CHEMISTRY CET MODEL PAPER

1. The gas liberated when $K_2Cr_2O_7$ treated with H_2SO_4 is

   a) Oxygen
   b) Hydrogen
   c) Sulphur dioxide
   d) Sulphur trioxide.

2. A metal in liquor ammonia is a powerful reducing agent. The metal is

   a) Copper
   b) Iron
   c) Sodium
   d) Zinc

3. The metal purified by liquation is

   a) Iron
   b) Copper
   c) Aluminium
   d) Tin.

4. Heisenberg uncertainity principle mathematically is

   a) $\Delta x = \dfrac{h}{4\pi}$
   b) $\Delta x \cdot \Delta p = \dfrac{h}{4\pi}$
   c) $\Delta x \cdot \Delta p \gg \dfrac{h}{4\pi}$
   d) $\Delta x = \Delta p$

5. Clathahates or Cage Compounds formed by

   a) Noble gases
   b) alkali metals
   c) Halogens
   d) Transition metals

6. The electron affinity of halogens follow the order

   a.) $F > Cl > Br > I$
   b) $Cl > F > Br > I$
   c) $Cl > Br > F > I$
   d) $F > Br > Cl > I$

7. Cashmilon used in making pullovers, Carpets Etc is

   a) polyester
   b) polyamide
   c) polyethene
   d) polyacrilonitrile.

8 Pyrulusite is an ore of
   a) Iron   b) Zinc
   c) Chromium   d) Manganese.

9 In a reaction ΔS = +ve. The reaction is feasible when
   a) at all Temperature   b) When $T\Delta S > \Delta H$
                            d) $\Delta H = T\Delta S$
   c) $\Delta H > T\Delta S$

10 On increasing the concentration of a reactant four times
   its half life period also increases by four times. Hence
   the order of the reaction is
   a) Zero   b) I order
   c) II order   d) Fraction order

11 The Coordination number of Sodium is
   a) Four   b) Six
   c) Eight   d) Twelve.

12 The pH of 10^{-8} M acidic Solution is
   a) 8   b) 6-7
   c) 7-8   d) 8-9

13 The one which has least pK_b value
   a) $C_2H_5NH_2$ b) $(C_2H_5)_2NH$
   c) $(C_2H_5)_3N$ d) NH_3

14 The pKa value of phenol can be reduced by a
   group such as
   a) OH   b) CH_3
   e) NO_2 d) NH_2

15 Glucose does not react with
   a) Tollen's reagent   b) Fehling solution
   c) Benedict's reagent   d) $NaHSO_3$

16 A Acidic amino acid among the following
   a) Glycine   b) alanine
   c) Lysine   d) aspartic acid

17 In Hinsberg test a amine is treated with
   a) Benzene Sulphonic acid   b) Benzene Sulphonyl chloride
   c) Benzene   d) Chloroform.

18 In the reaction $RNCO + KOH \xrightarrow{\Delta}$, the product formed is
   a) RCOOH   b) $R-NH_2$
                     d) $R-OH$
   c) $R-NO_2$

19 The enthalpy of Combustion par CH_2 group is maximum in
   a) Cyclopropane   b) cyclobutane
   c) cyclopentane   d) cyclohexane.

20 2.4. Dihydroxy butane, 1.4 dioic acid is
   a) Lactic acid   b) Maleic acid
   c) Tartaric acid   d) Citric acid

21 purple of Cassius is
   a) Rubber sol   b) Gold sol
   c) Sulphur sol   d) protein Sol.

22 3% Solution of M is isotonic with 9% Solution of Glucose. Hence the molecular mass of M is

a) 180

b) 120

c) 60

d) 90

23 -ve deviation from Raoult's law is seen in

a) Benzene + Toluene

b) Chlorobenzene + Bromobenzene

c) C_2H_5OH + water

d) HCl + H_2O

24 Equal Volumes of solutions of pH 3 and pH 5 are mixed The pH of the resulting solution is

a) 2

b) 8

c) 3.3

d) 5.3

25 The resonance energy of Benzene is

a) 360 KJ

b) 200 KJ

c) 150 KJ

d) 100 KJ

26 The product formed when 2 Chloropropane heated with Sodium in dry ether

a) propane

b) Butane

c) 2-Methyl butane

d) 2-3. dimethyl Butane

27 Terpy has

a) 4 donor atoms

b) 3 donor atoms

c) 2 donor atom

d) One donor atom

28 The magnetic moment of an ion is 5.92 The unpaired electrons present in it are

a) 5   b) 3

c) 4   d) 2

29 HI reduces Concentrated H_2SO_4 into

a) Sulphur   b) Hydrogen Sulphide

c) Sulphur dioxide   d) all of these.

