

# CHEMISTRY

Test Series for NEET Students

Test No. : 01/24

By Khare Sir

## SECTION - A

1. Wood spirit is known as  
(a) ethanol (b) methanol  
(c) propanol (d) none of these.
2. Which of the following hormones contains iodine?  
(a) Testosterone (b) Adrenaline  
(c) Thyroxine (d) Insulin
3. Which of the following order is incorrect?  
(a)  $\text{AlCl}_3 > \text{MgCl}_2 > \text{NaCl}$  : Polarising power  
(b)  $\text{CO} < \text{CO}_2 < \text{CO}_3^{2-}$  : Bond length  
(c)  $\text{BeCl}_2 < \text{NF}_3 < \text{NH}_3$  : Dipole moment  
(d)  $\text{H}_2\text{S} > \text{NH}_3 > \text{SiH}_4 > \text{BF}_3$  : Bond angle
4. A weak acid of dissociation constant  $10^{-5}$  is being titrated with aqueous NaOH solution. The pH at the point of one-third neutralisation of the acid will be  
(a)  $5 + \log 2 - \log 3$  (b)  $5 - \log 2$   
(c)  $5 - \log 3$  (d)  $5 - \log 6$

5. For one of the element, various successive ionisation enthalpies (in  $\text{kJ mol}^{-1}$ ) are given below :

I.E.	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>
	577.5	1810	2750	11,580	14,820

The element is

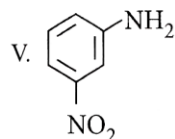
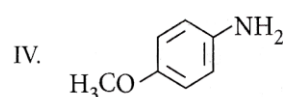
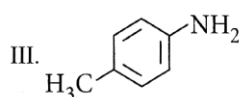
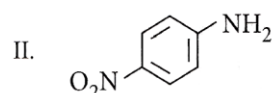
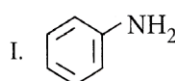
- (a) P (b) Mg (c) Si (d) Al
6. IUPAC name of the compound,  
$$\text{CH}_3 - (\text{CH}_2)_4 - \underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}} - \text{CH}_2 - \text{CH}_3$$
 is  
(a) 3,4-dimethyl-3-*n*-propylnonane  
(b) 4-ethyl-4,5-dimethyldecane  
(c) 6,7-dimethyl-7-*n*-propylnonane  
(d) 6,7-dimethyl-7-ethyldecane.
7. Which of the following increasing order is not correct as mentioned in the property with it?  
(a)  $\text{HClO} < \text{HClO}_2 < \text{HClO}_3 < \text{HClO}_4$  (thermal stability)  
(b)  $\text{HClO}_4 < \text{HClO}_3 < \text{HClO}_2 < \text{HClO}$  (oxidising power)  
(c)  $\text{F}^- < \text{Cl}^- < \text{Br}^- < \text{I}^-$  (reducing nature)  
(d)  $\text{HIO}_4 < \text{ICl} < \text{I}_2 < \text{HI}$  (oxidation number of iodine)

8. Which of the following pairs of isomers is not correctly matched with its type of isomerism?  
(a)  $[\text{Co}(\text{NH}_3)_6] [\text{Cr}(\text{CN})_6]$  and  $[\text{Cr}(\text{NH}_3)_6] [\text{Co}(\text{CN})_6]$   
– Coordination isomerism  
(b)  $[\text{Co}(\text{NH}_3)_5\text{NO}_2]\text{Cl}_2$  and  $[\text{Co}(\text{NH}_3)_5\text{ONO}]\text{Cl}_2$   
– Linkage isomerism  
(c)  $[\text{Co}(\text{py})_2(\text{H}_2\text{O})_2\text{Cl}_2]\text{Cl}$  and  $[\text{Co}(\text{py})_2(\text{H}_2\text{O})\text{Cl}_3]\text{H}_2\text{O}$   
– Coordination isomerism  
(d)  $[\text{Pt}(\text{NH}_3)_4\text{Br}_2]\text{Cl}_2$  and  $[\text{Pt}(\text{NH}_3)_4\text{Cl}_2]\text{Br}_2$   
– Ionisation isomerism

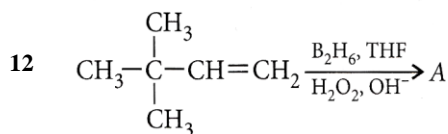
9. Ketones  $[\text{R} - \underset{\text{O}}{\parallel}{\text{C}} - \text{R}']$  where,  $\text{R} = \text{R}' =$  alkyl group can be obtained in one step by  
(a) hydrolysis of esters  
(b) oxidation of primary alcohols  
(c) oxidation of secondary alcohols  
(d) reaction of acid halides with alcohols.

