LAQ 8 MARKS

1. (a) State and explain Kohlrausch, law of independent migration of ions.
   (b) What are Galvanic cells? Explain the working of Galvanic cell with a neat sketch taking Daneil cell as 'example.
2. (a) Give a detailed account of collision theory of reaction rates of bimolecular gaseous reactions.
   (b) What is Molecularity of a reaction? How is it different form the 'order' of a reaction? name one bimolecular and one trimolecular gaseous reactions?
3. How is ammonia manufactured by Haber's process?
4. How is nitric acid manufactured by Ostwald's process?
5. Describe the manufacture of H_2SO_4 by cintact process.
6. How is ozone prepared?
7. How is chloride prepared in the laboratory?
   How Chlorine is prepared in Deacon's process?
   Explain reactions of chloride with a) Cold and Dil. NaOH b) hot. con. NaOH
   c) Excess NH_3 d) Slaked lime e) $Na_2S_2O_3$
8. How is Chlorine prepared by electrolytic method?
   How does chlorine react with the following?
   (a) Iron b) Acidified $FeSO_4$ c) Iodine d) H_2S e) Kl.
9. How are XeF_2 and XeF_4 prepared? Give their structures.
10. How are XeO_3 and $XeOF_4$ prepared? Give their structures.
11. Write the following named reactions with one example for each.
    a) Wurtz fittig reaction b) Carbylamine reaction
    c) Reimer - Tiemann reaction d) Decarboxylation
12. Write the following named reactions with one example each:
    a) Williamson synthesis of Ethers b) Carbylamine reaction
    c) Aldol condensation reaction. d) Cross Aldol condensation
13. Explain the following named reactions.
    a) Diazotization b) Sandmeyer reaction.
    c) Gattermann reaction d) Esterification
14. Explain the following named reactions.
    a) Friedel Crafts Alkylation b) friedel Crafts Acylation
    c) Kolbe's reaction d) Wurtz reaction
15. (a) Explain the acidic nature of phenols and compare with that of alcohols
    (b) Write two methods of preparation of phenol.

TOP MOST
4 MARKS SAQ

1. Derive Bragg's equation.
2. Explain Schottky & Frenkel Defects.
3. Define Molarity. Calculate the molarity of a solution containing 5g of NaOH in 450 ml of solution.
4. Define Molality. Calculate molality(m) of 10g of Glucose($C_6H_{12}O_6$) in 90 gm of water?
5. Define Mole Fraction.
   Calculatte the moles fraction of H_2SO_4 in a solution containing 98% H_2SO_4 by mass
6. What is relative lowering of vapour pressure? How is it useful to determine the molar -mass of a salute.
7. What is Catalysis? How is catalysis classified? Give two examples for each type of catalysis
8. What are Emulsions? How are they classified?
9. Define adsorption? Give any four differences between physisorption and chemisorption.
10. Write a short note on Tyndall effects and Brownian movement.
11. Differentiate roasting and calcination with examples.
12. Explain briefly the extraction of Aluminium from Bauxite.
13. Explain the purification of sulphate ore by froth floattation method.
14. Outline the principles of refining of metals by the following methods.
    a) Zone refining b) Electrolytic refining c) poling d) Vapour phase refining
15. Write the characteristic properties of transaction elements.
16. Explain Werner's theory of coodination compounds with suitable examples
17. Using IUPAC norms write the systematic names of the following:
    a) $K_2[pdCl_4]$ b) $K_3[Fe(CN)_6]$ c) $K_3[Cr(C_2O_4)]$ d) $[C0(NH_3)_6]\ Cl_3$
18. Write the formulas of the following coordination compounds:
    a) Tetrammineaquachloro cobalt (III) chloride b) Potassium tetrahydroxozincate(II)
    c) POtassium Trioxalatoaluminate (III) d) Tetracarbonylnickel(0)
19. Explain the purpose of Vulcanization of rubber.
20. (a) What is addition polymer? GIve example (b) What is PHBV? how is it useful to man?
21. Write the names and structures of the following monomers.
    (i) Polyvinyl chloride (ii) Teflon (iii) Buna-S (iv) Buna-N (v) Neoprene
22. Write the names of the monomers used for getting the following polymers.
    (i) Nylon 6,6 (ii) Glyptal (iii) Bakelite (iv) Dacron (v) Terylene (vi) polystyrene.
23. Name the sources and diseases caused by the deficiency of vitamins A,D, E,K
24. What are hormones? Give an example for each of the following:
    a) Steriod hormones b) Polypeptide hormones c) Amino acid derivates
25. Define and give examples of (a) Antacids (b) Anthistamines
26. Write notes on Antiseptics and Disinfectants.
27. Write notes on (a) Artificial sweetening agents (b) Food preservatives
28. Explain SN^1 and SN^2 reaction with examples.
29. Explain (a) Sandmeyer reaction (b) Carbylamine reaction
30. Define (i) Reaction mixture (b) Enantiomers

