NEET – 2017

Chemistry

1. With respect to the conformers of ethane, which of the following statements is true?

   a) Bond angle remains same but bond length changes

   b) Bond angle changes but bond length remains same

   c) Both bond angle and bond length change

   d) Both bond angles and bond length remains same

Answer (d)
Solution:
There is no change in bond angles and bond lengths in the conformations of ethane. There is only change in dihedral angle.

2. Which of the following pairs of compounds is isoelectronic and isostructural?

a) $BeCl_2$, XeF_2
b) TeI_2, XeF_2
c) IBr_2 , XeF_2
d) IF3, XeF_2

Answer (3)
Sol.
IBr_2 , XeF_2
Total number of valence electrons are equal in both the species and both the species are linear also.

3. $HgCl_2$ and I_2 both when dissolved in water containing I^- ions the pair of species formed is

a) HgI2 , I3-
b) HgI2 , I -
c) HgI4 2-, I3-
d) Hg2I2, I-

Answer : c

Solution:

In a solution containing $HgCl_2$, I_2 and I^-, both $HgCl_2$ and I_2 compete for I^-.

Since formation constant of $[HgI_4]^{2-}$ is 1.9×10^{30} which is very large as compared with I_3^- ($K_f = 700$)

I^- will preferentially combine with $HgCl_2$.

$HgCl_2 + 2I^- \rightarrow HgI_2 + 2Cl^-$

Red ppt

$HgI_2 + 2I^- \rightarrow [HgI_4]^{2-}$

soluble

4. Mixture of chloroxylenol and terpineol acts as

a) Analgesic
b) Antiseptic
c) Antipyretic
d) Antibiotic

Answer (b)

Solution:

Mixture of chloroxylenol and terpineol acts as antiseptic.

5. Which is the incorrect statement?

a) $FeO_{0.98}$ has non stoichiometric metal deficiency defect
b) Density decreases in case of crystals with Schottky's defect
c) NaCl(s) is insulator, silicon is semiconductor, silver is conductor, quartz is piezo electric crystal
d) Frenkel defect is favoured in those ionic compounds in which sizes of cation and anions are almost equal

Answer (a & d)

Solution

Frenkel defect occurs in those ionic compounds in which size of cation and anion is largely different.

Non-stoichiometric ferrous oxide is $Fe_{0.93-0.96}O_{1.00}$ and it is due to metal deficiency defect.

6. Concentration of the Ag^+ ions in a saturated solution of $Ag_2C_2O_4$ is 2.2×10^{-4} mol L^{-1}. Solubility product of $Ag_2C_2O_4$ is
   a) 2.42×10^{-8}
   b) 2.66×10^{-12}
   c) 4.5×10^{-11}
   d) 5.3×10^{-12}

Answer (d)

Solution:.

$$Ag_2C_2O_4(s) \rightleftharpoons \underset{2s}{2Ag^+(aq)} + \underset{s}{C_2O_4^{2-}(aq)}$$

$K_{SP} = [Ag^+]^2 [C_2O_4^{2-}]$

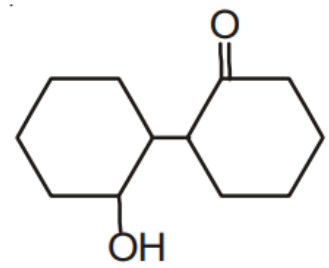
$[Ag^+] = 2.2 \times 10^{-4}$ M

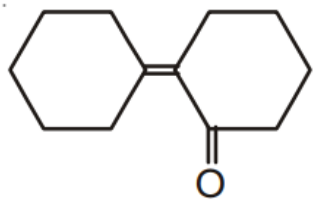
$$\therefore \quad [C_2O_4^{2-}] = \frac{2.2 \times 10^{-4}}{2} M = 1.1 \times 10^{-4} M$$

