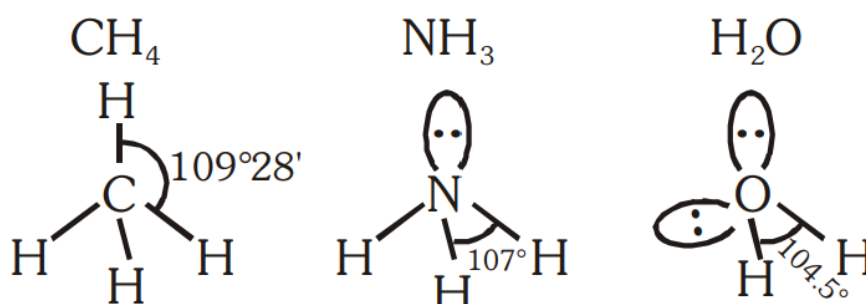1. Consider the molecules CH_4, NH_3 and H_2O. Which of the given statements is false ?
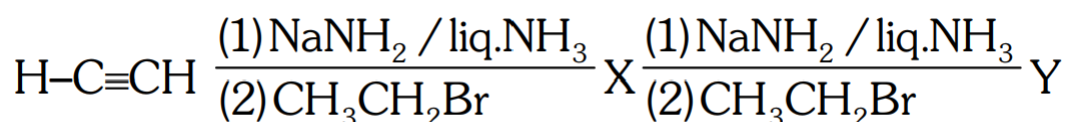
   A. The H –C–H bond angle in CH_4, the H–N–H bond angle in NH_3, and the H–O–H bond angle in H_2O ar all greater than 90°
   B. The H–O–H bond angle in H_2O is larger than the H–C–H bond angle in CH_4.
   C. The H–O–H bond angle in H2O is smaller than the H–N–H bond angle in NH_3.
   D. The H–C–H bond angle in CH_4 is larger than the H–N–H bond angle in NH_3

   Ans: B

   Solution:

2. In the reaction

   $$H-C\equiv CH \xrightarrow[\text{(2) }CH_3CH_2Br]{\text{(1) }NaNH_2 \text{ / liq.}NH_3} X \xrightarrow[\text{(2) }CH_3CH_2Br]{\text{(1) }NaNH_2 \text{ / liq.}NH_3} Y$$
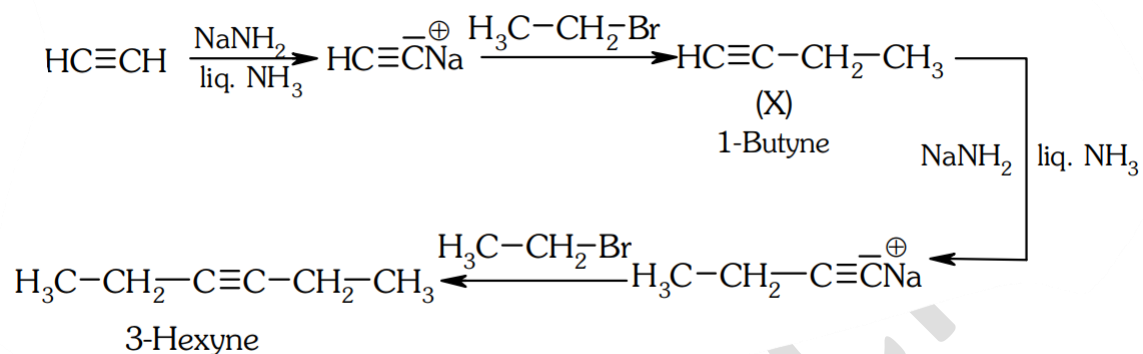
   X and Y are:
   A. X = 1-Butyne ; Y = 3-Hexyne
   B. X = 2-Butyne ; Y = 3-Hexyne

C. X = 2-Butyne ; Y = 2-Hexyne

D. X = 1-Butyne ; Y = 2-Hexyne

Ans : A

Solution:

3. Among the following, the correct order of acidity is

A. $HClO_3 < HClO_4 < HClO_2 < HClO$

B. $HClO < HClO_2 < HClO_3 < HClO_4$

C. $HClO_2 < HClO < HClO_3 < HClO_4$

D. $HClO_4 < HClO_2 < HClO < HClO_3$

Ans : B

Solution :

Acidic strength α EN α +ve O.S.