30 n = 3   l = 2 represent the orbital

a) 2p   b) 3s

c) 3d   4) 4p

31 The hybridisation of Ag in $[Ag(NH_3)_2]^+$ is

a) sp^2 b) sp^3

c) sp   d) dsp^2

32 One mole of HI is heated. At Equilibrium 50% of it dissociates. Therefore the Equilibrium Constant is

a) 2.5   b) 0.25

c) 1   d) 0.35

33 The mass of silver displaced by that quantity of Current which displaces 5600 cc H_2 at S.T.p is

a) 54 gm   b) 108 gm

c) 5.4 gm   d) 10.8 gm.

34 In the reaction $2O_3 \longrightarrow 3O_2$ the order of the reaction w.r.t to O_2 is

a) 1   b) -1

c) 0   d) 2

35 The pka of a acid is 4. What will be the salt to acid ratio when a buffer solution of pH 5 is prepared

a) 4:5   b) 5:4

c) 10:1   d) 1:10

36 An example for auto catalyst reaction is

a) $H_2 + Cl_2 \longrightarrow 2HCl$ b) Reaction between $K_2Cr_2O_7 + H_2SO_4$

c) Decomposition of Nitroglycerine   d) $O_3 \longrightarrow O_2$

37 The strongest base among the following

a) ClO^- b) ClO_2^-

c) ClO_3^- d) ClO_4^-

38 The bond order is highest in

a) O_2 b) O_2^+

c) O_2^- d) O_2^{--}

39 RCN and RNC exhibit

a) Metamerism   b) Tautomerism

c) Functional isomerism   d) position isomerism,

40 The EAN of Chromium in $[Cr(en)_3]Cl_3$ is

a) 35   b) 33

c) 36   d) 44

41 In the reaction $CH_3COOH + C_2H_5OH \rightleftharpoons CH_3COOC_2H_5 + H_2O$

at equilibrium $2/3$ moles of ester formed. The Equilibrium Constant for the reaction is

a) 2   b) 4

c) $1/3$ d) 3

42 Interferron is

a) Hormone   b) Synthetic antibody

c) Carbohydrate   d) Vitamin.

43 On heating α-amino acids the product formed is

a) Ammonia   b) Nitrogen

c) Peptide   d) Diketopiperazine.

44. A certain buffer solution contains X and HX. The Concentration of X is twice the concentration of HX. If Ka for HX is 10^{-6}. The pH of the buffer Solution is

a) 6   b) 4

c) 6.3   d) 5.8

45 Vapour pressure of pure A is 70 mm at 25°C. It forms an ideal solution with B in which the mole fraction of A is 0.8. If the vapour pressure of the solution is 84 mm the vapour pressure of pure B at 25°C is

a) 1 atm
b) 14 mm
c) 140 mm
d) 56 mm.

46 The rate constant of a I order reaction is 1×10^{-2} s^{-1}. The concentration of the reactant would be reduced from one mole to 0.25 mole in

a) 10^2 sec
b) 69.3 sec
c) 0.5×10^2 sec
d) 138.6 sec

47 Which combination of atomic orbitals is not allowed according to MO theory?.

a) $p_x - p_x$
b) $p_x - p_y$
c) $p_y - p_y$
d) $p_z - p_z$

48 The number of π bonds in $(CN)_2 C = C (CN)_2$ is
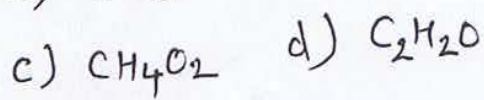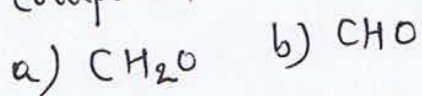
a) 1
b) 9
c) 12
d) 16

49 The one which has high ionisation energy and weak metallic bond is.

a) Copper
b) Sodium
c) Gold
d) Mercury.

