatlier's principle?

Ans 1: Le-Chatlier's principle: If stress is applied to a system at equilibrium, the system will act in such a way so as to nullify as far as possible the effect of that stress.