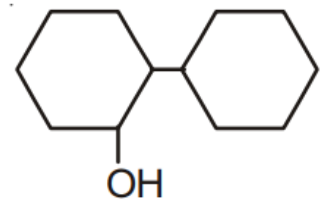
$\therefore \quad K_{SP} = (2.2 \times 10^{-4})^2 (1.1 \times 10^{-4})$

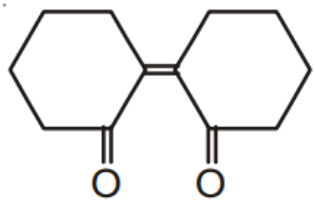
$= 5.324 \times 10^{-12}$

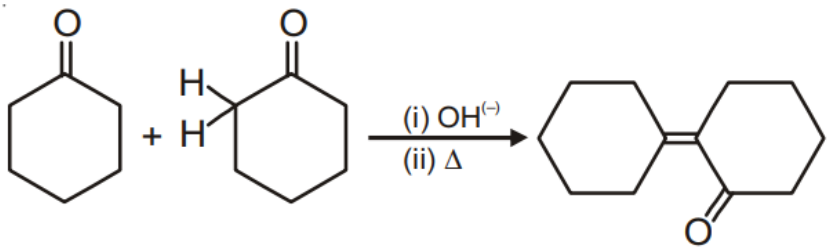
7. Of the following, which is the product formed when cyclohexanone undergoes aldol condensation followed by heating?

(1) 

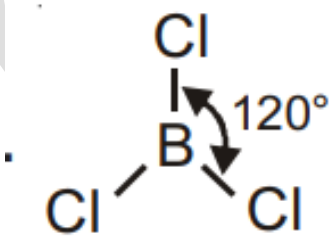
(2) 

(3) 

(4) 

Sol. 

8. The species, having bond angles of 120° is
   a) PH_3
   b) ClF_3
   c) NCl_3
   d) BCl_3
   Ans: d)

Sol. 

9. If molality of the dilute solution is doubled, the value of molal depression constant (Kf) will be
   a) Doubled

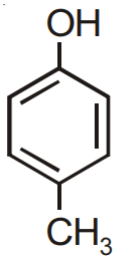
b) Halved
c) Tripled
d) Unchanged

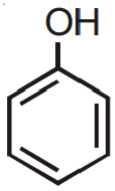
Answer (d)

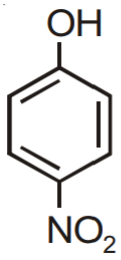
Solution

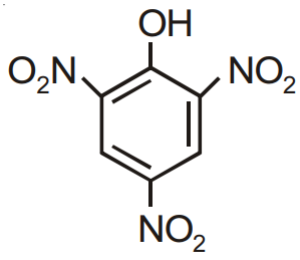
Kf (molal depression constant) is a characteristic of solvent and is independent of molality

10. Which one is the most acidic compound?

a) 

b) 

c) 

d) 

Ans: d

Solution : $-NO_2$ group has very strong –I & –R effects

11. It is because of inability of ns2 electrons of the valence shell to participate in bonding that

a) Sn^{2+} is reducing while Pb^{4+} is oxidising
b) Sn2+ is oxidising while Pb^{4+} is reducing
c) Sn^{2+} and Pb^{2+} are both oxidising and reducing
d) Sn^{4+} is reducing while Pb^{4+} is oxidising

Answer (a)

Solution:

Inability of ns2 electrons of the valence shell to participate in bonding on moving down the group in heavier p-block elements is called inert pair effect

As a result, Pb(II) is more stable than Pb(IV)

Sn(IV) is more stable than Sn(II)

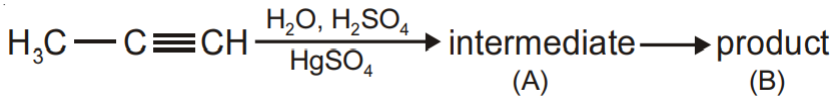
So, Pb(IV) is easily reduced to Pb(II)

Pb(IV) is oxidising agent

Sn(II) is easily oxidised to Sn(IV)