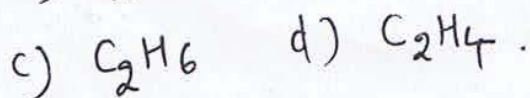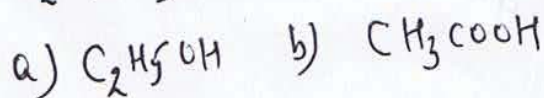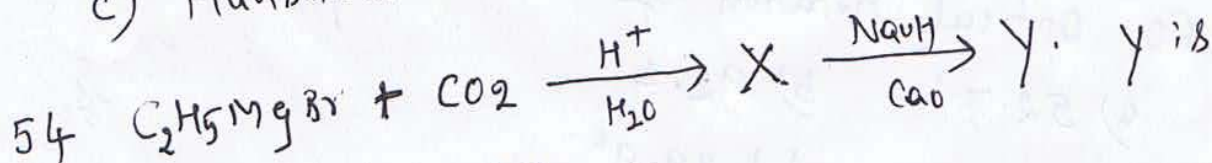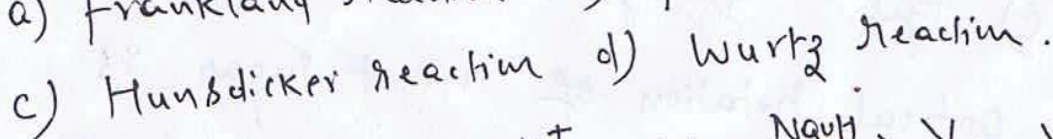50 Among the following ions the one which has highest paramagnetism ?

a) $[Cr(H_2O)_6]^{+3}$

b) $[Fe(H_2O)_6]^{+2}$

c) $[Cr(H_2O)_6]^{+2}$

d) $[Zn(H_2O)_6]^{+2}$
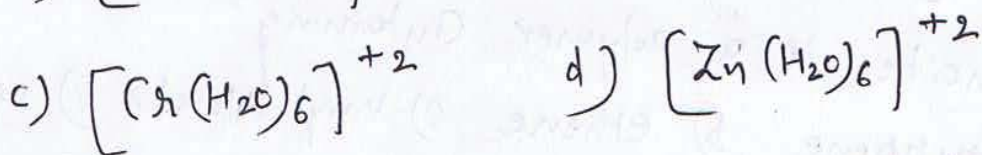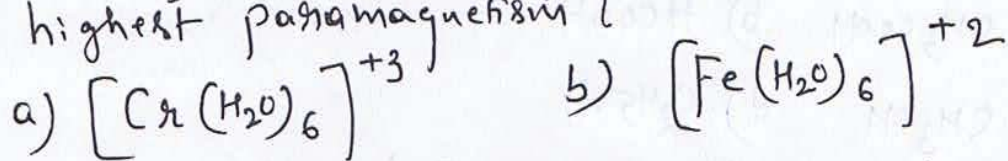
51 An organic compound contains $C = 40\%$, $H = 6.60\%$ and $O = 53.34\%$. The empirical formula of the compound is

a) CH_2O

b) CHO

c) CH_4O_2

d) C_2H_2O

52 $0.2\,g$ of an organic compound on Kjeldahl's method gave ammonia which neutralized $20\,cc$ of $0.1N\,H_2SO_4$. The percentage of Nitrogen in this compound is

a) 14

b) 20

c) 70

d) 24

53 Chloro alkanes can be converted to iodoalkanes by

a) Frankland reaction

b) Finkelstein reaction

c) Hunsdicker reaction

d) Wurtz reaction.

54 $C_2H_5MgBr + CO_2 \xrightarrow[H_2O]{H^+} X \xrightarrow[CaO]{NaOH} Y$. Y is

a) C_2H_5OH

b) CH_3COOH

c) C_2H_6

d) C_2H_4.
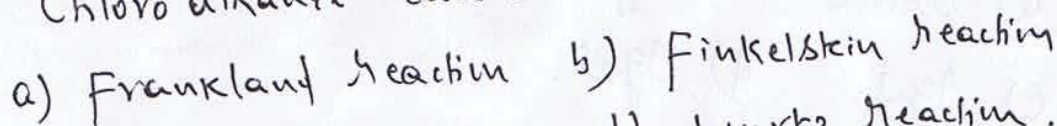
55 Tollen's reagent is reduced to silver by heating with

a) CH_3COOH b) $HCOOH$

c) CH_3OH d) C_2H_5OH

56 Lucite is a polymer Containing

a) Styrene b) ethene c) Vinyl Chloride d) Methyl methaacrylate.

57 The number of essential amino acids present in protein is

a) 10 b) 20

c) 12 d) 100

58 An example for molecular Crystal

a) NaCl b) Graphite

c) Dry ice d) Zinc.

59 Which of the following is used in Cloud seeding?.

a) Brine b) $AgNO_3$

c) AgI d) Ag_2O

60 Optical rotation of invert sugar is

a) $52.7°$ b) $92.4°$

c) $19.9°$ d) $39.9°$