$HClO < HClO_2 < HClO_3 < HClO_4$

  +1   +3   +5   +7

4. The rate of a first-order reaction is 0.04 mol ⍰−1s−1 at 10 seconds and 0.03 mol L-1s-1 at 20 seconds after initiation of the reaction. The half-life period of the reaction is :

A. 24.1 s

B. 34.1 s

C. 44.1 s

D. 54.1 s

Answer : A

Solution :

$$K = \frac{2.303}{(t_2 - t_1)} \log \frac{(a - x_1)}{(a - x_2)}$$

$$K = \frac{2.303}{(20 - 10)} \log \left(\frac{0.04}{0.03} \right)$$

$$K = \frac{2.303 \times 0.1249}{10}$$

$$\frac{2.303 \times \log 2}{t_{1/2}} = \frac{2.303 \times 0.1249}{10}$$

$$t_{1/2} = \frac{0.3010 \times 10}{0.1249} = 24.1 \text{ sec}$$

5. Which one of the following characteristics is associated with adsorption ?

A. ΔG is negative but ΔH and ΔS are positive

B. ΔG, ΔH and ΔS all are negative

C. ΔG and ΔH are negative but ΔS is positive

D. ΔG and ΔS are negative but ΔH is positive

Answer: B

Solution:

Adsorption is spontaneous process,

so ΔG = negative

Adsorption is exothermic process,

so ΔH = negative

In adsorpiton entropy decreases,

so ΔS = negative

so ΔG, ΔH and ΔS all are negative

6. In which of the following options the order of arrangement does not agree with the variation of property indicated against it ?

    A. $Al^{3+} < Mg^{2+} < Na^+ < F^-$ (increasing ionic size)
    B. $B < C < N < O$ (increasing first ionisation enthalpy)
    C. $I < Br < Cl < F$ (increasing electron gain enthalpy)
    D. $Li < Na < K < Rb$ (increasing metallic radius)

    Answer: (B, C)

    Solution:
    B. $B < C < N < O$ (given I.P. order)
       $B < C < O < N$ (correct)
    C. $I < Br < Cl < F$ (given ΔH_{eg} order)
       $I < Br < F < Cl$ (Correct)

7. MY and NY_3, two nearly insoluble salts, have the same K_{sp} values of 6.2×10^{-13} at room temperature. Which statement would be true in regard to MY and NY_3 ?

A. The molar solubilities of MY and NY_3 in water are identical.
B. The molar solubility of MY in water is less than that of NY_3
C. The salts MY and NY_3 are more soluble in 0.5 M KY than in pure water.
D. The addition of the salt of KY to solution of MY and NY_3 will have no effect on their solubilities

Ans: B

Solution:

$MY \rightarrow K_{sp} = s^2 = 6.2 \times 10^{-13}$

$s = \sqrt{6.2 \times 10^{-13}}$

$s = 7.87 \times 10^{-7} \text{ mol L}^{-1}$

$NY_3 \rightarrow K_{sp} = 27 s^4 = 6.2 \times 10^{-13}$

$s = \left(\dfrac{6.2 \times 10^{-13}}{27} \right)^{1/4}$
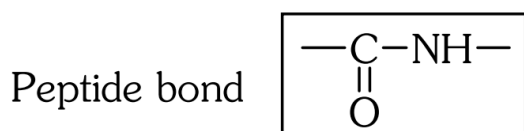
$s = 3.89 \times 10^{-4} \text{ mol L}^{-1}$

Therefore the molar solubility of NY_3 is more than MY in water.

8. In a protein molecule various amino acids are linked together by :

A. α-glycosidic bond
B. β-glycosidic bond
C. peptide bond
D. dative bond

Ans : C
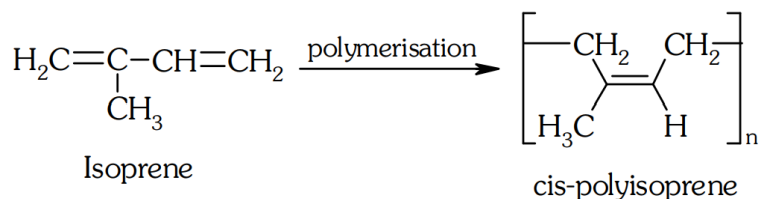
Solution:

Peptide bond
$$-\overset{\overset{O}{\|}}{C}-NH-$$

9. Natural rubber has

A. All cis-configuration
B. All trans-configuration
C. Alternate cis-and trans-configuration
D. Random cis-and trans-configuration

Ans : A

Solution:

10. Which of the following statements is false ?

A. Mg^{2+} ions form a complex with ATP
B. Ca^{2+} ions are important in blood clotting
C. Ca^{2+} ions are not important in maintaining the regular beating of the heart.
D. Mg^{2+} ions are important in the green parts of plants:

Ans : 3

    Solution:

        Ca^{2+} ions are not important in maintaining the regular beating of the heart.

11. Which of the following statements about hydrogen is incorrect ?
A. hydrogen has three isotopes of which tritium is the most common.
B. Hydrogen never acts as cation in ionic salts
C. Hydronium ion, H_3O^+ exists freely in solution
D. Dihydrogen does not act as a reducing agent

Answer : A&D

Solution:

Hydrogen has three isotopes of which Hydrogen -1 is

the most common.

Dihydrogen does not act as a reducing agent. This statement is wrong as it acts as a reducing agent as it reduces the element which reacts with it.

12. The correct statement regarding a carbonyl compound with a hydrogen atom on its alphacarbon,is :-
    A. a carbonyl compound with a hydrogen atom on its alpha-carbon never equilibrates with its corresponding enol.
    B. a carbonyl compound with a hydrgen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as aldehyde-ketone equilibration.
    C. a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as carbonylation.

