FIRST TERMINAL EXAM
CLASS XII SUB:CHEMISTRY
SESSION 2017-18

MM 70 **Time :3 Hrs**

Q 1 to 5 1 mark each
Q 6 to 10 2 Marks each
Q11 to 22 3 Marks each
Q 23 4 Marks
Q24 to 26 5 Marks each

Q1. Write a chemical reaction in which the iodide ion replaces the diazonium group in a diazonium salt

Q2. Cyclohexanone reacts with semicarbazide .write the reaction and name the product formed

Q3. Which Halogen has tendency to form Cation?

Q4. Why is H_3PO_2 a stronger reducing agent than H_3PO_3 ?

Q5. Articles of iron are generally coated with zinc Explain.

Q6. A first order reaction takes 40 minutes for 30% decomposition,Calculate its half life period.

Q7. Explain:

a) Why Aniline does not undergo Friedel Crafts reaction?

b) Iodoform is obtained by the reaction of acetone with hypoiodide ion but not with iodide ion why?

Q8. Discuss the mechanism of acid catalyzed hydration of alkenes

OR

Illustrate the following name reactions with one example
a)Hofmann Bromadide reaction
b)Coupling reaction

Q9. Which out of 0.1MHCl and 0.1M NaCl do you expect to have greater Molar conductivity at infinite dilution and why?

Q10. When a current of 0.75 A is passed through a copper sulphate solution for 25 mins 0.36 gms of copper is deposited at the cathode .Calculate the atomic mass of Copper.

Q11. Explain why:

a) Bond angle in PH_4^+ ion is higher than PH_3 why?

b) PH_3 forms bubbles when passed slowly in water but NH_3 dissolves why?

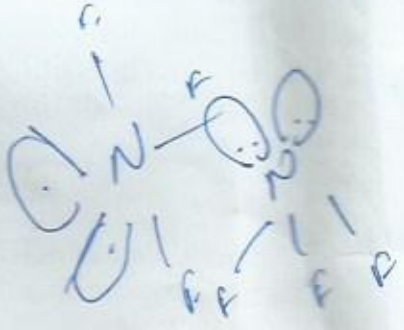
c) Nitrogen exist as diatomic molecule while Phosphorous exisiit as tetraatomic molecule why?

Q12 Organic Conversions:

a)Phenol to Picric acid
b)Aniline to Sulphanillic acid
c)Acetone to Acetophenone

OR

a)Ethyne to Nitrobenzene
b)Benzaldehyde to Phenylethene
c)Aniline to nitrobenzene



Q13. Explain why:

a) Nitrogen forms NF_3 but not NF_5 why?

b) NO is paramagnetic in the gaseous state but diamagnetic in the solid or liquid state.Justify

c) Chlorine water loses its colour on standing why?

Q14. Explain why:

a) Formic acid reduces Tollens reagent but Acetic acid does not explain?

b) Gabriel Pthalimide synthesis can be used to prepare aliphatic primary Amine but not aromatic amine why?

Q15. Calculate the emf of the cell in which the following reaction takes place

$Ni + 2Ag^+(0.002M) \longrightarrow Ni^{+2}(0.160M) + 2Ag$

Given $E^0cell = 1.05V$.

Q.16.The electrical resistance of a column of 0.05molL^{-1} NaOH solution of diameter 1 cm and length 50 cm is 5.55×10^3 ohm.Calculate its Resistivity, Conductivity and molar conductivity.

Q17. A) Distinguishing Test:

1. Aniline and N-Methyl Aniline
2. Benzyl alcohol and Phenol

B) Explain with suitable example cross aldol condensation

Q18.a) A reaction is of second order w.r.t. a reactant.How is the rate of reaction affected if the conc. of the reactant is reduced to half?

b.) Show that in case of first order reaction the time required for 99.9%of the reaction to complete is 10 times that required for half of the reaction to take place.

Q19. 4.0 gm of NaOH are present in one deciliter of solution. Calculate

1. Mole fraction of NaOH
2. Molality of solution
3. Molarity of solution(density of solution=1.038gm\ml)

Q20. 2.0gms of Benzoic acid dissolved in 25.0gms of Benzene shows a depression in freezing point equal to 1.62K.Molal depression constant(Kf) for benzene is 4.9KKgmol-1.What is the percentage association of the acid?

Q21 i)Organic Conversion: a)Ethanitrile too Ethanal
b)p-fluroToluene to p-fluoro Benzaldehyde

ii) Explain why Haloarenes are much less reactive than haloalkanes towards Nucleophillic Substitution reaction?

Q22. a)Draw the structure of SF_4 and XeF_4
b)Write the Chemical reactions:

1. Cl_2 reacts with hot conc. solution of NaOH
2. Calcium Phosphide is hydrolyzed

Q23. Mukesh is habitual of smoking.His father was also smoker.Hisfather died due to lung cancer.His friend Rahul advised him not to smoke as it is dangerous for his health. He is undergoing treatment in De-addiction centre.

1. What values are possessed by Rahul?
2. Which nitrogen containing compound is present in tobacco?
3. To which class of compounds this compound belongs?Why is it so harmful?

Q24. a.) ORGANIC CONVERSIONS:
1. Acetophenone to 2-Phenyl-2-butanol
2.Propene to Acetone
3. Benzaldehyde to 3-phenyl-1-propanol

b)What happens when:
1. Cyclopropanone reacts with hydroxylamine?
2. Benzaldehyde reacts with 2,4-DNP

OR

a) ORGANIC CONVERSIONS:
1. Benzoic acid to benzaldehyde
2. Benzene to m-nitroacetophenone
3. Ethanol to crotoyl alcohol

b) Explain the order of basicity in aliphatic amines in different conditions and why?Also compare the basicity of aliphatic amines and aromatic amines.

Q25. Q1. Answer the following:

a.) NCl_5 and $BiCl_5$ does not exist why?

b.) Why does nitrogen show catenation properties less than phosphorous?

c.) Why is ICl more reactive than I2?

d.) Why is helium used in diving apparatus?

e.) How is ozone estimated quantitatively?

OR

COMPLETE THE EQUATIONS

1. Cu +conc. HNO_3 ----------> $Cu(NO_3)_2$
2. $Pb(NO_3)_2$ ----$\xrightarrow{\Delta}$ $PbO_2 + NO_2$
3. $CaF_2+H_2SO_4$ ----------> $CaSO_4 + HF$
4. $P_4+NaOH+H_2O$ ----------> PH_3 +
5. $C+HNO_3$ ----------> $CO_2 + NO_2$ +

Q26. a)A first order reaction has a rate constant value of 0.00510min-1.If we begin with 0.1M conc. of the reactant how much of the reactant will remain after 3.0 hrs.

b)The rate of reaction doubles for an increase of 10 K IN Absolute temperature from 298K .Calculate Ea.

OR

ANSWER THE FOLLOWING:

1. Why does alkaline medium inhibit rusting of iron?
2. How much charge is required for the reduction of 1 mole of Zn^{+2} to Zn?
3. Predict the product of electrolysis of a dilute solution of Sulphuric acid.
4. What is primary cell?give example
5. Calculate the vant Hoff factor for Potassiium Ferricyanide which undergoes 60%dissociation.

$0.00510 / 10000 = 51 \times 10^{-7}$

8.5

$6 \overline{)51}$

48

30