1. The vitamin that helps in clotting of blood is

   (a) A (b) B_2 (c) C (d) K

   Ans: (d)

   Sol: Vitamin K helps in clotting of blood

2. The polymer containing five methylene groups in its repeating unit is

   (a) Nylon 6, 6 (b) Dacron (c) Nylon 6 (d) Bakelite

   Ans: (c)

   Sol: The polymer containing fine methylene groups in its repeating unit is nylon 6.

3. Cis-1, 4-polyisoprene is called

   (a) Buna-N (b) Buna-S (c) Neoprene (d) Natural rubber

   Ans: (d)

   Sol: Cis – 1, 4 – polyisoprene is called Natural rubber

4. Which cleansing agent gets precipitated in hard water?

   (a) Sodium lauryl sulphate (b) Cetyl trimethyl ammonium bromide

   (c) Sodium stearate (d) Sodium dodecyl benzene sulphonate

   Ans: (c)

   Sol: Sodim stearate being soap, gets precipitated in hard water

5. Anti-histamine among the following is

   (a) Bromopheneramine (b) Amoxycillin (c) Morphine (d) Chloroxylenol

   Ans: (a)

   Sol: Antihistamine - Bromopheneramine

6. The elements in which electrons are progressively filled in 4f orbital are called

   (a) Actinoids (b) Lanthanoids (c) Transition elements (d) Halogens

   Ans: (b)

   Sol: In lanthanoids, the differenciating electron are progressively filled in $4f$ orbital.

7. Incorrect statement with reference to $Ce(Z = 58)$

   (a) Ce^{4+} is a reducing agent

   (b) Atomic size of Ce is more than that of Lu

   (c) Ce in $+3$ oxidation state is more

   (d) Ce shows common oxidation states of $+3$ and $+4$

   Ans: (a)

   Sol: Ce^{4+} is a good oxidising agent and undergoes reduction easily as Ce^{3+} is more stable than Ce^{4+}.

8. A mixture of $NaCl$ and $K_2Cr_2O_7$ is heated with conc. H_2SO_4, deep red vapours are formed. Which of the following statement is false?

(a) The vapours give a yellow solution with $NaOH$

(b) The vapours contain CrO_2Cl_2 and Cl_2

(c) The vapours contain CrO_2Cl_2 only

(d) The vapours when passed into lead acetate in acetic acid gives a yellow precipitate

Ans: (b)

Sol: The yellow vapour coming out of test tube contains only CrO_2Cl_2

9. Which of the following statement is wrong?

(a) In highest oxidation states, the transition metals show acidic character

(b) Metals in highest oxidation states are more stable in oxides than in fluorides

(c) Mn^{3+} and Co^{3+} are oxidizing agents in aqueous solution

(d) All elements of $3d$ series exhibit variable oxidation states

Ans: (d)

Sol: Zn and Sc do not show variable oxidation state in 3–d series.

10. Which among the following is the strongest ligand?

(a) CN^- (b) CO (c) NH_3 (d) en

Ans: (b)

Sol: CO is the strongest ligand

11. Relative lowering of vapour pressure of dilute solution of glucose dissolved in 1 kg of water is 0.002. The molality of the solution is

(a) 0.004 (b) 0.111 (c) 0.222 (d) 0.021

Ans: (b)

Sol: RLVP $= x_2 = \dfrac{n_1}{n_1 + n_2}$ for dilute solution, $n_1 + n_2 \approx n_2$

$$\text{RLVP} = \frac{n_1}{n_2}$$

$$0.002 = \frac{n_1}{\frac{1000}{18}} \qquad n_1 = 0.111$$

12. One litre solution of $MgCl_2$ is electrolyzed completely by passing a current of $1A$ for 16 min 5 sec. The original concentration of $MgCl_2$ solution was

(Atomic mass of $Mg = 24$)

(a) $5\times10^{-3}M$ (b) $0.5\times10^{-3}M$ (c) $5\times10^{-2}M$ (d) $1.0\times10^{-2}M$

Ans: (a)

Sol: $Mg^{2+} + 2e^{-1} \longrightarrow Mg$

$2F$ 1 mole

2×96500 1 mole

$\therefore\ 965C \longrightarrow$

$$\frac{965}{2\times96500} = \frac{1}{2\times100}$$

$$= 0.005$$

$$= 5\times10^{-3}\ \text{M}$$

13. An aqueous solution of $CuSO_4$ is subjected to electrolysis using inert electrodes. The pH of the solution will

(a) increase

(b) decrease

(c) remains unchanged

(d) increase or decrease depending on the strength of the current

Ans: (b)

Sol: The products of electrolysis of aq solution of $CuSO_4$ using inert electrode.

