**IIT-JEE-Chemistry-Screening-2003**

**SCREENING** **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
 **1.**         Among the following the molecule with the highest dipole moment is :
            (a)       CH3CI
            (b)       CH2CI2
            (c)       CHCI3
            (d)       CCI4

 **2.**         Which of the following are isoelectronic and isostructural?
            NO3-, C O32-, CI O3-, SO3
            (a)       N O3-, C O32-
            (b)       SO3, N O3-
            (c)       CI O3-, C O32-
            (d)       C O32-, SO3

 **3.**
          

            The product A will be

         

 **4.**       [X] + H2SO4 → [Y] a colourless gas with irritating smell
            [Y] + K2CrO7 + H2SO4 ® green solution
            [X] and [Y] is:
            (a)       S O32-, SO2
            (b)       CI-, HCI
            (c)       S2-, H2S
            (d)       C O3-, CO2

 **5.**       For H3PO3 and H3PO4 the correct choice is:
            (a)       H3PO3 is dibasic and reducing
            (b)       H3PO3 is dibasic and non-reducing
            (c)       H3PO4 is tribasic and reducing
            (d)       H3PO3 is tribasic and non-reducing

 **6.**      When MnO2 is fused with KOH, a coloured compound is formed, the product and its colour is :
            (a)       K2MnO4, purple green
            (b)       KMnO4, purple
            (c)       Mn2O3, brown
            (d)       Mn3O4 black

**7.**      Rate of physiorption increases with :
            (a)       decrease in temperature
            (b)       increase in temperature
            (c)       decrease in pressure
            (d)       decrease in surface area

 **8.**       Which of the following represent the given mode of hybridization
sp2 - sp2 - sp - sp from left to right?
            (a)       H2C = CH - C ≡ N
            (b)       HC ≡ C - C ≡ CH

            (c)       H2C = C = C = CH2
            (d)
                      

 **9.**
        

 **10.**    The product of acid hydrolysis of P and Q can be distinguished by :

        

            (a)       Lucas Reagent
            (b)       2, 4-DNP
            (c)       Fehling's solution
            (d)       NaHSO3

 **11.**
            

            (a)       C6H5OC2H5
            (b)       C2H5OC2H5
            (c)       C6H5OC6H5
            (d)       C6H5I

 **12.**       Which has maximum number of atoms?
            (a)       24g of C (12)
            (b)       56 g of Fe (56)
            (c)       27g of AI (27)
            (d)       108 g of Ag (108)

**13.**      

 **14.**     In the electrolytic cell, flow of electrons is from :
            (a)       cathode to anode in solution
            (b)       cathode to anode through external supply
            (c)       cathode to anode through internal supply
            (d)       anode to cathode through internal supply

 **15.**      In a first order reaction the concentration of reactant decreases from 800 mol/dm3 to 50 mol/dm3 is 2 × 104 sec. The rate constant of reaction in sec-1 is :
            (a)       2 × 104
            (b)       3.45 × 10-5
            (c)       1.386 × 10-5
            (d)       2 × 10-4

 **16.**      During depression of freezing point in a solution the following are in equilibrium :
            (a)       liquid solvent, solid solvent
            (b)       liquid solvent, solid solute
            (c)       liquid solute, solid solute
            (d)       liquid solute solid solvent

 **17.**      H3BO3 is :
            (a)       Monobasic and weak Lewis acid
            (b)       Monobasic and weak Bronsted acid
            (c)       Monobasic and strong Lewis acid
            (d)       Tribasic and weak Bronsted acid

 **18.**
       
 **19.**
        

 **20.**      Mixture X = 0.02 mol of [Co(NH3)5 SO4]Br and 0.02 mol of [Co(NH3)5Br]SO4 was prepared in 2 litre of solution.
                        1 litre of mixture X + excess AgNO3 → Y
1 litre of mixture X + excess BaCI3 → Z
Number of moles of Y and Z are :
            (a)       0.01, 0.01
            (b)       0.02, 0.01
            (c)       0.01, 0.02
            (d)       0.02, 0.02

 **21.**      Which of the reaction defines ΔHf0:
            (a)       Cdiamond + O2(g) → CO2(g)
            (b)       1/2 H2(g) + 1/2 F2(g) → HF(g)
            (c)       N2(s) + 3H2(g) → 2NH3(g)
            (d)       CO(g) + 1/2 O2(g) → CO2(g)

 **22.**       23Na is the more stable isotope of Na. Find out the process by which 24Na11 can undergo radioactive decay:
            (a)       b- emission
            (b)       a emission
            (c)       b+ emission
            (d)       K electron capture

 **23.**      (Me)2 SiCI2 on hydrolysis will produce :
            (a)       (Me)2 Si(OH)2
            (b)       (Me)2 Si = O
            (c)       -[-O-(Me)2 Si-O-]n-
            (d)       Me2SiCl(OH)

 **24.**      A solution which is10-3 M each in Mn2+, Fe2+, Zn2+ and Hg2+ is treated with 10-16 M sulphide ion. If Ksp of MnS, FeS, ZnS and HgS are 10-15, 10-23, 10-20 and 10-54 respectively, which one will precipitate first?
            (a)       FeS
            (b)       MgS
            (c)       HgS
            (d)       ZnS
 **25.**      In the process of extraction of gold,
            Roasted gold ore + CN- + H2O → O2 → [X] + OH-
            [X] + Zn → [Y] + Au
            Identify the complexes [X] and [Y] :
            (a)       X = [Au(CN)2]-, Y = [Zn(CN)4]2-
            (b)       X = [Au(CN)4]3-, Y = [Zn(CN)4]2-
            (c)       X = [Au(CN)2]-, Y = [Zn(CN)6]4-
            (d)       X = [Au(CN)4]-, Y = [Zn(CN)4]2-

 **26.**     Positive deviation from ideal behaviour takes place because of :
            (a)       Molecular interaction between atom and PV/nRT > 1.
            (b)       Molecular interaction between atom and PV/nRT < 1.
            (c)       Finite size of atom and PV/nRT > 1
            (d)       Finite size of atoms and PV/nRT < 1

 **27.**
         

            How many structures of F is possible?
            (a)       2
            (b)       5
            (c)       6
            (d)       3

 **28.**      An enantiomerically pure acid is treated with racemic mixture of an alcohol having one chiral carbon. The ester formed will be:
            (a)       Optically active mixture
            (b)       Pure enantiomer
            (c)       Meso Compound
            (d)       Racemic mixture