10. Which one of the following gives amine on heating with amide?  
(a)  $\text{Br}_2$  in aqueous KOH (b)  $\text{Br}_2$  in alcoholic KOH  
(c)  $\text{Cl}_2$  in sodium (d) Sodium in ether

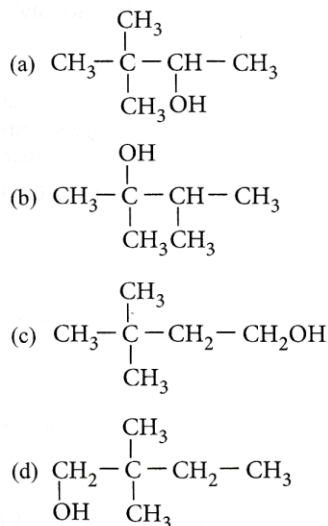
11. The correct order of increasing basic strength of the following compounds is



- (a)  $\text{II} < \text{V} < \text{I} < \text{III} < \text{IV}$  (b)  $\text{V} < \text{II} < \text{I} < \text{III} < \text{IV}$   
(c)  $\text{II} < \text{V} < \text{I} < \text{IV} < \text{III}$  (d)  $\text{V} < \text{II} < \text{I} < \text{IV} < \text{III}$



The product A is

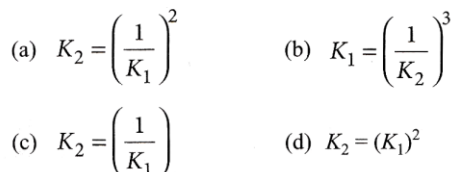


- 13 Phenol associates in benzene to a certain extent to form dimer. A solution containing  $2.0 \times 10^{-2}$  kg of phenol in 1.0 kg of benzene has its freezing point decreased by 0.69 K. The degree of association of phenol is ( $K_f$  for benzene =  $5.12 \text{ K kg mol}^{-1}$ )  
 (a) 73.4% (b) 50.1% (c) 42.3% (d) 25.1%

- 14  $\Delta U$  is equal to  
 (a) adiabatic work (b) isothermal work  
 (c) isochoric work (d) isobaric work.

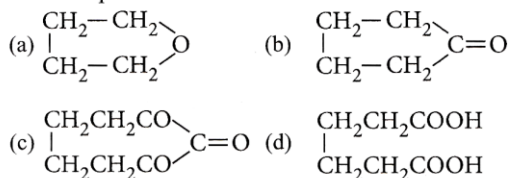
- 15 Among the following series of transition metal ions, the one where all metal ions have  $3d^2$  electronic configuration is  
 (a)  $\text{Ti}^{3+}, \text{V}^{2+}, \text{Cr}^{3+}, \text{Mn}^{4+}$  (b)  $\text{Ti}^+, \text{V}^{4+}, \text{Cr}^{6+}, \text{Mn}^{7+}$   
 (c)  $\text{Ti}^{4+}, \text{V}^{3+}, \text{Cr}^{2+}, \text{Mn}^{3+}$  (d)  $\text{Ti}^{2+}, \text{V}^{3+}, \text{Cr}^{4+}, \text{Mn}^{5+}$ .

- 16 If the equilibrium constants of the following equilibria,  
 $\text{SO}_2 + \frac{1}{2} \text{O}_2 \rightleftharpoons \text{SO}_3$  and  $2\text{SO}_3 \rightleftharpoons 2\text{SO}_2 + \text{O}_2$   
 are given by  $K_1$  and  $K_2$  respectively, which of the following relation is correct?



- 17 Which of the following is an optically active compound?  
 (a) 1-Butanol (b) 1-Propanol  
 (c) 2-Chlorobutane (d) 4-Hydroxyheptane

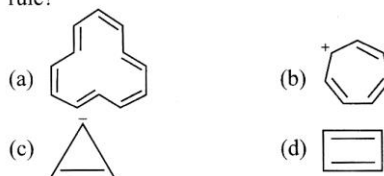
- 18 Which one of the following products is formed when calcium salt of adipic acid is heated?