Anode : O_2 gas Cathode : Cu

Left over solution - H_2SO_4 solution

$\therefore$ pH of the solution decreases

14. Give : $E^o_{Mn^{+4}|Mn^{+2}} = 1.2V$, then $E^o_{Mn^{+7}|Mn^{+4}}$ is

(a) 0.3 V (b) 1.7 V (c) 0.1 V (d) 2.1 V

Ans: (b)

Sol: $Mn^{+7} \xrightarrow[L_2E_2]{3e^-} Mn^{+4} \xrightarrow[L_1E_1]{(1.2V)\,2e^{-1}} Mn^{2+}$

L_3E_2 (1.5 v) $5e^{-1}$

$L_3E_3 = L_1E_1 + L_2E_2$

$1.5\times5 = 1.2\times2 + E_2\times3$

$7.5 - 2.4 = 3E_2$

$$E_2 = \frac{7.5-2.4}{3} = \frac{5.1}{3} = 1.7V$$

15. The plot of $t_{1/2}$ v/s $[R]_0$ for a reaction is a straight-line parallel to x-axis. The unit for the rate constant of this reaction is

(a) mol $L^{-1}s$ (b) $L\,\text{mol}-1s^{-1}$ (c) mol $L^{-1}s^{-1}$ (d) s^{-1}

Ans: (d)

Sol: $t_{1/2}$ is independent of initial concentration for first order reaction. Which has unit of rate constant as S^{-1}

16. The mass of $AgCl$ precipitated when a solution containing 11.70 g of $NaCl$ is added to a solution containing 3.4 g of $AgNO_3$ is

(Atomic mass of $Ag = 108$, Atomic mass of $Na = 23$)

(a) 5.74 g (b) 2.87 g (c) 1.17 g (d) 6.8 g

Ans: (b)

Sol: $AgNO_3 + NaCl \longrightarrow AgCl + NaNO_3$

$$\frac{3.4}{170} \quad \frac{11.7}{58.5}$$

$= 0.02\,mol$ 0.2 mol 0.02 mol

(LR)

$\therefore$ The mass of $AgCl = 0.02 \times 143.5$

$= 2.87$ g

17. Two particles A and B are in motion. If the wavelength associated with 'A' is 33.33 nm, the wavelength associated with 'B' whose momentum is $\frac{1}{3}^{rd}$ of 'A' is

(a) $1.0\times10^{-8}m$ (b) $1.25\times10^{-7}m$ (c) $2.5\times10^{-8}m$ (d) $1.0\times10^{-7}m$

Ans: (d)

Sol: $\lambda_A = \frac{h}{P_A} \quad \therefore P_A = \frac{h}{\lambda_A}$

given $P_B = \frac{1}{3}P_A$

$$\lambda_B = \frac{h}{P_B} = \frac{h}{\frac{1}{3}P_A} = \frac{3h}{h/\lambda_A} = 3\lambda_A$$

$\therefore \lambda_B = 3\times33.33 = 99.99\,nm$

$\approx 100\ nm \quad = 100\times10^{-9}m$

$\lambda_B = 1\times10^{-7}m$

18. The first ionization enthalpy of the following elements are in the order:

(a) $C < N < Si < P$ (b) $P < Si < C < N$

(c) $P < Si < N < C$ (d) $Si < P < C < N$

Ans: (d)

Sol: 14th group 15 group

C N

Si P

Ionization enthalpy of $N >$ Ionization enthalpy of C

Ionization enthalpy decreases down the group

$\therefore \quad Si < P < C < N$

19. Solubility of $AgCl$ is least in

(a) $0.1M$ $NaCl$ (b) $0.1M$ $BaCl_2$ (c) Pure water (d) $0.1M$ $AlCl_3$

Ans: (d)

Sol: Solubility of sparingly soluble salt decreases with the addition salt with common ion. Higher the concentration of the common ion, lower is the solubility.