D. a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as keto-enol tautomerism.

Ans: D

Solution:

Keto-enol Tautomerism

(Keto)

(enol)
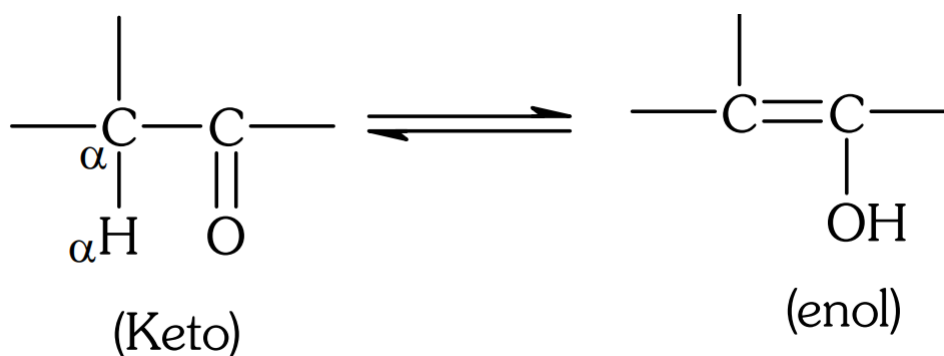
13. Match items of Column I with the items of Column II and asign the correct code :

	Column-I		Column-II
(a)	Cyanide process	(i)	Ultrapure Ge
(b)	Froth floatation process	(ii)	Dressing of ZnS
(c)	Electrolytic reduction	(iii)	Extraction of Al
(d)	Zone refining	(iv)	Extraction of Au
		(v)	Purification of Ni

Code :

    (a) (b) (c) (d)

A. (iv) (ii) (iii) (i)

B. (ii) (iii) (i) (v)

C. (i) (ii) (iii) (iv)

D. (iii) (iv) (v) (i)

Answer :A

Solution:

Cyanide process is used for the extraction of gold and silver

Froth flotation process is used for dressing of ZnS. This process is used for sulphide ores.

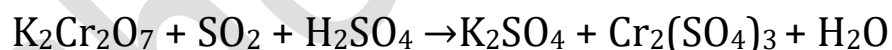Electrolytic reduction is used in the extraction of Al

Zone refining is used to obtain ultrapure Ge

14. Which one of the following statements is correct when SO_2 is passed through acidified $K_2Cr_2O_7$ solution ?

   A. The solution turns blue
   B. The solution is decolourized
   C. SO_2 is reduced
   D. Green $Cr_2(SO_4)$

   Ans: D

   Solution:

   $K_2Cr_2O_7 + SO_2 + H_2SO_4 \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + H_2O$

   Green Colour

15. The electronic configurations of Eu(Atomic No 63), Gd(Atomic No 64) and Tb (Atomic No. 65) are
   A. $[Xe]4f^7 6s^2$, $[Xe]4f^8 6s^2$ and $[Xe]4f^8 5d^1 6s^2$
   B. $[Xe]4f^7 5d^1 6s^2$, $[Xe]4f^7 5d^1 6s^2$ and $[Xe]4f^9 6s^2$
   C. $[Xe]4f^6 5d^1 6s^2$, $[Xe]4f^7 5d1 6s^2$ and $[Xe]4f^8 5d^1 6s^2$
   D. $[Xe]4f^7 6s^2$, $[Xe]4f^7 5d^1 6s^2$ and $[Xe]4f^9 6s^2$
   Answer: d
   Solution:

The electronic configurations of Eu(Atomic No 63), Gd(Atomic No 64) and Tb (Atomic No. 65) are [Xe]4f^{7}6s^2, [Xe]4f^{7}5d^{1}6s^2 and [Xe]4f^{9}6s^2

16. Two electrons occupying the same orbital are distinguished by
    A. Principal quantum number
    B. Magnetic quantum number
    C. Azimuthal quantum number
    D. Spin quantum number
    Ans: D
    Solution: Two electrons occupying the same orbital differ by spin quantum number

17. Which copper is heated with conc. HNO$_3$ it produces
A. Cu(NO$_3$)$_2$ and NO$_2$
B. Cu (NO$_3$)$_2$ and NO
C. Cu(NO$_3$)$_2$, NO and NO$_2$
D. Cu(NO$_3$)$_2$ and N$_2$O

    Ans. (A)