So, Sn(II) is reducing agent

12. Predict the correct intermediate and product in the following reaction



a) A : $H_3C-\underset{\underset{SO_4}{|}}{C}=CH_2$ B : $H_3C-\underset{\underset{O}{||}}{C}-CH_3$

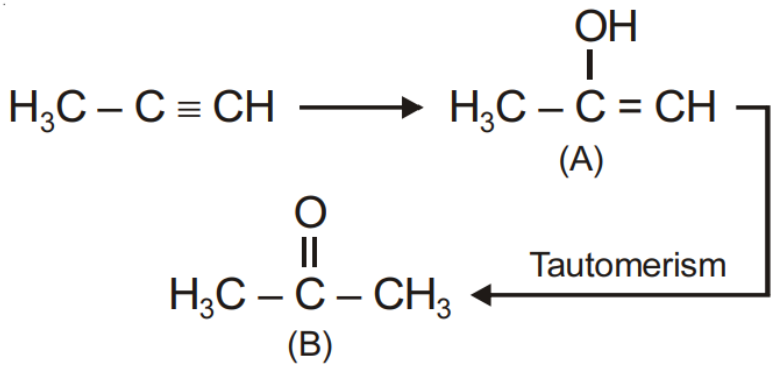
b) A : $H_3C-\underset{\underset{OH}{|}}{C}=CH_2$ B : $H_3C-\underset{\underset{SO_4}{|}}{C}=CH_2$

c) A : $H_3C-\underset{\underset{O}{||}}{C}-CH_3$ B : $H_3C-C\equiv CH$

d) A : $H_3C-\underset{\underset{OH}{|}}{C}=CH_2$ B : $H_3C-\underset{\underset{O}{||}}{C}-CH_3$

Ans: d

Solution:



13. Which one of the following statements is not correct?

a) Catalyst does not initiate any reaction

b) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

c) Enzymes catalyse mainly bio-chemical reactions

d) Coenzymes increase the catalytic activity of enzyme

Ans: b

Solution:

A catalyst decreases activation energies of both the forward and backward reaction by same amount, therefore, it speeds up both forward and backward reaction by same rate.

Equilibrium constant is therefore not affected by catalyst at a given temperature

14. Which one is the wrong statement?

a) de-Broglie's wavelength is given by $\lambda = \frac{h}{mv}$,

where m = mass of the particle, v = group velocity of the particle

b) The uncertainty principle is $\Delta E \times \Delta t \geq \frac{h}{4\pi}$

c) Half-filled and fully filled orbitals have greater stability due to greater exchange energy, greater symmetry and more balanced arrangement

d) The energy of 2s orbital is less than the energy of 2p orbital in case of Hydrogen like atoms

Answer (d)

Solution:

Energy of 2s-orbital and 2p-orbital in case of hydrogen like atoms is equal.

15. A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5 atm from an initial volume of 2.50 L to a final volume of 4.50 L. The change in internal energy □U of the gas in joules will be

a) 1136.25 J
b) –500 J
c) –505 J
d) (4) +505 J

Answer (c)

Solution:

$\Delta U = q + w$

For adiabatic process, $q = 0$

$\therefore \quad \Delta U = w$

$= - P \cdot \Delta V$

$= -2.5 \text{ atm} \times (4.5 - 2.5) \text{ L}$

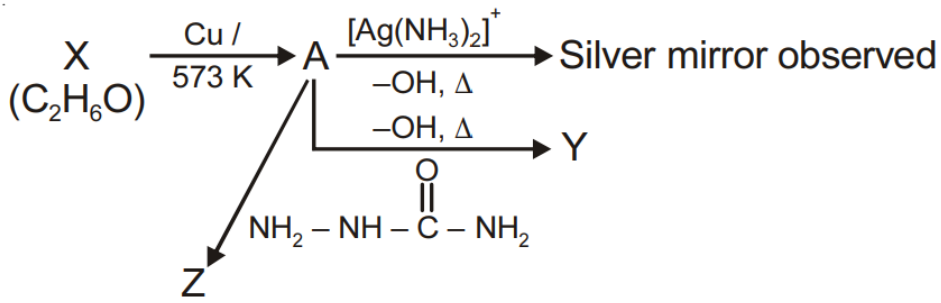
$= -2.5 \times 2 \text{ L-atm}$

$= -5 \times 101.3 \text{ J}$

$= -506.5 \text{ J}$

$\approx -505 \text{ J}$

16. Consider the reactions :



Identify A, X, Y and Z

a) A-Methoxymethane, X-Ethanoic acid, Y-Acetate ion, Z-hydrazine
b) A-Methoxymethane, X-Ethanol, Y-Ethanoic acid, Z-Semicarbazide
c) A-Ethanal, X-Ethanol,Y-But-2-enal, Z-Semicarbazone
d) A-Ethanol, X-Acetaldehyde, Y-Butanone, Z-Hydrazone

Answer (c)

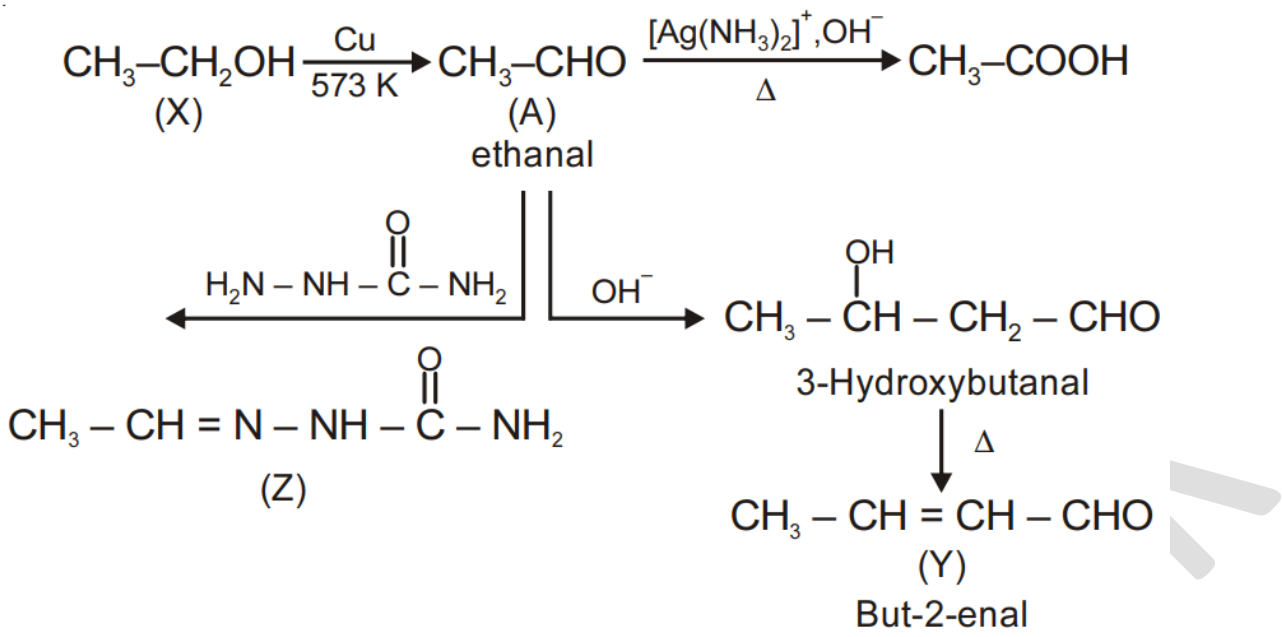
Solution

Since 'A' gives positive silver mirror test therefore, it must be an aldehyde or α-Hydroxyketone.

Reaction with semicarbazide indicates that A can be an aldehyde or ketone.

Reaction with OH^- i.e., aldol condensation (by assuming alkali to be dilute) indicates that A is aldehyde as aldol reaction of ketones is reversible and carried out in special apparatus.

