M.CT.M.CC. HR SEC SCHOOL-KANADUKATHAN

SECOND MID TERM MARCH-2021

XII STD **CHEMISTRY**

MAX:50 TIME: 1.30 Hrs

PART A

I.CHOOSE THE BEST ANSWER **10 X 1 =10**

1.In the electrolytic refining of copper, which one of the following is used as anode
a.Pure copper b.Impure copper c. Carbon rod d.Platinum electrode

2. The geometry of which carbon atom in diamond are bonded to each other is
a.Tetrahedral b.Hexagonal c.Octahedral d. None of these

3. Assertion: $La(OH)_3$ is less basic than $Lu(OH)_3$
Reason: Covalent character of $Ln(OH)_3$ decreases on moving from La^{3+} to Lu^{3+}
a. A and R are true and R is the correct explanation of A
b. Both A and R are true and R does not explain A
c. A is true but R is false
d. Both A and R are false

4.Number of unpaired electrons in $[Ni(CN)_4]^{2-}$ complex is
a. 0 b. 1 c.2 d.3

5.Solid CO2 is an example of
a. Covalent solid b. Metallic solid c.Molecular solid d. Ionic solid

6.If the initial concentration of the reactant is doubled,the time for half reaction is also doubled. Then the order of the reaction is
a.Zero b.One c.Fraction d. None

7.The amount of substance deposited at the electrode by a charge of 1 coulomb
a.Equivalent weight b. Molecular weight c. Molar weight d.Electrochemical equivalent

8.Chemical species that differ only by a proton are called
a.Proton donor b. Proton acceptor c.Electron donar d.Conjugate acid-base pair

9.Williamson synthesis of preparing di methyl mether is a / an
a.SN1 reaction
b.SN2 reaction
c.Electrophillic addition
d.Electrophillic substitution

10.On Kolbe electrolysis of sodium acetate, _____ is obtained at cathode.
a.Ethane b. Carbon dioxide c.Sodium d. Hydrogen

Part-B

Answer any five(Q.No 18 is compulsory) 5 X 2=10

11.Write a short note on anamolous behaviour of first element of P block elements.
12.What is Bragg's equation? How will you calculate density of unit cell? [Equations only]
13.Which is more stable. Fe^{2+} or Fe^{3+}. Why?
14.Write the differences between Primary valency and secondary valency?
15.Calculate the pH of 0.5 x 10^{-3}m solution of $Ba(OH)_2$
16.How Acrolein is prepared?
17.Explain Arreheius equation?
18.A solution of silver nitrate is electrolysed for 20 minute with a current of 2 amperes. Calculate the mass of silver deposited at the cathode.

PART-C

Answer any 5 (Q.No 26 is compulsory) 5 X 3=15

19.State Kohlraush law. Write its applications?
20.Convert a. Benzladehyde to Benzoin b.Phenol to salicylic acid.
21.Write the equations invloved in i.Mond process ii.Van-Arkel method
22.Why $[Cr(NH_3)_6]^{3+}$ is paramagnetc while $[Ni(CN)_4]^{2-}$ is diamagnetic.Explain?
23.Derive Ostwald dilution law?
24.What is Popoff's rule.Give example?
25.Write notes on Schottky and Frenkel defect?
26.Show the in a first order reaction, the time required for 99.9% completion is nearly ten times the time required for half completion of the reaction?

PART-D

Answer all the questions: 3 x 5 =15

27.a. Write the causes and consequences of Lanthanide contraction?
b. What are interstitial compounds. Give examples?
(or)
c.In the complex $[Pt(NO_2)(H_2O)(NH_3)_2]Br$
Identify a. Central metal ion b.Ligands c.Oxidation number of central metal ion.
d.What is Ethyl borate test?

28.a.Derive Henderson-Hasselbach equation?
b.Find the pH of a buffer solution containing 0.20 mole per litre sodium acetate and 0.18 mole per litre acetic acid, Ka for acetic acid is 1.8 x 10^{-5}
(or)
c.Derive Half life period of first order reaction?
d.Explain the packing efficiency in BCC crystal?

29. a.Write notes on a. Perkin reaction b. Crossed aldol condensation

b. Explain the mechanism of Cannizaro reaction.

(or)

c.A compound (A) with molecular formulae C_2H_3N on acid hydrolysis gives B which reacts with thionyl chloride to give C. Benzene reacts with compound C in presence of anhdrous AlCl3 give compound D. Compound D on reduction with Zn/Hg and Con.HCl gives E. Identify A,B,C,D and E.