    Sol. Cu + 4HNO$_3$ (conc.) →Cu(NO$_3$)$_2$ + 2NO$_2$+2H$_2$O

18. Which of the following reagents would distinguish cis-cyclopenta-1,2-diol from the trans-isomer?
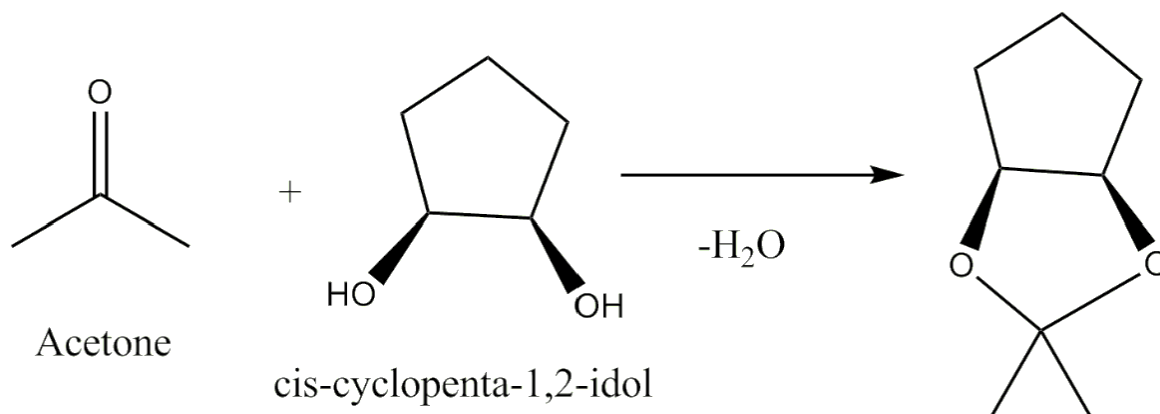   A. Acetone
    B. Ozone
    C. MnO2
    D. Aluminium isopropxide

    Ans. (A)

    Solution:

Acetone would distinguish cis-cyclopenta–1,2–diol from the trans-isomer.

With cis isomer, acetone forms bicylic ketal. With trans isomer, formation of bicyclic ketal is not possible due to presence of angle strain.

Acetone   +   cis-cyclopenta-1,2-idol $-H_2O$

19. The correct thermodynamic conditions for the spontaneous reaction at all temperatures is

    A. $\Delta H < 0$ and $\Delta S = 0$
    B. $\Delta H > 0$ and $\Delta S < 0$
    C. $\Delta H < 0$ and $\Delta S > 0$
    D. $\Delta H < 0$ and $\Delta S < 0$

Ans. (C)

Sol. $\Delta G = \Delta H - T\Delta S$

For, $\Delta H < 0$ and $\Delta S > 0$, $\Delta G = -ve$ (always)

Therefore, spontaneous at all temperatures.

20. Lithium has a bcc structure. Its density is 530 kg m³ and its atomic mass is 6.94 g mol⁻¹. Calculate the edge length of a unit cell of Lithium metal. ($N_A = 6.02 \times 10^{23}$ mol⁻¹)

    A. 154 pm
    B. 352 pm
    C. 527 pm
    D. 264 pm

    Answer : (B)

Solution:

$$\rho = \frac{Z \times M}{N_A \times a^3}$$

For bcc structure

$Z = 2$, $\rho = 530$ kg m^{-3} = 0.530 g cm^{-3}

$$0.530 = \frac{2 \times 6.94}{6.02 \times 10^{23} \times a^3}$$

$a^3 = 4.348 \times 10^{-23}$ cm^3

$a = 3.52 \times 10^{-8}$ cm

$a = 352$ pm

21. Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?
  A. $I_2 > Br_2 > Cl_2 > F_2$
  B. $Cl_2 > Br_2 > F_2 > I2$
  C. $Br_2 > I_2 > F_2 > Cl_2$
  D. $F_2 > Cl_2 > Br_2 > I_2$

  Ans. (B)

  Solution:

  $Cl_2 > Br_2 > F_2 > I_2$ because of high lp-lp repulsion

22. Which of the following is an analgesic ?
  A. Novalgin
  B. Penicillin
  C. Streptomycin
  D. Chloromycetin

  Ans. (A)

  Solution:

  Painkillers, or a class of medications used to relieve pain, are referred to as analgesics.

  Novalgin is a non-narcotic analgesic that comprises the sodium salt of metamizole.

Explanation for Incorrect options:

Option B:

Penicillin is an antimicrobial that is used to treat rheumatic fever.

Option C:

Streptomycin is a kind of antibiotic.

Option D:

Chloromycetin is a kind of antibiotic.

Final answer: Novalgin Is an analgesic.

23. Equal moles of hydrogen and oxygen gases are placed in a container with a pin-hole through which both can escape. What fraction of the oxygen escapes in the time required for one-half of the hydrogen to escape ?
    A. 1/8
    B. ¼
    C. 3/8
    D. ½

    Ans: (A)

    Solution:

$$n_{H_2} = n_{O_2} \text{ and } t_{H_2} = t_{O_2}$$

According to Graham's law

$$\frac{r_{H_2}}{r_{O_2}} = \sqrt{\frac{M_{O_2}}{M_{H_2}}} \Rightarrow \frac{v_1 / t_1}{v_2 / t_2} = \sqrt{\frac{32}{2}}$$

$$\frac{1/2}{1/x} = \sqrt{16} = 4$$

$$\frac{x}{2} = 4$$

$$\therefore x = 8$$

$$\therefore \text{Fraction of } O_2 = 1/8$$

24. Consider the nitration of benzene using mixed conc.H_2SO_4 and HNO_3. If a large amount of $KHSO_4$ is added to the mixture, the rate of nitration will be:-
    A. faster
    B. slower
    C. unchanged
    D. doubled
    Ans. (B)
    Solution:
    Slower, as large amount of HSO_4^- will decrease ionisation of H2SO4 that result in lesser ionisation of nitric acid and lesser formation of nitronium ion [NO_2^+]

25. Predict the correct order among the following :-
    A. lone pair- lone pair > lone pair - bond pair> bond pair - bond pair.