TOP MOST VSAQ
2 MARKS

1. State Raoult's law
2. State Henry's law
3. What is Osmotic pressure?
4. What is isotonic solutions?
5. State Faradays first law of electrolysis?
6. What is a Galvanic cell? Give one examples.
7. What is metallic corrosion? Give one example
8. Define order of a reaction. Give one example
9. Give two examples for gaseous Zero order reactions.
10. Give two examples for gaseous first order reaction.
11. Explain 'Poling'.
12. What is the role of cryolite in the metallurgy of aluminium?
13. Write any two ores with formulae of the following metals:
    a) Aluminium b) Zinc c) Iron d) Copper
14. Give the composition of the following alloys.
    a) Brass b) Bronze c) German silver
15. What is matte? Give its composition.
16. What is blister copper? Why is it so called?
17. What is a tailing of mercury? How is it removed?
18. Why is H_2O a liquid while H_2S is a gas?
19. What happens when Cl_2 reacts with dry slaked lime?
20. NH_3 has hydrogen bonds but PH_3 does not. Explain why?
21. SO_2 can be used as an anti-chlor. Explain.
22. Nitrogen molecule is highly stable. Why?
23. Write any two uses of argon.
24. What is Allotropy?
25. Write the structure of XeO_3
26. Why nitrogen exixts as daitomic molecule(N_2) and phosphorus as P_4?
27. In modern diving apparatus, a mixture of He and O_2 is used - why?
28. Why Zn^{2+} is diamagnetic where as Mn^{2+} is paramagnetic?
29. What is an alloy? GIve example.
30. What is Lanthanide contraction?
31. What is Mischmetall? Give its composition and uses.
32. What is a Ligand?
33. What is PHBV? How is it useful to man?
34. What are copolymers ? Give example.
35. What is vulcanisation of Rubber?
36. What is Zwitter ion? Give an example.
37. What are the repeating monomeric units of Nylon 6 and Nylon 6,6 ?
38. What are reducing sugars?
39. What are artificial sweetining agents ? Give example.
40. What are food preservatives ? Give example.
41. What are antiseptics? Give example.
42. What are Disticfectants ? GIve example.
43. What are antibiotics ? Give example.
44. What are antifertility drugs ? Give an example.
45. What are antacids ? Give example.
46. What are ambident nucleophiles?
47. What are Enantiomers?
48. Write about Carbylamine reaction.
49. How is Grignard reagent prepared?
50. Explain SN^2 reaction with one example.

V S A Q

SOLUTIONS

1. (i) State Raoult's law.
2. (ii) State Henry's law.
3. (iii) Whar are isotonic solutions?
4. (iv) Calculate molality of 2.5 grams of Ethanoic Acid (CH_3COOH) in 75 grams of Benzene.
5. (vi) CAlculate the mole fraction of H_2SO_4 in a solution conatining 98% H_2SO_4 by mass.

ELECTRO CHEMISTRY AND CHEMICAL KINETICS

2. (i) State Faradays first law of electrolysis?
   (ii) State Faradays second law of Electrolysis?
   (iii) What is a galvanic cell or voltaic cell? Give one example.
   (iv) What is metallic corrocion ? Give one example.
   (v) What is standard hydrogen electrode?
   (vi) Define order of a reaction. Give one example.
   (vii) Give two examples for gaseous zero order reactions.
   (viii) Give two examples for gaseous first order reaction.
   (ix) What are Pseudo first oder reactions? Give one example.
   (x) A reactio has a life of 10 minutes. Calculate the rate constant for the first order reaction.