20. Which of the following equations does NOT represent Charles's law for a given mass of gas at constant pressure?

(a) $\frac{V}{T} = K$ (b) $\log K = \log V + \log T$

(c) $\log V = \log K + \log T$ (d) $\frac{d(\ln V)}{dT} = \frac{1}{T}$

Ans: (b)

Sol: For Charles' Law

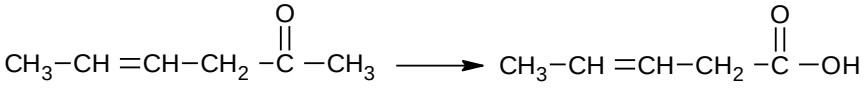
$V \alpha T$ at constant pressure

$V = KT$ or $\frac{V}{T} = K$; $\log V = \log K + LogT$

Differentiating above equation we get, $\frac{d(lnV)}{dT} = \frac{1}{T}$

$\therefore$ option (B) does not represent Charles' law

21. Which is the most suitable reagent for the following conversion?



(a) Tollen's reagent (b) Benzoyl peroxide

(c) I_2 and $NaOH$ solution (d) Sn and $NaOH$ solution

Ans: (c)

Sol: Iodoform reaction as the given compound contains methyl ketone.

22. Which of the following is least soluble in water at $298\ K$?

(a) CH_3NH_2 (b) $(CH_3)_2\ NH$ (c) $(CH_3)_3\ N$ (d) $C_6H_5NH_2$

Ans: (c)

Sol: Tertiary amine is least soluble as it cannot form hydrogen bonds.

23. If Aniline is treated with $1:1$ mixture of $con.HNO_3$ and $con.H_2SO_4$, $p-$ nitroaniline and $m-$ nitroaniline are formed nearly in equal amounts. This is due to

(a) $m-$ directing property of $-NH_2$ group

(b) m & p directing property of $-NH_2$ group

(c) protonation of $-NH_2$ which causes deactivation of benzene ring

(d) isomerization of some $p-$ nitroaniline into $m-$ nitroaniline

Ans: (c)

Sol: Aniline with nitrating mixture given meta derivative also due to protonation of $-NH_2$ which causes deactivation of benzene ring.

24. In nucleic acids, the nucleotides are joined together by

(a) Phosphoester linkage (b) Phosphodisulphide linkage

(c) Phosphodiester linkage (d) Sulphodiester linkage

Ans: (c)

Sol: Nucleotides are joined together by phosphodiester linkage in nucleic acids.

25. Which of the following is generally water insoluble?

(a) Fibrous protein (b) Amylose (c) Vitamin-C (d) Glycine

Ans: (a)

Sol: Fibrous proteins are water insoluble

26. Which of the following possess net dipole moment?

(a) SO_2 (b) $BeCl_2$ (c) BF_3 (d) CO_2

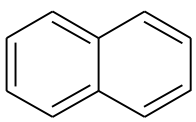
Ans: (a) Sol: SO_2 shows net dipole moment of 1.61 D

27. The number of $\pi-$ bonds and $\sigma-$ bonds present in naphthalene are respectively

(a) $6, 19$ (b) $5, 11$ (c) $5, 19$ (d) $5, 20$

Ans: (c)

Sol: The structure of naphthalene



Π bonds – 5

$C-H\ \sigma$ bonds – 8

$C-C\ \sigma$ bonds – 11

} 19 σ bonds

28. The reaction in which $\Delta H > \Delta U$ is

(a) $N_{2(g)} + O_{2(g)} \longrightarrow 2NO_{(g)}$

(b) $N_{2(g)} + 3H_{2(g)} \longrightarrow 2NH_{3(g)}$

(c) $CaCO_{3(s)} \longrightarrow CaO_{(s)} + CO_{2(g)}$

(d) $CH_{4(g)} + 2O_{2(g)} \longrightarrow CO_{2(g)} + 2H_2O_{(l)}$

Ans: (c)

Sol: $\Delta H = \Delta U + RT\Delta n_g$

$\Delta H > \Delta U$ for $\Delta n_g > 0$

For $CaCO_3(S) \longrightarrow CaO(S) + CO_2(g)$

$\Delta n_g = 1 \quad \therefore \quad \Delta H > \Delta U$

29. The number of moles of electron required to reduce $0.2\ mole$ of $Cr_2O_7^{-2}$ to Cr^{+3}

(a) 1.2 (b) 12 (c) 6 (d) 0.6

Ans: (a)

Sol:

$\overset{+6}{Cr_2}\ O_7^{2-} \longrightarrow \overset{+3}{2C}r^{3+}$

Total change in $O.N = 6$

$\therefore$ For reduction 1 mole of $Cr_2O_7^{2-}$, 6 moles of electrons are required.