B. lone pair - lone pair > bond pair - bond pair> lone pair - bond pair.

C. bond pair - bond pair > lone pair - bond pair > lone pair - lone pair

D. lone pair - bond pair > bond pair - bond pair > lone pair - lone pair

Ans. (A)

Solution:

According to VSEPR theory,

lone pair- lone pair > lone pair - bond pair> bond pair - bond pair.

26. The product obtained as a result of a reaction of nitrogen with CaC_2 is :-
   A. $Ca(CN)_2$
   B. $CaCN$
   C. $CaCN_3$
   D. Ca_2CN

   Ans. (A)

   Solution:

   $CaC_2 + N_2 \rightarrow CaCN_2 + C$

27. Consider the following liquid - vapour equilibrium.
   Liquid $\rightleftharpoons$ Vapour
   Which of the following relations is correct ?

   A) $\dfrac{d\ell n\, G}{dT^2} = \dfrac{\Delta H_v}{RT^2}$

   B) $\dfrac{d\ell n\, P}{dT} = \dfrac{-\Delta H_v}{RT}$

   C) $\dfrac{d\ell n\, P}{dT^2} = \dfrac{-\Delta H_v}{T^2}$

D) $$\frac{d\ell nP}{dT} = \frac{\Delta H_v}{RT^2}$$

Ans.(D)

Solution:

Clausius - Clapeyron's equation

$$\frac{d\ell nP}{dT} = \frac{\Delta H_v}{RT^2}$$

28. Match the compounds given in column I with the hybridisation and shape given in column II and mark the correct option.

Column-I   Column-II
(a) XeF_6 (i) Distorted octahedral
(b) XeO_3 (ii) Square planar
(c) $XeOF_4$ (iii) pyramidal
(d) XeF_4 (iv) Square pyramidal

    Code :-
    (a) (b) (c) (d)
  A. (i) (iii) (iv) (ii)
  B. (i) (ii) (iv) (iii)
  C. (iv) (iii) (i) (ii)
  D. (iv) (i) (ii) (iii)
    Ans. (A)
    Sol.

XeF$_6$

F, F, Xe, F, F, F, F

distorted
octahedral

XeO$_3$

Xe, O, O, O

Pyramidal

XeOF$_4$

O, F, F, Xe, F, F

Square
pyramidal

XeF$_4$

F, F, Xe, F, F

Square
planar
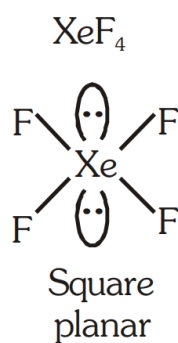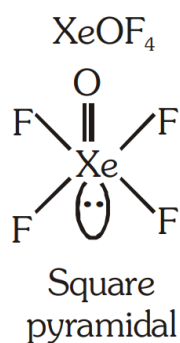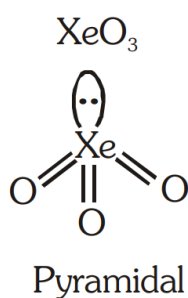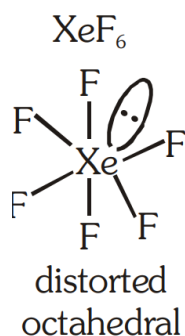
29. Which of the following has longest C–O bond length?(Free
    C–O bond length in Co is 1.128Å).
    A. Ni(CO)$_4$
    B. [Co(CO)$_4$]
    C. [Fe(CO)$_4$]$^{2-}$
    D. [Mn(CO)$_6$]$^+$
    Ans. (C)
    Solution:
    [Fe(CO)$_4$]$^{2-}$
    Since metal atom is carrying maximum –ve charge
    therefore it would show maximum synergic bonding
    as sa resultant C–O bond length would be maximum

30. The pressure of H_2 required to make the potential of H_2-electrode zero in pure water at 298 K is :-

   A. 10^{-14} atm
   B. 10^{-12} atm
   C. 10^{-10} atm
   D. 10^{-4} atm

   Ans. (A)

   Solution:

   $2H^+(aq) + 2e^- \rightarrow H_2(g)$
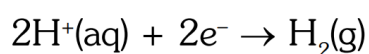
   $$\therefore E = E^0 - \frac{0.0591}{2} \log \frac{P_{H_2}}{[H^+]^2}$$

   $$0 = 0 - 0.0295 \log \frac{P_{H_2}}{(10^{-7})^2}$$

   $$\frac{P_{H_2}}{(10^{-7})^2} = 1$$

   $$P_{H_2} = 10^{-14} \text{ atm}$$

31. The addition of a catalyst during a chemical reaction alters which of the following quantities ?

   A. Entropy
   B. Internal energy
   C. Enthalpy
   D. Activation energy

   Ans. (D)

   Sol.