These indicates option (c).



17. Which one is the correct order of acidity?

a) $CH_2 = CH_2 > CH_3 – CH = CH_2 > CH_3 – C \equiv CH > CH \equiv CH$

b) $CH \equiv CH > CH_3 – C \equiv CH > CH_2 = CH_2 > CH_3 – CH_3$

c) $CH \equiv CH > CH_2 = CH_2 > CH_3 – C \equiv CH > CH_3 – CH_3$

d) $CH_3 – CH_3 > CH_2 = CH_2 > CH_3 – C \equiv CH > CH \equiv CH$

Answer (b)

Solution:

Correct order is

$$\underset{\text{(Two acidic hydrogens)}}{H – C \equiv C – H} > \underset{\text{(One acidic hydrogen)}}{H_3C – C \equiv C – H} > H_2C = CH_2 > CH_3 – CH_3$$

(Two acidic (One acidic hydrogens) hydrogen)

18. In the electrochemical cell :

$Zn|ZnSO_4(0.01M)||CuSO_4(1.0\ M)|Cu$, the emf of this Daniel cell is E_1. When the concentration of $ZnSO_4$ is changed to 1.0 M and that of $CuSO_4$ changed to 0.01 M, the emf changes to E_2. From the following, which one is the relationship between E_1 and E_2?

(Given, $R\cancel{T}/F = 0.059$)

a) $E_1 = E_2$
b) $E_1 < E_2$
c) $E_1 > E_2$
d) $E_2 = 0 \neq E_1$

Answer (3)

Solution:

$Zn|ZnSO_4(0.01\ M)||CuSO_4(1.0\ M)|Cu$

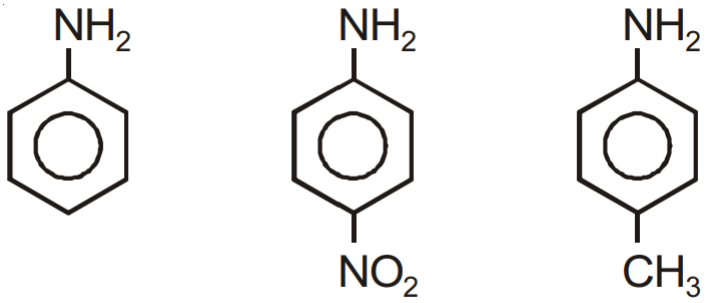
$$\therefore \quad E_1 = E^{o}_{cell} - \frac{2.303RT}{2 \times F} \times \log \frac{(0.01)}{1}$$

When concentrations are changed

$$\therefore \quad E_2 = E^{o}_{cell} - \frac{2.303RT}{2F} \times \log \frac{1}{0.01}$$

i.e., $E_1 > E_2$

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



(I) (II) (III)

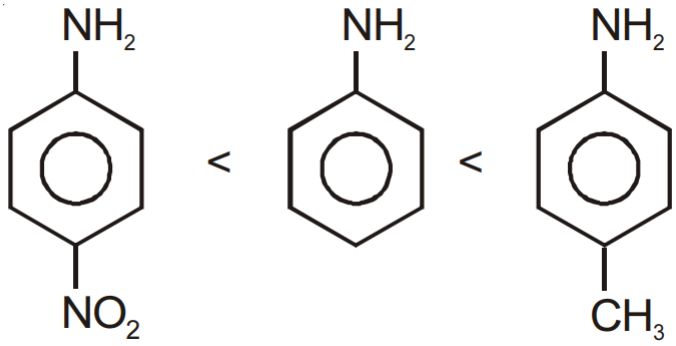
a) II < III < I
b) II < I < II
c) III < II < I
d) II < I < III

Answer (d)

Solution

$-NO_2$ has strong –R effect and $-CH_3$ shows +R effect.