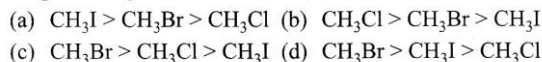
- 19 Which one of the following represents smallest quantity?  
 (a) 1850 ng (b)  $1.85 \times 10^{-4}$  g  
 (c)  $1.85 \times 10^3$   $\mu\text{g}$  (d)  $1.85 \times 10^{-6}$  kg

- 20 Which of the following systems is most stable for a chelate?  
 (a) Two fused cyclic system (b) Three fused cyclic system  
 (c) Four fused cyclic system (d) Five fused cyclic system

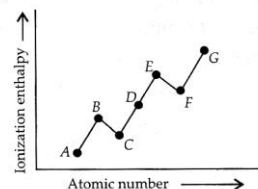
- 21 Which of the following exhibits aromaticity by using Huckel's rule?



- 22 The order of reactivity of methyl halides in the formation of Grignard reagent is



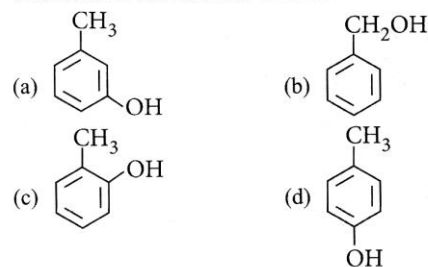
- 23 The ionisation enthalpies of second period elements vary with atomic numbers as



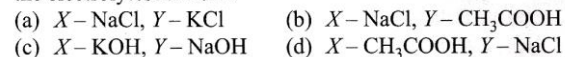
The elements present at points B and E are

- (a) Be, C (b) B, N (c) Be, O (d) Be, N.

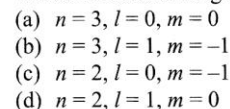
- 24 The structure of the compound that gives a tribromo derivative on treatment with bromine water is



- 25 Two solutions of X and Y electrolytes are taken in two beakers and diluted by adding 500 mL of water.  $\Lambda_m$  of X increases by 1.5 times while that of Y increases by 20 times, what could be the electrolytes X and Y?



- 26 Which of the following electronic configuration is not possible?



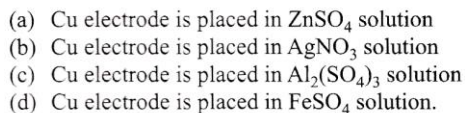
- 27  $\text{C}_2\text{H}_5\text{OH}$  and  $\text{C}_6\text{H}_5\text{OH}$  can be distinguished by



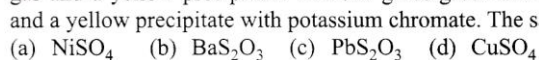
- 28 Which transition in the hydrogen atomic spectrum will have the same wavelength as the transition,  $n = 4$  to  $n = 2$  of  $\text{He}^+$  spectrum?



- 29 The solution in a beaker turns blue if



- 30 A salt on treatment with dilute HCl gives a pungent smelling gas and a yellow precipitate. The salt gives green-flame test and a yellow precipitate with potassium chromate. The salt is



- 31 The rate constant of a first order reaction is  $15 \times 10^{-3} \text{ s}^{-1}$ . How long will 5.0 g of this reactant take to reduce to 3.0 g?  
 (a) 34.07 s (b) 7.57 s  
 (c) 10.10 s (d) 15 s
- 32 An organic compound 'A' having molecular formula,  $\text{C}_2\text{H}_3\text{N}$  on reduction gave another compound 'B'. Upon treatment with nitrous acid, 'B' gave ethyl alcohol. On warming with chloroform and alcoholic KOH, 'B' forms an offensive smelling compound 'C'. The compound 'C' is  
 (a)  $\text{CH}_3\text{CH}_2\text{NH}_2$  (b)  $\text{CH}_3\text{CH}_2\text{N}\equiv\text{C}$   
 (c)  $\text{CH}_3\text{C}\equiv\text{N}$  (d)  $\text{CH}_3\text{CH}_2\text{OH}$
- 33 Match the plots given in List I with their slopes given in List II and select the correct answer using the codes given below the lists :

