

Answer key

1. a. Peptization - Conversion of precipitate into colloidal solution in presence of peptising agent

Is called Peptization.

b. Reversible sols - Those sols in which dispersion medium can be separated from the dispersed phase, e.g. by evaporation. The sol can be made again by remixing with dispersion medium. e.g. lyophilic sols.

2.

Order of reaction	Molecularly.
i) It is the sum of powers to which concentration terms are raised in rate law equation.	i) It is the sum of number of molecules which takes part in chemical reaction.
ii) It is determined experimentally, can be in fraction and even zero.	ii) It is determined theoretically and is always whole number.

3. i) $C_6H_5NH_2 < C_6H_5NHCH_3 < C_6H_5CH_2NH_2$

ii) $C_6H_5NH_2 < CH_3CH_2NH_2 < CH_3NHCH_3$.

4. Nernst equation

Ans - 0.4105V.

5. Rate of production of $N_2 = 2.5 \times 10^{-4} \text{ Mol L}^{-1} \text{ s}^{-1}$.

Rate of production of $H_2 = 7.5 \times 10^{-4} \text{ Mol L}^{-1} \text{ S}^{-1}$.

OR

(i) $3.47 \times 10^{-3} \text{ s}$.

(ii) 0.35 minute

(iii) 0.173 years

6. i) It is because there are weak Van der Waal's forces of attraction which decreases with increase temperature.

ii) Alum coagulated the suspended impurities and makes water fit for drinking.

iii) The Brownian movement has strong effect which does not permit colloidal particles to settle and thus, it is responsible for the stability of colloidal solution.

OR

(i) The path of the light is clearly visible due to scattering of light by colloidal particles.

(ii) It gets coagulated due to neutralisation of charge on hydrated ferric oxide sol.

(iii) Colloidal particles move towards oppositely charged electrode and this phenomenon is called electrophoresis.

7. i) It is due to the presence of vacant d- orbitals of suitable energy, smaller size of atoms and higher charge.

ii) It is due to the increase in effective nuclear charge gradually because unpaired electrons increase in the beginning with no repulsion. There is repulsion between paired electrons after middle of series, therefore effective nuclear charge increases a little.

iii) Zn in its ground state and in its normal oxidation state has completely filled d - orbitals.

8. i) It is due to the presence of unpaired electrons and there is more frequent metal-metal bonding in 5d series than 3d and 4d series.

ii) It is due to comparatively smaller size and higher ionisation enthalpies.

iii) Zn has lowest ionisation enthalpies due to absence of unpaired electrons.

9. (i) potassium trioxalatoferrate(III)

(ii) Tetraaminedichloridoplatinum(IV) chloride.

(iii) Triaminedichloridonitrosyl platinum(IV) bromide.

OR

(I) sp^3 hybridisation, tetrahedral shape and paramagnetic in nature.

(ii) sp^3 hybridisation, tetrahedral shape, diamagnetic in nature.

10. (I) propanone $\xrightarrow{LiAlH_4}$ propan-2 ol.

(ii) Ethanal \xrightarrow{HCN} 2- hydroxypropanoic nitrile $\xrightarrow{H_2O, H^+}$ 2- hydroxy propanoic acid.

(iii) Toluene $\xrightarrow{KMnO_4/KOH, \Delta}$ benzoic acid.

11. A- Benzoic acid

B- Benzamide

C- Aniline

OR

I) when primary amine reacts with chloroform and potassium hydroxide, it forms isocyanide which is an offensive smelling compound.

+ Reaction.

ii) when Aniline is reacted with $NaNO_2$ and conc. HCl at $0-5^\circ C$, benzene diazonium chloride is formed. + Reaction.

(iii) When amides react with Br_2 and KOH to form lower amines it is called Hoffman's bromamide reaction. + Reaction.

12. Solving---

Molecular formula $-C_5H_{10}O$

Structure- $CH_3-CO-CH_2-CH_2-CH_3$.

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PGT CHEMISTRY

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