GENERAL PRINCIPLES OF METALLURGY

3. (i) Explain ' poling'
   (ii) What is the role of cryolite in the metallurgy of alluminium?
   (iii) Write any two ores with formulae of the following metals:
   a) Aluminium b) Zinc c) Iron d) Copper
   (iv) Give the composition of the following alloys. a) Brass b) Bronze c) German silver
   (v) State the role of silica in the metallurgy of copper.
   (vi) What is matte? Give its composition.
   (vii) What is blister copper? Why is it so called?

p-BLOCK GROUP-15,16

4. (i) Ammonia is a good complexing agent - explain with an example.
   (ii) Why is H_2O a liquid while H_2S is a gas?
   (iii) What is a tailing of mercury ? How is it removed ?
   (iv) SO_2 can be used as an anti-chlor. explain.
   (v) Give the hybridization of sulphur in the following:
   a) SO_2 b) SO_3 c) SF_4 d) SF_6
   (vi) What happens when Cl2 reacts with dry slaked lime?
   (vii) NH_3 has hydrogen bonds but PH_3 does not. Explain why?

p-BLOCK GROUP -17,18

5. (i) Nitrogen molecule is highly stable. why?
   (ii) Why Nitrogen exists as diatomic molecule(N_2) and phosphorus as P_4?
   (iii) What are interhalogen compounds? Give two examples.
   (iv) Write the reactions of F_2 and Cl_2 with water.
   (v) In modern diving apparatus, a mixture of He and O_2 is used - why?
   (vi) Write any two uses of argon.
   (vii) Noble gases are inert - explain
   (viii) What is Allotropy?
   (ix) Write the structure of XeO_3

d&F- BLOCK ELEMENTS

6. (i) Why Zn^+ is diamagnetic where as MN^{2+} is paramagnetic?
   (ii) What is an alloy? Give example.
   (iii) $CuSO_4.5H_2O$ is blue in colour where as anhydrous $CuSO_4$ is colourless. why ?
   (iv) Calculate the spin only magnetic moment of Fe^{+2} ion.
   (v) What are coordination compounds? Give two examples.
   (vi) Scandium is a transition element, but zinc is not. why?
   (vii) What is Lanthanide contraction?
   (viii) What is Mischmetall? Give its composition and uses.
   (ix) What is aligand?

POLYMERS, BIOMOLECULES

7. (i) What is PHBV? How is it useful to man?
   (ii) What is polymerization? Give an example of polymerization reaction.
   (iii) What are copolymers? Give example.
   (iv) What are thermosetting polymers ? Give example.
   (v) What is vulcanisation of Rubber?
   (vi) What are the repeating monomeric units of NYlon 6 and Nylon 6,6?
   (vii) What is Zwitter ion? Give an example.
   (ix) Write any one method of presentation of Glucose. write the equation.
   (x) What are essential and non-essential amino acids? Give one example for each.
   (xi) What are proteins ? Give an example.
   (xii) What are reducing sugars?

CHEMISTRY IN EVERY DAY LIFE

8,9. (i) What are antiseptics? Give example.
   (ii) What are artificial sweetening agents? Give example.
   (iii) What are antacids? Give example.
   (iv) What are anthistamines? Give example.
   (v) What are food preservatives? Give example.
   (vi) What is thhe difference between a soap and a synthetic detergent?
   (vii) What are antiboitics ? Give example.
   (viii) What are antifertility drugs? Give example
   (ix) What are Tranquilizers? Give example.

10. (i) What are ambident nucleophiles ?
(ii) What are Enantiomers?
(iii) Write the structures of p-bromo chloro benzene.
(iv) Write the structure of the following compounds
(a) 2 -chloro-3-methyl pentane b) 1-bromo-4sec-butyl-2-methyl benzene
(v) Explain Wurtz - fittig reaction?
(vi) How anline is obtained from nitrobenzene
(vii) Write about Carbylamine reaction.
(viii) How is Grignard reagent prepared.
(ix) Write equations for Carbylamine reaction of any one alipphatic amine.
(x) Explain SN^2 reaction with one example.
(xi) $CH_3 - CH_2 - Br \xrightarrow{Mg} A \xrightarrow{H_2O} B$. Identify A and B compunds.
(x) Give structures of A, B and C in the follwoing reaction.

$$C_6H_5N_2CL \xrightarrow{CUCN} A \xrightarrow{H_2O/H^+} B \xrightarrow{NH_3,\Delta} C$$

SOLID STATE

11. (i) Derive Bragg,s equation.
(ii) Explain Schottky and Frenkel Defects.
(iii) Describe the two main types of semiconductors and contrast their conduction mechanism.