List I	List II
P. $C$ vs $t$ (abscissa) for zero order reaction	1. Unity
Q. $\log C$ vs $t$ (abscissa) for first order reaction	2. Zero
R. $\left(-\frac{dC}{dt}\right)$ vs $C$ for zero order reaction	3. $-k$
S. $\ln\left(-\frac{dC}{dt}\right)$ vs $\ln C$ for first order reaction	4. $-\frac{k}{2.303}$

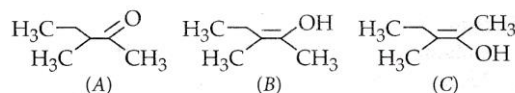
P	Q	R	S
(a) 4	3	2	1
(b) 3	4	2	1
(c) 2	4	3	1
(d) 3	2	4	1

- 34 The decreasing order of boiling points of the following hydrides is  
 (a)  $\text{H}_2\text{O} > \text{SbH}_3 > \text{AsH}_3 > \text{PH}_3 > \text{NH}_3$   
 (b)  $\text{H}_2\text{O} > \text{NH}_3 > \text{SbH}_3 > \text{AsH}_3 > \text{PH}_3$   
 (c)  $\text{H}_2\text{O} > \text{SbH}_3 > \text{NH}_3 > \text{AsH}_3 > \text{PH}_3$   
 (d)  $\text{H}_2\text{O} > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3 > \text{NH}_3$
- 35 The deficiency of which of the following vitamins causes convulsions?  
 (a) Vitamin A (b) Vitamin B<sub>6</sub>  
 (c) Vitamin C (d) Vitamin E

### Section-B

- 36 Which of the following represents the correct decreasing order of relative reactivity towards an electrophile,  $E^+$ ?  
 (a)  $\text{C}_6\text{H}_5 - \text{CH}_3, p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{CH}_3, p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{NO}_2, p\text{-NO}_2 - \text{C}_6\text{H}_4 - \text{NO}_2$   
 (b)  $p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{CH}_3, p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{NO}_2, p\text{-NO}_2 - \text{C}_6\text{H}_4 - \text{NO}_2, \text{C}_6\text{H}_5 - \text{CH}_3$   
 (c)  $p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{NO}_2, \text{C}_6\text{H}_5 - \text{CH}_3, p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{CH}_3, p\text{-NO}_2 - \text{C}_6\text{H}_4 - \text{NO}_2$   
 (d)  $p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{CH}_3, \text{C}_6\text{H}_5 - \text{CH}_3, p\text{-CH}_3 - \text{C}_6\text{H}_4 - \text{NO}_2, p\text{-NO}_2 - \text{C}_6\text{H}_4 - \text{NO}_2$
- 37 A metal nitrate reacts with KI to give a black precipitate which on addition of excess of KI converts into orange colour solution. The cation of metal nitrate is  
 (a)  $\text{Hg}^{2+}$  (b)  $\text{Bi}^{3+}$  (c)  $\text{Pb}^{2+}$  (d)  $\text{Cu}^+$
- 38 An acid solution has a pH = 6. It is diluted 100 times, the pH of the resultant solution would be  
 (a) 5.95 (b) 6.95 (c) 7 (d) 8
- 39 Which amino acid has imidazole ring?  
 (a) Alanine (b) Leucine (c) Tyrosine (d) Histidine