$\therefore$ For 0.2 mole ---------- 0.2×6

= 1.2 mole of electron

30. In the reaction $B(OH)_3 + 2H_2O \longrightarrow \left[B(OH)_4\right]^- + H_3\overset{+}{O}$, $B(OH)_3$ functions as

(a) Protonic acid (b) Bronsted acid

(c) Lewis base (d) Lewis acid

Ans: (d)

Sol: Boric acid $B(OH)_3$ is a lewis acid

31. Match the following acids with their pKa values

Acid		pKa	
(A)	Phenol	i.	16
(B)	*p* – Nitrophenol	ii.	0.78
(C)	Ethanol	iii.	10
(D)	Picric acid	iv.	7.1

	a	b	c	d
(a)	iii	iv	i	ii
(b)	iii	i	iv	ii
(c)	ii	i	iii	iv
(d)	iv	ii	iii	i

Ans: (a)

Sol: presence of electron with drawing group increases the acidic nature of phenol. Hence the order of acidic strength of phenol is given by

Picric acid > p – nitrophenol > phenol > ethanol

pKa (0.78) (7.1) (10) (16)

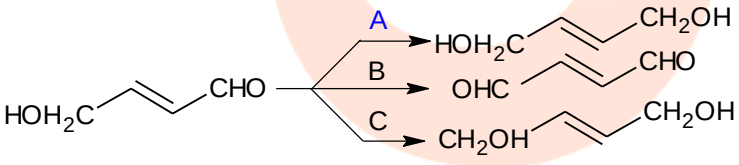
32. Which of the following can be used to test the acidic nature of ethanol?

(a) Blue litmus solution (b) $NaHCO_3$

(c) Na_2CO_3 (d) Na metal

Ans: (d)

Sol: Ethanol being a very weak acid does not give litmus test, $NaHCO_3$ test and Na_2CO_3. It only reacts with sodium metal to liberate hydrogen gas

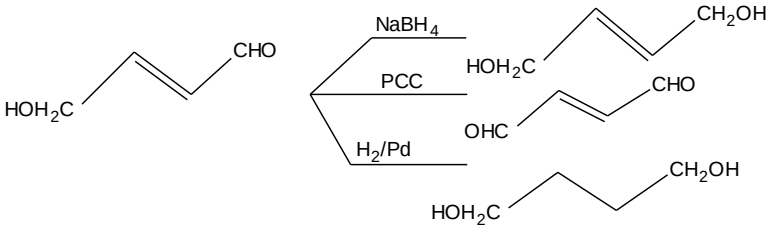
33. 

The reagent A, B and C respectively are

(a) $H_2 / Pd, PCC, NaBH_4$ (b) $NaBH_4, PCC, H_2 / Pd$

(c) $NaBH_4, alk.KMnO_4, H_2 / Pd$ (d) $H_2 / Pd, alk.KMnO_4, NaBH_4$

Ans: (b)

Sol: 

34. Propanoic acid undergoes HVZ reaction to give chloropropanoic acid. The product obtained is

(a) stronger acid than propanoic acid (b) weaker acid than propanoic acid

(c) as stronger as propanoic acid (d) stronger than dichloropropanoic acid

Ans: (a)

Sol: $CH_3CH_2COOH \xrightarrow{Cl_2/RedP} CH_3\underset{\underset{Cl}{|}}{C}HCOOH$

Propanoic acid Chcloropropanoic acid

Chloropropanoic acid is stronger than propanoic acid due to $-I$ effect.