Order of basic strength is



20. In which pair of ions both the species contain S – S bond?

a) $S_2O_7^{2-}$, $S_2O_3^{2-}$

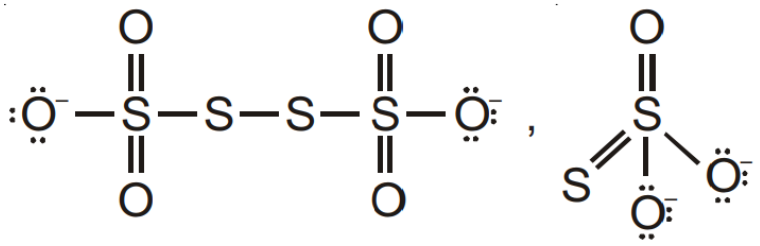
b) $S_4O_6^{2-}$, $S_2O_3^{2-}$

c) $S_2O_7^{2-}$, $S_2O_8^{2-}$

d) $S_4O_6^{2-}$, $S_2O_7^{2-}$

Answer: b

Solution:



$[S_4O_6]^{2(-)}$ $[S_2O_3]^{2(-)}$

21. The correct order of the stoichiometries of AgCl formed when $AgNO_3$ in excess is treated with the complexes : $CoCl_3.6NH_3$, $CoCl_3.5NH_3$, $CoCl_3.4NH_3$ respectively is

a) 1 AgCl, 3 AgCl, 2 AgCl

b) 3 AgCl, 1 AgCl, 2 AgCl

c) 3 AgCl, 2 AgCl, 1 AgCl

d) 2 AgCl, 3 AgCl, 1 AgCl

Answer (3)

Solution:

Complexes are respectively $[Co(NH_3)_6]Cl_3$, $[Co(NH_3)_5Cl]Cl_2$ and $[Co(NH_3)_4Cl_2]Cl$

22. Match the interhalogen compounds of column I with the geometry in column II and assign the correct code

Column I		Column II
(a) XX'		(i) T-shape
(b) XX_3'		(ii)Pentagonal bipyramidal
(c) XX_5'		(iii) Linear
(d)XX_7'		(iv) Square-pyramidal
		(v) Tetrahedral

a) (b) (c) (d)

a. (iii) (iv) (i) (ii)

b. (iii) (i) (iv) (ii)

c. (v) (iv) (iii) (ii)

d. (iv) (iii) (ii) (i)

Ans: b

Solution:

$XX' \rightarrow$ Linear

$XX_3' \rightarrow$ Example : $ClF_3 \rightarrow$ T-shape

$XX_5' \rightarrow$ Example : $BrF_5 \rightarrow$ Square pyramidal

$XX_7' \rightarrow$ Example : $IF_7 \rightarrow$ Pentagonal bipyramidal

23. The reason for greater range of oxidation states in actinoids is attributed to

a) The radioactive nature of actinoids
b) Actinoid contraction
c) 5f, 6d and 7s levels having comparable energies
d) 4f and 5d levels being close in energies

Answer (c)

Sol.

The energy levels of 5f, 6d and 7s are comparable

24. A 20 litre container at 400 K contains $CO_2(g)$ at pressure 0.4 atm and an excess of SrO (neglect the volume of solid SrO). The volume of the containers is now decreased by moving the movable piston fitted in the container. The maximum volume of the container, when pressure of CO_2 attains its maximum value, will be

(Given that : $SrCO3(s) \leftrightarrow SrO(s) + CO2(g)$. $K_p = 1.6$ atm)

a) 5 litre
b) 10 litre
c) 4 litre
d) 2 litre

Answer (a)

Solution

Max. pressure of CO_2 = Pressure of CO_2 at equilibrium

For reaction,

$$SrCO_3(s) \rightleftharpoons SrO(s) + CO_2$$

$K_p = P_{CO_2} = 1.6$ atm = maximum pressure of CO_2

Volume of container at this stage,

$$V = \frac{nRT}{P} \qquad \ldots(i)$$

Since container is sealed and reaction was not earlier at equilibrium

$\therefore$ n = constant

$$n = \frac{PV}{RT} = \frac{0.4 \times 20}{RT} \qquad \ldots(ii)$$

Put equation (ii) in equation (i)

$$V = \left[\frac{0.4 \times 20}{RT}\right] \frac{RT}{1.6} = 5 \text{ L}$$

25. The correct statement regarding electrophile is

a) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from a nucleophile

b) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from another electrophile

c) Electrophiles are generally neutral species and can form a bond by accepting a pair of electrons from a nucleophile

d) Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nucleophile
Answer (d)

