C

Reg No:

SAKTHI MATRIC HR. SEC. SCHOOL.KANIYAMOOR

CLASS : XII E/M MODEL ANNUAL EXAM-3 Time: 3.00HRS

SUBJECT : Chemistry Marks: 70

I CHOOSE THE CORRECT ANSWER: 15*1=15

1.Extraction of gold and silver involves leaching with cyanide ion. silver is later recovered by
a)Distillation b)Displacement with zinc c)Liquation d)Zone refining

2. The basic structural unit of silicates is
a) $[SiO_3]^{2-}$ b) $[SiO_4]^{4-}$ c) $[SiO]^{-}$ d)$[SiO_4]^{2-}$

3.In the brown ring test, brown colour of the ring is due to
a)a mixture of NO and NO_2 b)nitroso ferrous sulphate
c)ferrous nitrate d)ferric nitrate

4.Which of the following plot gives Frost diagram
a)ΔS Vs T b) ΔG^0 Vs Oxidation number c) ΔG^0 Vs T d) ΔS Vs 1/T

5.Splitting pattern of tetrahedral complexes is less than that of octahedral complexes by the following quantity….
a)Δt = 4/9 Δo b) Δt = 3/9 Δo c) Δt = 6/9 Δo c) Δo = 4/9 Δt

6.If 'a' is the length of the side of the cube the distance between the body centered atom and one corner atom in the cube will be _____
a)$(2/\sqrt{3})a$ b)$(4/\sqrt{3})a$ c)$(\sqrt{3}/4)a$ d)$(\sqrt{3}/2)a$

7.The rate constant of a reaction is $5.8x10^{-2}$ s^{-1}. The order of the reaction is
a)First order b) zero order c) Second order d) Third order

8. CH_3COOH and CH_3COONa have the common ion is __
a) Na^+ b) CH_3COO^- c) H^+ d) All the above

9. The number of electrons that have a total charge of 9650 coulombs is
a) 6.22×10^{23} b) 6.022×10^{24} c) 6.022×10^{-34} d) 6.022×10^{22}

10.Which is an example for heterogeneous catalysis?
a) $CH_3COOCH_3 + H_2O \xrightarrow{HCl} CH_3COOH + CH_3OH$ b) $2SO_2 + O_2 \xrightarrow{NO} 2SO_3$
c) $C_{12}H_{22}O_{11} + H_2O \xrightarrow{invertage} C_6H_{12}O_6 + C_6H_{12}O_6$ d) $N_2 + 3H_2 \xrightarrow{Fe} 2NH_3$

11. Lower members are highly soluble in water due
a) Intermolecular H- bonding b) Intermolecular H - bonding
c) Both A and B d)None of these

12. The product formed by the reaction an aldehyde with a primary amine
a)carboxylic acid b) schiff 's base c) aromatic acid d) ketone

13.The isomerism exhibited by 1- Nitro Butane and 1-Nitro-2-methyl propane is
a) Chain b) Position c) Tautomerism d)Functional

14.Which of the following are epimers
a)D(+) glucose and D(+) Galactose b)D(+) glucose and D(+) mannose
c)Neither a nor b d)Both a and b

15. Antacids are…….
a)$Al(OH)_3$ b) $Mg(OH)_2$ c) Both a and b d)NaOH

II ANSWER ANY SIX QUESTIONS AND QUESTION NO: 24 IS COMPULSORY 6*2=12

16. Write a note on MCA fee process.(Aluminium chloride prepared)
17.Why fluorine is more reactive than other halogen?
18.Classify the following ligand based on the number of donor atoms.
a)NH_3 b)en c)Ox^{2-} d)pyridine
19.Why ionic crystals are hard and brittle?
20.The Ka value for HCN is 10^{-9}. What is the pH of 0.4 M HCN solution?
21. Why are lyophillic colloidal sols are more stable than lyophobic cooloidal sol?
22.Explain Kolbe's reaction.
23.Write short notes on carbylamines reaction.
24. $C_6H_5COOH \xrightarrow{PCl5}$ A $\xrightarrow{C6H6/AlCL3}$ B

III ANSWER ANY SIX QUESTIONS AND QUESTION NO: 33 IS COMPULSORY 6*3=18

25.Describe the role of cryolite is extraction of aluminium.
26.What is lanthanide contraction and what are the effects of lanthanide contraction?
27.Explain optical isomerism in coordination.
28. Explain the Arrhenius equation ?
29.Derive Nernst equation.
30. How will you convert benzaldehyde in to the following compounds?
i)Benzophenone ii)Benzoic acid iii)α-Hydroxy phenyl acetic acid
31.Write the structure of the major product of the aldol condensation of benzaldehyde with acetone.
32.P_{kb} of aniline is more than that of methylamine. Account reason.
33. Calculate i)the hydrolysis constant
ii)degree of hydrolysis of 0.1M CH_3COONa solution.
pKa for CH_3COOH is 4.74.

IV ANSWER ALL THE QUESTIONS: 5*5=25

34. a) Explain the Fullerenes.(3)
b) Define Gangue and Slag?(2)
(OR)
c)Give two equations to illustrate the chemical behavior of phosphine.(3)
d)The $E°M^{2+}/M$ value for copper is positive suggest a possible reason for this.(2)
35. a)Sodium metal crystallizes in bcc structure with edge length of the unit cell $4.3x10^{-8}$cm. calculate the radius of sodium atom.(3)
b)Derive integrated rate law for a First order reaction A→product.(2)
(OR)
c)Write a note on electro osmosis.(3)
d)Write a note on sacrificial protection.(2)
36. a)Predict the product A, B, X and Y in the following sequence of reaction.(5)

$$\text{Butan-2-ol} \xrightarrow{SOCl2} A \xrightarrow{Mg/ether} B$$
$$\downarrow Cu/573K \qquad \downarrow X$$
$$X \qquad Y$$

(OR)
b) What is biodegradable and Non- biodegradable.(3)
c) What is term glycosidic linkage?(2)
37. a)Compare lanthanides and actinides.(3)
b)What happens when PCl_5 is heated?(2)
(OR)
c)Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} are 189 and 160mho cm^2 eq^{-1} . Calculate the equivalent & molar conductance of the electrolyte $Al_2(SO_4)_3$ at infinite dilution.(3)
d)Ksp of AgCl is 1.8×10^{-10}. Calculate molar solubility in 1M $AgNO_3$.
38. a)What is trans esterification reaction?(2)
b)Write the mechanism of Cannizaro reaction.(3)
(OR)
c)How will you distinguish ethyl alcohol from isopropyl alcohol by Victor- Meyer method.(3)
d)Give the difference between primary and secondary structure of proteins.(2)

EDUCATION IS THE MOST POWERFUL WEAPON WHICH YOU CAN USE TO CHANGE THE WORLD.

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