35. $P \xrightarrow{H_2/Pd-BaSO_4} Q$

$\xrightarrow[(ii)dil.HCl]{(i)con.NaOH} R + S$

R and S form benzyl benzoate when treated with each other. Hence P is

(a) C_6H_5CHO (b) C_6H_5COCl (c) $C_6H_5CH_2OH$ (d) C_6H_5COOH

Ans: (b)

Sol: $C_6H_5COCl \xrightarrow{H_2/Pd-BaSO4} C_6H_5CHO \xrightarrow[dil\ HCL]{ConNaOH} C_6H_5COOH + C_6H_5CH_2OH$

$\downarrow$esterification

$C_6H_5COOCH_2C_6H_5$

benzyl benzoate

36. Which of the following is a network crystalline solid?

(a) I_2 (b) $NaCl$ (c) AlN (d) Ice

Ans: (c)

Sol: AlN (aluminium nitride) is a networking solid

37. The number of atoms in $2.4\ g$ of body centred cubic crystal with edge length $200\ pm$ is (density $= 10\ g\ cm^{-3}$, $N_A = 6\times10^{23}$ atoms/mol)

(a) 6×10^{22} (b) 6×10^{23} (c) 6×10^{20} (d) 6×10^{19}

Ans: (a)

Sol: $d = \dfrac{ZM}{a^3 N\ 10^{-30}}$

$10 = \dfrac{2\times2.4}{(200)^3 N\ 10^{-30}}$

$N = \dfrac{2\times2.4}{8\times10^{-24}\times10} = 6\times10^{22}$

38. 1 mole of $NaCl$ is doped with 10^{-5} mole of $SrCl_2$. The number of cationic vacancies in the crystal lattice will be

(a) 6.022×10^{18} (b) 6.022×10^{23} (c) 6.022×10^{15} (d) 12.044×10^{20}

Ans: (a)

Sol: For each of Sr^{2+} introduced, 2 cation vacancy created

$\therefore$ 1 mole of $NaCl$ is doped with 10^{-5} moles of $SrCl_2$

$\therefore$ concentration of cation vacancy $= 10^{-5}\times6.022\times10^{23}$

$= 6.022\times10^{18}$

39. A non-volatile solute, 'A' tetramerises in water to the extent of 80%. 2.5 g of 'A' in 100 g of water, lowers the freezing point by $0.3\,°C$. The molar mass of A in gram mol^{-1} is (K_f for water $= 1.86\ K\ kg\ mol^{-1}$)

(a) 62 (b) 155 (c) 221 (d) 354

Ans: (a)

Sol: $\alpha_{ass} = \dfrac{i-1}{1/n-1}$

$0.8 = \dfrac{i-1}{1/4-1}$

$i = 1-0.6 = 0.4$

$\therefore\ \Delta T_f = \dfrac{iK_fW_2 1000}{W_1\times M_2}$

$0.3 = \dfrac{0.4\times1.86\times2.5\times1000}{100\times M_2}$

$M_2 = 62\ \text{g/mol}$

40. Solution 'A' contains acetone dissolved in chloroform and solution 'B' contains acetone dissolved in carbon disulphide. The type of deviations from Raoult's law shown by solutions A and B, respectively are

(a) positive and positive (b) negative and negative

(c) positive and negative (d) negative and positive

Ans: (d)

Sol: Solution A Solution B

Acetone acetone

\+ +

Chloroform CS_2

Negative Positive

Deviation deviation

41. Among the following, the main reactions occurring in blast furnace during extraction of iron from haematite are

i. $Fe_2O_3 + 3CO \longrightarrow 2Fe + 3CO_2$ ii. $FeO + SiO_2 \longrightarrow FeSiO_3$

iii. $Fe_2O_3 + 3C \longrightarrow 2Fe + 3CO$

iv. $CaO + SiO_2 \longrightarrow CaSiO_3$

(a) i and ii (b) ii and iii (c) iii and iv (d) i and iv

Ans: (d)

Sol: Reaction at reduction zone $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

Slag zone $CaO + SiO_2 \rightarrow CaSiO_3$

42. Which of the following pair contains 2 lone pair of electrons on the central atom?

(a) I_3^+, H_2O (b) XeF_4, NH_3 (c) H_2O, NF_3 (d) SO_4^{2-}, H_2S

Ans: (a)

Sol: I_3^+ and H_2O has two lone pairs surrounding the central metal ion.

