SAMPLE QUESTIONS

CLASS-S.Y.B.Sc

Sem IV

Chemistry -1

Physical Chemistry

1. Identify the type of given cell.

$^{(-)}Ag|AgCl(s)$, $HCl(a_1)$ | $HCl(a_2)$, $AgCl(s)|Ag^{(+)}$

(a) Electrolyte concentration cell with transference reversible to cation
(b) Electrolyte concentration cell without transference reversible to cation
(c) Electrolyte concentration cell without transference reversible to anion
(d) Electrolyte concentration cell with transference reversible to anion

2. For the system **Water** $\Longleftrightarrow$ **vapor** , number of degree of freedom is _____ .

(a) zero
(b) one
(c) two
(d) three

3. The potential of _____ is **0.242V.**

(a) Saturated calomel electrode
(b) Standard hydrogen electrode
(c) Quinhydrone electrode
(d) Daniel cell

4.. For a cell **Zn | Zn^{+2} (1M) || Ag^{+} (1M) | Ag** ,

$E^0_{Zn+2/Zn}$ = - 0.76V and **$E^0_{Ag+/Ag}$ = 0.80V** . What is E^0 of cell?

a) - 1.56 V
b) 1.56V
c) 0.04V
d) -0.04V

`5. Zinc- Magnesium system is an example of _____ .

(a) Two component solid-liquid system with formation of compounds having incongruent melting point

(b) Two component solid-liquid system with formation of compounds having congruent melting point

(c) Two component solid-solid system with formation of compounds having incongruent melting point

(d) Two component solid-solid system with formation of compounds having congruent melting point

Inorganic Chemistry

1) ---------- among the following minerals is a source of Vanadium metal
   a) Carnotite
   b) Thortveitite
   c) Malachite
   d) Galena
2) The paramagnetic moment of Sc^{2+} is ---------- as per spin only formula
   a) √2BM
   b) √5 BM
   c) √3 BM
   d) √35 BM
3) The IUPAC name of the coordination compound $[Co(NH_3)_6]Cl_3$ is ----------
   a) Hexammine Cobalt (III) Chloride
   b) Hexaammonium Cobalt (II) Chloro
   c) Trichloride Cobalt (II) ammine
   d) Hexaaamonium Cobalt (III) CHLORIDE
4) The---------- complex $[Co(NH_3)_4Cl_2]$ will ----------
   a) Trans isomer, exhibit optical isomerism
   b) Cis isomer, exhibit optical isomerism
   c) Trans isomer, exhibit fac mer isomers
   d) Cis isomer, exhibit fac mer isomers
5) VCl_4 on hydrolysis with water forms ----------
   a) $VOCl_3$
   b) $VOCl_2$
   c) $V(OH)_3$
   d) $VOCl_4$

Organic Chemistry (UNIT III)

1)The increasing order of reactivity of acid derivatives is ..... .

a) acid ester acid halide < acid anhydride < acid amide

b) acid amide < acid halide < acid anhydride < ester

c) acid amide < ester < acid anhydride < acid halide

d) acid halide < acid anhydride < ester < acid amide

2) Statement A: Nucleophilic Acyl Substitution is an elimination- addition reaction

Statement B: Interconversion of acid derivatives follows Nucleophilic acyl substitution

a) Statement A is True and Statement B is False

b) Statement A is False and Statement B is True

c) Both Statement A and B are True

d) Both Statement A and B are False

3)$CH_3COOH + NaHCO_3 \longrightarrow$ Effervescence

a) Effervescence is due to evolved CO_2 from CH_3COOH

b) Effervescence is due to evolved CO_2 from $NaHCO_3$

c) Effervescence is due to evolved $H_2$from CH_3COOH

d) Effervescence is due to evolved H_2 from $NaHCO_3$

4)Strength of benzoic acid can be increased by the presence of ..... group in the ring.

a) $-CH_3$

b) -OH

c) $-NO_2$

d) $-NH_2$

5) Sulphonation of benzene is a ……. reaction.

a) nucleophilic addition

b) electrophilic addition

c) nucleophilic substitution

d) electrophilic substitution

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