SOLUTIONS

12. (i) Define Molarity.
Calculate the molarity of a solution containing 5g of NaOH in 450 ml of solution.
(ii) Define Molality(m).
Calculate molality (m) of 10 gm of glucose ($C_6H_{12}O_6$) in? 90 gm of water.
(iii) Define Mole fraction. A solution of sucrose in water is labelled as 20% w/w. what would be the mole fraction of each component in the solution?
(iv) What is relative lowering of vapour pressure? How is it useful to determine the molar-mass of a salute?
(v) What is meant by positive deviations from Raoults law and how is the sign of Δ_{mix} H related to positive deviation form Raoult's law?

SURFACE CHEMISTRY

13. (i) What is catalysis ? How is catalysis classified?
Give two examples for each type of catalysis.
(ii) What are Emulsions? How are they classified?
(iii) Define adsorption?
Give any four differences between physisorption and Chemisorption.
(iv) Action of Soap is due to emulsification and micelle formation. Comment.
(v) Write a short note on Tyndall effect and Brownian Movement.

METALLURGY

14. (i) Differentiate roasting and cacination with examples.
(ii) Explain briefly the extraction of Aluminium from Bauxite.
(iii) Explain the purification of sulphide ore by froth floatation method.
(iv) Explain the extraction of zinc from Ziinc blende.
(v) Outline the principles of refining of metals by the following methods.
a. Zone refining b. Electrolytic refining c. Poling d. Vapour phse refining

d&f BLOCK ELEMENTS

15. (i) Write the characteristics properties of transition elements.
(ii) Explain werner's theory of coordination compounds with suitable examples.
(iii) Using IUPAC norms write the systematic names of the following:
(a) $[Cu(NH_3)_4]SO_4$ (b) $K_3[Cr(C_2O_4)_3]$ (c) $[Co(SCN_4)]^{-2}$ d) $[PtCl_2(NH_3)_2]$
(e) $K_4Fe[CN]_6$ (f) $[Co(NH_3)_6]Cl_3$ (g) $[Ti(H_2O)_6]^{3+}$ (h) $[NiCl_4)^{2-}$
(iv) Write the formulas for the follwoing coordination compounds:
a) Tetrammineaquachloro cobalt (III) chloride
b) Potassium tetrahydroxozincate (II)
c) Potassium trioxalatoaluminate (III)
d) Tetracarbonylnickel(0)

POLYMERS

16. (i) What is polymerization ? Give an example of a polymerization reaction.
(ii) Explain the purpose of Vulcanization of rubber.
(iii) (a) what is addition polymer? Give example. b) What is PHBV ? How is it useful to man?
(iv) What is natural rubber ? How does it exhibit elstic properties?
(v) Write the names and structures of the monomers used for getting the following polymers
(i) Polyvinyl chloride (ii) Teflon (iii) Bakelite (iv) Polystyren. (v) Buna-S
(vi) Buna-N (vii) Dacron (viii) Neoprene.
(vi) Write the names of the monomers used for getting the following polymers.
(i) Nylon 6,6 (ii) Glyptal (iii) Bakelite (iv) Terylene

BIOMOLECULES

17. (i) Name the sources and diseases causedd by the deficiency of the vitamins.
(a) A (b) D (c) E (d) K
(ii) What are hormones ? Give an example for each of the following:
(a) Steriod hormones b) Polypeptide hormones c) Amino acid derivatives
(iii) Define and give examples of (a) Antacids (b) Anthistamines
(iv) Write notes on antiseptics and disinfectants.
(v) Write notes on (a) Artificial sweetening agents (b) Food preservatives

HALOAKANES AND HALO ARENES

18. (i) Explain SN^1 and SN^2 reaction with examples.
(ii) Explain (a) Sandmeyer reaction (b) Gattermann reaction
(c) Carbylamine reaction (d) Wurtz fitting reaction
(iii) Define (i) Recemic mixture (ii) Enantiomers

L A Q

SOLUTIONS

19. (i) Give a detailed account of collision theory of reaction rates of bimolecular gaseous reactions.
(ii) State and explain Kohlrausch's law of independent migration of ions.
(iii) What is 'molecularity of a reaction? How is it different from the 'order' of a reaction? Name one bimolecular and one trimolecular gaseous reactions.
(iv) State Faraday's laws of electrolysis. A solution of CuSO4 is electrolyzed for 10 minutes with a current of 1.5 amperes. what is the mass of copper deposited at the cathode.
(v) What are primary and secondary batteries ? Give one example for each.
(vi) State and explain nernst equation with the help of a metallic electrode and a non-metallic electrode.