43. Which of the following statement is correct?

(a) Cl_2 oxidises H_2O to O_2 but F_2 does not

(b) F_2 oxidises H_2O to O_2 but Cl_2 does not

(c) Cl_2 is a stronger oxidising agent than F_2

(d) Fluoride is a good oxidising agent

Ans: (b)

Sol: F_2 oxidises H_2O to O_2 but not Cl_2

44. 0.1 mole of XeF_6 is treated with 1.8 g of water. The product obtained is

(a) XeO_3 (b) $XeOF_4$ (c) XeO_2F_2 (d) $Xe + XeO_3$

Ans: (b)

Sol: $XeF_6 + H_2O \rightarrow XeOF_4 + 2HF$

$0.1\text{mole}\ \frac{1.8}{18} = 0.1\ \text{mole}$

45. In the reaction of gold with aquaregia, oxidation state of Nitrogen changes from

(a) +4 to +2 (b) +5 to +2 (c) +6 to +4 (d) +3 to +1

Ans: (b)

Sol: Aqua regia – mixture of (1 : 3) *con.* HNO_3 and *con.HCl*

$$Au + \overset{+5}{H}\overset{+5}{N}O_3 + 4HCl \rightleftharpoons [AuCl_4]^- + \overset{+2}{N}O + H_3O^+ + H_2O$$

46. Addition of excess of $AgNO_3$ to an aqueous solution of 1 mole of $PdCl_2 \cdot 4NH_3$ gives 2 moles of $AgCl$. The conductivity of this solution corresponds to

(a) 1:1 electrolyte (b) 1:2 electrolyte (c) 1:3 electrolyte (d) 1:4 electrolyte

Ans: (b)

Sol: The formula of the complex is

$[Pd(NH_3)_4]Cl_2 \rightarrow 1:2$ electrolyte

47. The formula of pentaaquanitratochromium(III) nitrate is,

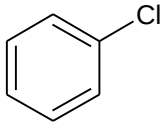
(a) $[Cr(H_2O)_6](NO_3)_3$ (b) $[Cr(H_2O)_5(NO_3)](NO_3)_2$

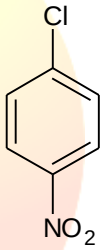
(c) $[Cr(H_2O)_6](NO_2)_2$ (d) $[Cr(H_2O)_5(NO_2)]NO_3$

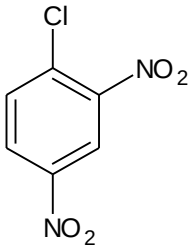
Ans: (b)

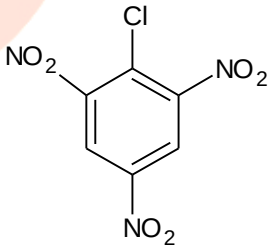
Sol: $[Cr(H_2O)_5(NO_3)](NO_3)_2$

48. Which of the following halide undergoes hydrolysis on warming with water/aqueous $NaOH$?

(a) 

(b) 

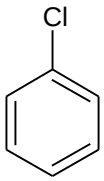
(c) 

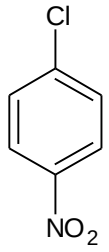
(d) 

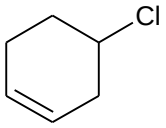
Ans: (d)

Sol: Presence of electron with drawing group like NO_2 at ortho or para position increases the reactivity of chlorobenzene.

49. The compound having longest $C-Cl$ bond is

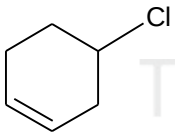
(a) 

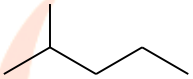
(b) 

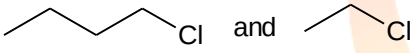
(c) 

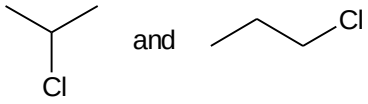
(d) $CH_2=CH-Cl$

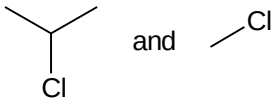
Ans: (c)

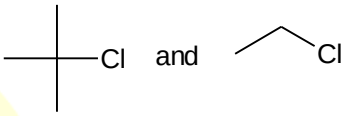
Sol: $C-Cl$ bond length is higher in 

50. The alkyl halides required to prepare  by Wurtz reaction are

(a) 

(b) 

(c) 

(d) 

Ans: (b)

Sol: 

51. Which is a wrong statement?

(a) rate constant $k=$ Arrhenius constant A: if $Ea=0$

(b) In k vs $\frac{1}{T}$ plot is a straight line

(c) $e^{-Ea/RT}$ gives the fraction of reactant molecules that are activated at the given temperature

(d) presence of catalyst will not alter the value of Ea

Ans: (d)

Sol: Catalyst decreases the activation energy of the reaction.