   The addition of catalyst during a chemical reaction alters the activation energy.

32. The ionic radii of A^+ and B^- ions are 0.98×10^{-10} m and 1.81×10^{-10} m. The coordination number of each ion in AB is

    A. 6
    B. 4
    C. 8
    D. 2

Ans. (1)

Sol.

radii ratio $= \dfrac{r_+}{r_-} = \dfrac{0.98 \times 10^{-10}}{1.81 \times 10^{-10}} = 0.54$

radii ratio is in between 0.414 to 0.732
so, coordination number is 6

33. Which is the correct statement for the given acids?

    A. Phosphinic acid is a diprotic acid while phosphonic acid is a monoprotic acid
    B. Phosphinic acid is a monoprotic acid while phosphonic acid is a diprotic acid
    C. Both are triprotic acids
    D. Both are diprotic acids

Ans. (B)

Sol.

Phosphinic acid (H_3PO_2)

→ Monoprotic
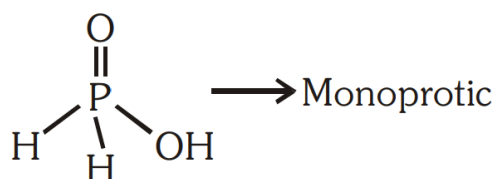
Phosphonic acid (H_3PO_3)

→ Diprotic acid
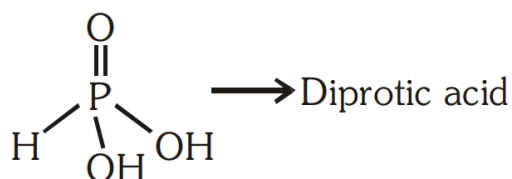
34. Fog is colloidal solution of :-

A. Liquid in gas
B. Gas in liquid
C. Solid in gas
D. Gas in gas
    Ans. (A)
    Sol.
    Fog is a colloidal solution of liquid in gas

35. Which of the following statement about the composition of the vapour over an ideal a 1 : 1 molar mixture of benzene and toluene is correct? Assume that the temperature is constant at 25°C.
(Given : Vapour Pressure Data at 25°C,
benzene = 12.8 kPa, Toluene = 3.85 kPa)
    A. The vapour will contain a higher percentage of Benzene
    B. The vapour will contain a higher percentage of toluene
    C. The vapour will contain equal amounts of benezene and toluene
    D. Not enough information is given to make a predication
    Ans. (A)
    Sol.
    A is benzene, B is toluene
    1 : 1 molar mixture of A and B

$$\therefore \ x_A = \frac{1}{2} \ \text{and} \ x_B = \frac{1}{2}$$

$$P_s = P_A^0 X_A + P_B^0 X_B$$

$$P_s = 12.8 \times \frac{1}{2} + 3.85 \times \frac{1}{2} = 8.325 \text{kPa}$$

$$Y_A = \frac{P_A^0 X_A}{P_s} = \frac{12.8 \times \frac{1}{2}}{8.325} = 0.768$$

$$\therefore Y_B = 1 - Y_A = 1 - 0.768 = 0.232$$

so, the vapour will contain higher percentage of benzene

36. The correct statement regarding the comparison of staggered and eclipsed conformation of ethane, is :-

    A. The staggered conformation of ethane is less stable than eclipsed conformation, because staggered conformation has torsional strain
    B. The eclipsed conformation of ethane is more stable than staggered conformation, because eclipsed conformation has no torsional strain
    C. The eclipsed conformation of ethane is more stable than staggered conformation even through the eclipsed conformation has torsional strain
    D. The staggered conformation of ethane is more stable than eclipsed conformation, becausestaggered conformation has no torsional strain.

    Ans. D
    Solution:

Staggered form
* No torsional strain

Eclipsed form
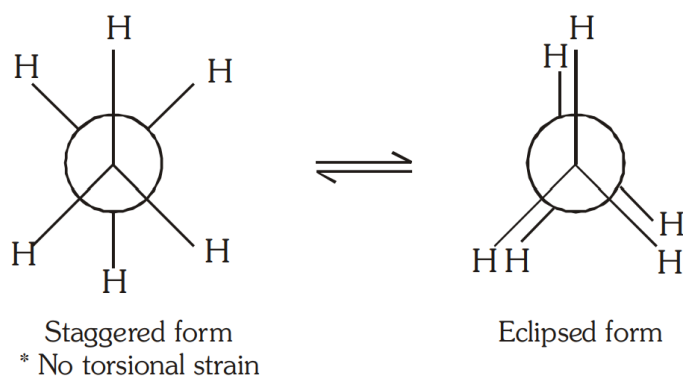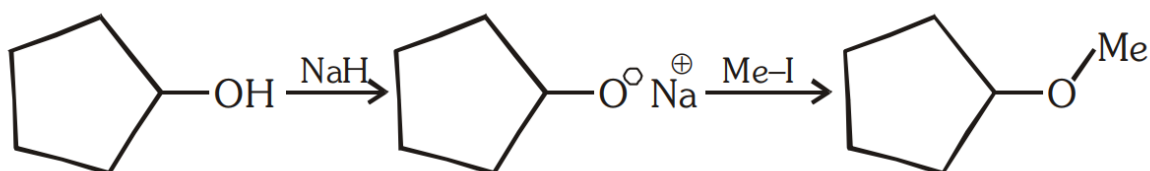
37. The reaction:

Can be classified as :-
A. Williamson ether synthesis reaction
B. Alcohol formation reaction
C. Dehydration reaction
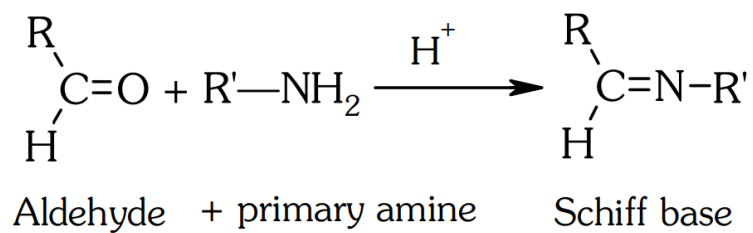D. Williamson alcohol synthesis reaction

Ans. (A)

Sol.

This is an exmaple of Williamson ether syntehsis reaction in which sodium alkoxide reacts with alkyl halide and gives ether.

38. The product formed by the reaction of an aldehyde with a primary amine is :-
A. Schiff base
B. Ketone
C. Carboxylic acid
D. Aromatic acid

Answer: A

Solution:

Aldehyde + primary amine → Schiff base

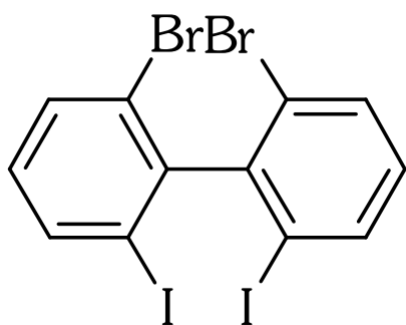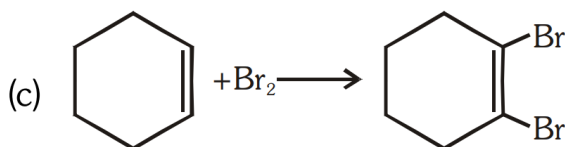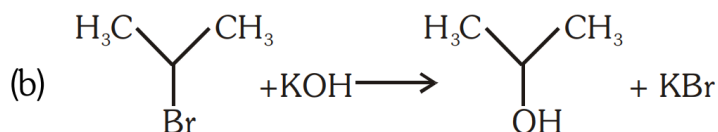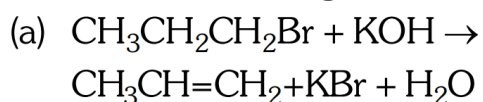39. Which of the following biphenyls is optically active?

A.
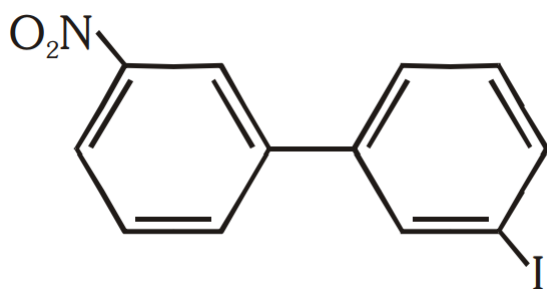
B.
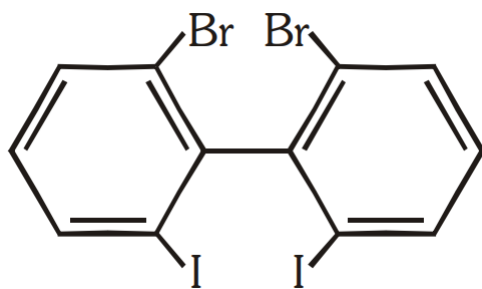
C.
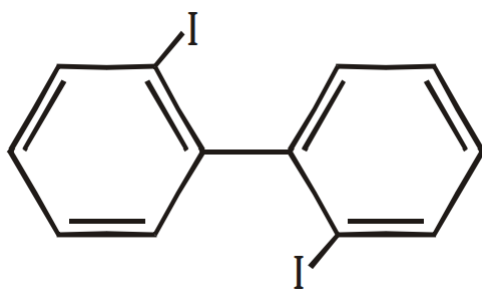
D.
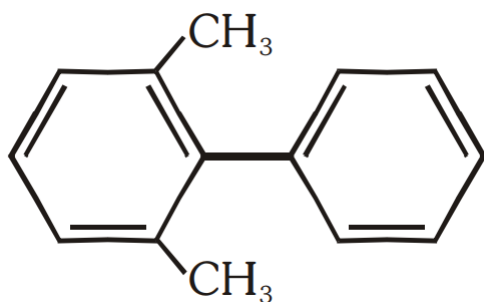
Ans. B

Solution:

    is optically active due to absence of plane of symmetry and centre of symmetry

40. For the following reactions :-

(a) $CH_3CH_2CH_2Br + KOH \rightarrow$
$CH_3CH=CH_2 + KBr + H_2O$

(b)

(c)

Which of the following statements is correct ?