P-BLOCK ELEMENTS

20. (i) How is ammonia manufactured by Haber's process?
Explain the reactions of ammonia with (a) $ZnSO_{4(aq)}$ (b) $CuSO_{4(aq)}$ (c) $AgCl_{(s)}$
(ii) Describe the manufacture of H_2SO_4 by contact process.
(iii) How is nitric acid manufactured by Ostwald's process?
How does it react with the following?
(a) Copper (b) Zn (c) Sg (d) P_4
(iv) How is ozone prepared?
How does it react with (a) Pbs (b) Kl (c) Hg (d) Ag
(v) How is chlorine prepared by electrolytic method? Explain its reaction with (a) NaOH and (b) NH_3 under different conditions.
(vi) How is chlorine prepared in the laboratory ? How chlorine is prepared in Deacon's process?
How does it react with the following ?
(a) Iron (b) hot.con NaOH (c) acidifeid $FeSO_4$ (d) Iodine (e) H_2S (f) $Na_2S_2O_3$
(g) Cold dil. NaOH (h) excess NH_3 (i) Kl (j) $Ca(OH)_2$ (k) H_2O
(vii) How are XeF_2 and XeF_4 prepared? GIve their structures.

ORGANIC CHEMISTRY

21. (i) Write the following named reactions with one example for each?
(a) Wurtz fittig reaction (b) Carbylamine reaction
(c) Reimer - Teimann reaction (d) Decarboxylation
(ii) Write the following named reactions with one example each:
(a) Williamson synthesis of Ethers (b) Cannizzaro reaction
(c) Aldol condensation reaction. (d) Cross Aldol condensation
(iii) Explain the following named reactions.
(a) Diazotization (b) Sandmeyer reaction (c) Gattermann reaction
(d) Esterification
(iv) Explain the following named reactions.
(a) Friedel Crafts Alkylation (b) Friedel Crafts Acylation
(c) Kolbe's reaction (d) Wurtz reaction
(v) (a) Explain the acidic nature of phenols and compare with that of alcohols.
(b) Write products formed by the reduction and oxidation of phenol
(c) Explain the methods of preparation of phenol from cumene

GUESS PAPER - 1

SENIOR CHEMISTRY

SECTION - A

I. Answer ALL questions : **[10 x 2 = 20]**

1. State Raoult's law.
2. Give Two example for gaseous Zero order reactions.
3. What is metallic corrosion ? Give one example.
4. Mention the shape and draw a diagram of XeO_3.
5. What is a tailing of mercury ? How is it removed?
6. What is Zn+ is diamagnetic whereas Mn+ is paramagnetic?
7. What is vulcanization of rubber?
8. What are antifertility drugs ? Give example
9. What are ambident nucleophiles?
10. Write about carbylamine reaction.

SECTION - B

II. Answer any SIX of the following Questions : **[6 x 4 = 24]**

11. Define Molarity.
    Calculate the molarity of a solution containing 5g of NaOH in 450 ml of solution.
12. Derive Bragg's equation.
13. Define adsorption? Give any four difference between physisorption and Chemisorption
14. Define Calcination and roasting. Give one example of each.
15. Explain werner's theory of coodination compounds with suitable examples
16. Name the sources and diseases caused by the deficiency of the vitamins
    (a) A (b) D (c) E (d) K
17. What are artificail sweetening agents and food preservatives ? give one examples of each.
18. Explain SN^1 and SN^2 reactions.