52. 1 L of 2 M CH_3COOH is mixed with 1 L of 3M C_2H_5OH to form an ester. The rate of the reaction with respect to the initial rate when each solution is diluted with an equal volume of water will be

(a) 0.25 times (b) 0.5 times (c) 2 times (d) 4 times

Ans: (a)

Sol: Rate $= K[CH_2COOH][C_2H_5OH]$

$r_1 = K \quad \frac{2}{2}\times\frac{3}{2} \quad \therefore \quad \frac{r_2}{r_1} = \frac{6}{16}\times\frac{4}{6}$

$r_2 = K \quad \frac{2}{4}\times\frac{3}{4} \quad = \frac{4}{16} = \frac{1}{4}$ times

53. Which of the following is an example of homogeneous catalysis?

(a) oxidation of NH_3 in Ostwald's process

(b) oxidation of SO_2 in lead chamber process

(c) oxidation of SO_2 in contact process

(d) manufacture of NH_3 by Haber's process

Ans: (b)

Sol: Reaction in lead chamber process

$$2SO_2(g) + O_2(g) \xrightarrow{NO(g)} 2SO_3(g)$$

Example for homogeneous catalysis

54. Critical Micelle concentration for a soap solution is 1.5×10^{-4} mol L^{-1}. Micelle formation is possible only when the concentration of soap solution in mol L^{-1} is

(a) 2.0×10^{-3} (b) 7.5×10^{-5} (c) 4.6×10^{-5} (d) 1.1×10^{-4}

Ans: (a)

Sol: Micelle formation is possible only above critical micelle concentration.

55. Oxidation state of copper is +1 in

(a) Malachite (b) Azurite (c) Cuprite (d) Chalcopyrite

Ans: (c or d)

Sol: Composition of Chalcopyrite $(CuFeS_2)$

Malachite $(CuCO_3.Cu(OH)_2)$

Azurite $(2CuCo_3.Cu(OH)_2)$

Cuprite (Cu_2O)

56. The metal nitrate that liberates NO_2 on heating

(a) $NaNO_3$ (b) KNO_3 (c) $LiNO_3$ (d) $RbNO_3$

Ans: (c)

Sol: $LiNO_3$ like alkaline earth metal decomposes to give NO_2

$4LiNO_3 \rightarrow 2Li_2O + 4NO_2 + O_2$

57. Which of the following is NOT true regarding the usage of hydrogen as a fuel?

(a) High calorific value

(b) Combustion product is ecofriendly

(c) The combustible energy of hydrogen can be directly converted to electrical energy in a fuel cell

(d) Hydrogen gas can be easily liquefied and stored

Ans: (d)

Sol: Hydrogen gas storage is very difficult because it is highly inflammable

58. Resonance effect is not observed in

(a) $CH_2 = CH - CH = CH_2$ (b) $CH_2 = CH - Cl$

(c) $CH_2 = CH - C \equiv N$ (d) $CH_2 = CH - CH_2 - NH_2$

Ans: (d)

Sol: Resonance effect is possible only in conjugate systems.

59. 2-butyne is reduced to trans-but-2-ene using

(a) $H_2|Ni$ (b) $H_2|Pd - C$ (c) Na in liq. NH_3 (d) Zn in dil. HCl

Ans: (c)

Sol: 2 butyne $\xrightarrow{Na/lqNH_3}$ trans – but – 2 - ene

60. Eutrophication causes

(a) increase of nutrients in water (b) reduction in dissolved oxygen

(c) reduction in water pollution (d) decreases BOD

Ans: (b)

Sol: Eutrophication increases nutrients in water.

Key Answers:

1. d	2. c	3. d	4. c	5. a	6. b	7. a	8. b	9. d	10. b
11. b	12. a	13. b	14. b	15. d	16. b	17. d	18. d	19. d	20. b
21. c	22. c	23. c	24. c	25. a	26. a	27. c	28. c	29. a	30. d
31. a	32. d	33. b	34. a	35. b	36. c	37. a	38. a	39. a	40. d
41. d	42. a	43. b	44. b	45. b	46. b	47. b	48. d	49. c	50. b
51. d	52. a	53. b	54. a	55. cd	56. c	57. d	58. d	59. c	60. b