    A. (a) and (b) are elimination reaction and (c) is addition reaction

    B. (a) is elimination, (b) is substitution and (c) is addition reaction

    C. (a) is elimination, (b) and (c) are substitution reactions

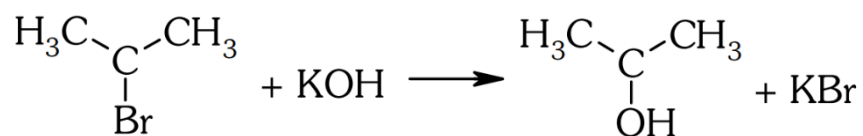   D. (a) is substitution, (b) and (c) are addition reaction

    Ans. B

    Solution:

    A. $CH_3CH_2CH_2-Br + KOH \rightarrow CH_3CH=CH_2 + KBr + H_2O$
    breaking of 2σ bonds and formation of 1π bond so
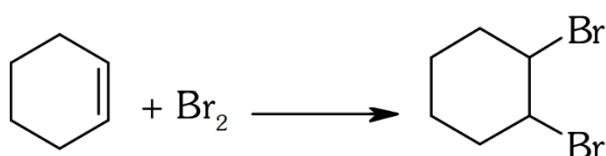
it is an example of elimination reaction.

B.

replacement of Br– by OH– is substitution reaction

C.

breaking of 1 π bond and formation of 2 σ bonds is addition reaction

41. At 100°C the vapour pressure of a solution of 6.5g of a solute in 100 g water is 732 mm. If $K_b = 0.52$, the boiling point of this solution will be :-

A. 101°C
B. 100°C
C. 102°C
D. 103°C

Answer: A

Solution:

$$\left(\frac{P^0 - P_s}{P^0}\right) = \frac{n}{N} = \frac{w_{solute}}{M_{solute}} \times \frac{M_{solvent}}{W_{solvent}}$$

at 100 °C, $P^0 = 760$ mm

$$\frac{760 - 732}{760} = \frac{6.5 \times 18}{M_{solute} \times 100}$$

$M_{solute} = 31.75$ g mol^{-1}

$$\Delta T_b = m \times K_b = \frac{w_{solute} \times 1000}{M_{solute} \times w_{solvent}} \times K_b$$

$$\Delta T_b = \frac{0.52 \times 6.5 \times 1000}{31.75 \times 100} = 1.06 °C$$

∴ boiling point of solution

$$= 100°C + 1.06°C \simeq 101°C$$

42. The correct statement regarding RNA and DNA, respectively is :
   A. The sugar component in RNA is arabinose and the sugar component in DNA is 2'-deoxyribose.
   B. The sugar component in RNA is ribose and the sugar component in DNA is 2'-deoxyribose.
   C. The sugar component in RNA is arabinose
   D. The sugar component in RNA is 2'-deoxyribose and the sugar component in DNA is arabinose

   Ans. B

   Solution:
   RNA is Ribose Nucleic Acid
   DNA 2'-Deoxyribose Nucleic Acid

43. The correct statement regarding the basicity of arylamines is :-

   A. Arylamines are generally less basic than alkylamines because the nitrogen lone-pair electrons are delocalized by interaction with the aromatic ring π electron system.
   B. Arylamines are generally more basic than alkylamines because the nitrogen lone-pair electrons are not delocalized by interaction with the aromatic ring π electron system.
   C. Arylamines are generally more basic than alkylamines because of aryl group.
   D. Arylamines are generally more basic than alkylamines, because the nitrongen atom in arylamines is sp-hybridized

   Ans. A

   Solution:
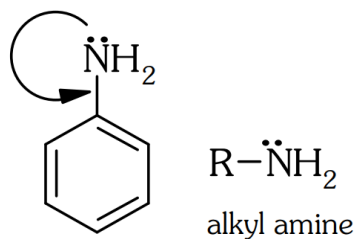
   Aryl amine

   More the Delocalisation of lone pair of nitrogen Less will be the basicity

44. Which one given below is a non-reducing sugar ?

   (1) Maltose
   (2) Lactose
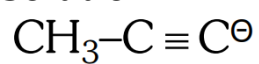   (3) Glucose
   (4) Sucrose
   Answer: D
   Solution:
   Maltose is a reducing sugar, whereas sucrose is a non-reducing sugar.

45. The pair of electron in the given carbanion, $CH_3C \equiv C^{\ominus}$, is present in which of the following orbitals ?

    A. 2p

    B. sp^3

    C. sp^2

    D. sp

      Answer: d

      Solution:

      $CH_3{-}C \equiv C^{\ominus}$

      No. of σ bp–1, ℓp–1 $\Bigr\}$ 2 & hybridisation is sp