SECTION - C

III. Answer any Two of the following Questions : **[2 x 8 = 16]**

19. Describe the salient features of theCollision theory of reaction rates of bimolecular reactions.
20. (a) Give chemical equations to manufacture of Sulphuric Acid by contact process.
    (b) How is chlorine prepared in deacon's process? How does it react with the following?
    (i) Cold and dilute NaOH (ii) Hot and concentrated NaOH
21. Explain the following with one example.
    a) Williamson's Synthesis b) Kobe's reaction
    c) Gattermann reaction. d) Aldol condensation

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GUESS PAPER - 2

SINIOR. CHEMISTRY

SECTION - A

I. Answer ALL questions : **[10 x 2 = 20]**

1. What is isotonic solutions? Give an example.
2. State Faradays first law of electrolysis?
3. What is Allotropy?
4. Give the composition of the following alloys.
   a) Brass b) German silver
5. Why is H_2O a liquid while H_2S is a gas?
6. Calculate the spin only magnetic moment of Fe^{+2} ion
7. What are copolymers ? Give example.
8. What are antibiotics ? Give example.
9. What are antifertility drugs ? Give an example.
10. What are Enantiomers?

SECTION - B

II. Answer any SIX of the following Questions : **[6 x 4 = 24]**

11. Define Mole Fraction.
    Calculatte the moles fraction of H_2SO_4 in a solution containing 98% H_2SO_4 by mass.
12. Explain Schottky & Frenkel Defects.
13. What is Catalysis? How is catalysis classified? Give two examples for each type of catalysis
14. Explain briefly the extraction of Aluminium from Bauxite.
15. Write the characteristic properties of transaction elements.
16. Write the names and structures of the following monomers.
    (i) Polyvinyl chloride (ii) Teflon (iii) Buna-S (iv) Buna-N
17. Define and give examples of (a) Antacids (b) Anthistamines
18. Explain (a) Sandmeyer reaction (b) Carbylamine reaction

SECTION - C

III. Answer any Two of the following Questions : **[2 x 8 = 16]**

19. (a) State and explain Kohlrausch, law of independent migration of ions.
    (b) What is Molecularity of a reaction? How is it different form the 'order' of a reaction? name one bimolecular and one trimolecular gaseous reactions?
20. (a) How is nitric acid manufactured by Ostwald's process?
    (b) How are XeO_3 and $XeOF_4$ prepared? Give their structures.
21. Explain the following with one example.
    (a) Friedel Crafts Alkylation (b) Cross Aldol condensation
    (c) Wurtz reaction (d) Diazotization

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GUESS PAPER - 3

SINIOR. CHEMISTRY

SECTION - A

I. Answer ALL questions : **[10 x 2 = 20]**

1. What is Osmotic pressure?
2. What is a Galvanic cell? Give one examples.
3. Write any two uses of argon.
4. What is the role of cryolite in the metallurgy of aluminium?
5. What happens when Cl_2 reacts with dry slaked lime?
6. What is Mischmetall? Give its composition and uses.
7. What is Zwitter ion? Give an example.
8. What are antiseptics? Give example.
9. What are antacids ? Give example.
10. How is Grignard reagent prepared?

SECTION - B

II. Answer any SIX of the following Questions : **[6 x 4 = 24]**

11. Define Molality. Calculate molality(m) of 10g of Glucose($C_6H_{12}O_6$) in 90 gm of water?
12. Describe the two main types of semiconductors and contrast their conduction mechanism.
13. What are Emulsions? How are they classified? Give one examples of each.
14. Explain the purification of sulphate ore by froth floattation method.
15. Using IUPAC norms write the systematic names of the following:
    a) $[C0(NH_3)_6]\ Cl_3$ b) $K_3[Fe(CN)_6]$ c) $K_2[Pd(Cl_4)]$ d) $[Ni(Co_4)]$
16. Write the names of the monomers used for getting the following polymers.
    (i) Nylon 6,6 (ii) Glyptal (iii) Bakelite (iv) Dacron
17. What are hormones? Give an example for each of the following:
    a) Steriod hormones b) Polypeptide hormones c) Amino acid derivates
18. Define (i) Reaction mixture (b) Enantiomers

SECTION - C

III. Answer any Two of the following Questions : **[2 x 8 = 16]**

19. (a) What are Galvanic cells? Explain the working of Galvanic cell with a neat sketch taking Daneil cell as 'example.
    (b) State Faraday's laws of electrolysis. A solution of CuSO4 is electrolyzed for 10 minutes with a current of 1.5 amperes. what is the mass of copper deposited at the cathode.
20. (a) How is ammonia manufactured by Haber's process?
    (b) How is ozone prepared?
    How does it react with (a) Hg (b) Pbs
21. Explain the following named reactions.
    (a) Reimer - Tiemann reaction (b) Decarboxylation (c) Cannizzaro reaction (d) Esterification

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