- 40 The incorrect statement concerning the structures of A, B and C is



- (a) A, B and C are resonance structures  
 (b) A, B and A, C are tautomers  
 (c) B and C are geometrical isomers  
 (d) B and C are diastereomers.
- 41 The pair of species showing perfect tetrahedral geometry  
 (a)  $\text{PCl}_4^+$  and  $\text{NH}_4^+$  (b)  $\text{BF}_4^-$  and  $\text{NH}_3$   
 (c)  $\text{SF}_4$  and  $\text{CCl}_4$  (d)  $\text{SF}_4$  and  $\text{CH}_3^-$
- 42 Which of the following compounds does not contain  $-\text{COOH}$  group?  
 (a) Aspirin (b) Benzoic acid  
 (c) Picric acid (d) Salicylic acid
- 43 The number of radial nodes and angular nodes for  $d$ -orbital can be represented as  
 (a)  $(n-2)$  radial nodes + 1 angular node =  $(n-1)$  total nodes  
 (b)  $(n-1)$  radial nodes + 1 angular node =  $(n-1)$  total nodes  
 (c)  $(n-3)$  radial nodes + 2 angular nodes =  $(n-1-1)$  total nodes  
 (d)  $(n-3)$  radial nodes + 2 angular nodes =  $(n-1)$  total nodes
- 44 Cerium ( $Z = 58$ ) is an important member of the lanthanides. Which of the following statements about cerium is incorrect?  
 (a) The common oxidation states of cerium are +3 and +4.  
 (b) The +3 oxidation state of cerium is more stable than the +4 oxidation state.  
 (c) The +4 oxidation state of cerium is not known in solutions.  
 (d) Cerium(IV) acts as an oxidising agent.
- 45 The correct order of spin-only magnetic moments among the following is  
 (Atomic number : Mn = 25, Co = 27, Ni = 28, Zn = 30)  
 (a)  $[\text{ZnCl}_4]^{2-} > [\text{NiCl}_4]^{2-} > [\text{CoCl}_4]^{2-} > [\text{MnCl}_4]^{2-}$   
 (b)  $[\text{CoCl}_4]^{2-} > [\text{MnCl}_4]^{2-} > [\text{NiCl}_4]^{2-} > [\text{ZnCl}_4]^{2-}$   
 (c)  $[\text{MnCl}_4]^{2-} > [\text{CoCl}_4]^{2-} > [\text{NiCl}_4]^{2-} > [\text{ZnCl}_4]^{2-}$   
 (d)  $[\text{NiCl}_4]^{2-} > [\text{CoCl}_4]^{2-} > [\text{MnCl}_4]^{2-} > [\text{ZnCl}_4]^{2-}$
- 46 1.5 moles of each of  $\text{XY}_2$  and  $\text{XY}_3$  if weigh 96 g and 120 g respectively. The atomic masses of X and Y respectively are  
 (a) 4, 8 (b) 8, 16 (c) 32, 16 (d) 32, 64
- 47 Which of the following groups constitute basic radicals of fourth group?  
 (a)  $\text{Pb}^{2+}, \text{Hg}^{2+}, \text{Cd}^{2+}$  (b)  $\text{Zn}^{2+}, \text{Mn}^{2+}, \text{Ni}^{2+}$   
 (c)  $\text{Al}^{3+}, \text{Fe}^{3+}, \text{Cr}^{3+}$  (d)  $\text{Ca}^{2+}, \text{Sr}^{2+}, \text{Ba}^{2+}$
- 48 Which one of the following sequences represents the correct increasing order of bond angles in the given molecules?  
 (a)  $\text{H}_2\text{O} < \text{OF}_2 < \text{OCl}_2 < \text{ClO}_2$   
 (b)  $\text{OCl}_2 < \text{ClO}_2 < \text{H}_2\text{O} < \text{OF}_2$   
 (c)  $\text{OF}_2 < \text{H}_2\text{O} < \text{OCl}_2 < \text{ClO}_2$   
 (d)  $\text{ClO}_2 < \text{OF}_2 < \text{OCl}_2 < \text{H}_2\text{O}$
- 49 Identify 'D' in the following reaction :
- $$\text{CH}\equiv\text{CH} + \text{CH}_3\text{MgBr} \xrightarrow{-\text{CH}_4} \text{A} \xrightarrow[\text{(ii) H}_3\text{O}^+]{\text{(i) CO}_2} \text{B} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HgSO}_4} \text{C} \xrightarrow{\text{Tautomerisation}} \text{D}$$
- (a)  $\text{HOOC}-\text{CH}_2-\text{COOH}$  (b)  $\text{OHC}-\text{CH}_2-\text{COOH}$   
 (c)  $\text{OHC}-\text{CH}_2-\text{CHO}$  (d)  $\text{HO}-\text{CH}=\text{CH}-\text{COOH}$
- 50 The colour and magnetic nature of manganate ion ( $\text{MnO}_4^{2-}$ ) is  
 (a) green, paramagnetic (b) purple, diamagnetic  
 (c) green, diamagnetic (d) purple, paramagnetic.