Solution:
Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nucleophile

26. Which of the following is a sink for CO?
a) Haemoglobin
b) Micro-organisms present in the soil
c) Oceans
d) Plants

Answer (b)
Solution

Micro-organisms present in the soil is a sink for CO.

27. The element Z = 114 has been discovered recently. It will belong to which of the following family group and electronic configuration?

a) Halogen family, [Rn] $5f^{14}6d^{10}7s^{2}7p^{5}$

b) Carbon family, [Rn] $5f^{14}6d^{10}7s^{2}7p^{2}$

c) Oxygen family, [Rn] $5f^{14}6d^{10}7s^{2}7p^{4}$

d) Nitrogen family, [Rn] $5f^{14}6d^{10}7s^{2}7p^{6}$

Answer (b)

Solution:

Z = 114 belong to Group 14, carbon family

Electronic configuration = $[Rn]5f^{14}6d^{10}7s^{2}7p^{2}$

28. Correct increasing order for the wavelengths of absorption in the visible region for the complexes of Co^{3+} is

a) $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$

b) $[Co(H_2O)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$

c) $[Co(H_2O)_6]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$

d) $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(H_2O)_6]^{3+}$

Answer (a)
Solution:
The order of the ligand in the spectrochemical series
$H_2O < NH_3 < en$
Hence, the wavelength of the light observed will be in the order
$[Co(H_2O)_6]^{3+} < [Co(NH_3)_6]^{3+} < [Co(en)_3]^{3+}$
Thus, wavelength absorbed will be in the opposite order
i.e.,$[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$

29. Which of the following statements is not correct?
a) Insulin maintains sugar level in the blood of a human body
b) Ovalbumin is a simple food reserve in egg-white
c) Blood proteins thrombin and fibrinogen are involved in blood clotting
d) Denaturation makes the proteins more active
Answer (d)
Solution
Due to denaturation of proteins, globules unfold and helix get uncoiled and protein loses its biological activity.

30. An example of a sigma bonded organometallic compound is :
a) Ruthenocene
b) Grignard's reagent
c) Ferrocene
d) Cobaltocene
Answer (2)
Solution:
Grignard's reagent i.e., RMgX is σ-bonded organometallic compound.

31. Which of the following is dependent on temperature?
a) Molality
b) Molarity
c) Mole fraction
d) Weight percentage
Answer (b)

Solution:
Molarity includes volume of solution which can change with change in temperature.

32. For a given reaction, Δ H = 35.5 kJ mol^{-1} and ΔS = 83.6 JK^{-1} mol^{-1}. The reaction is spontaneous at : (Assume that ΔH and ΔS do not vary with temperature)

a) T < 425 K
b) T > 425 K
c) All temperatures
d) T > 298 K

Answer (b)
Solution:
$\because \quad \Delta G = \Delta H - T\Delta S$

For a reaction to be spontaneous, ΔG = –ve

i.e., $\Delta H < T\Delta S$

$$\therefore \quad T > \frac{\Delta H}{\Delta S} = \frac{35.5 \times 10^3 \text{ J}}{83.6 \text{ JK}^{-1}}$$

i.e., T > 425 K

33. The most suitable method of separation of 1 : 1 mixture of ortho and para-nitrophenols is

a) Sublimation
b) Chromatography
c) Crystallisation
d) Steam distillation

Answer (d)
Solution:
Steam distillation is the most suitable method of separation of 1 : 1 mixture of ortho and para nitrophenols as there is intramolecular H-bonds in ortho nitrophenol.

34. Which one of the following pairs of species have the same bond order?

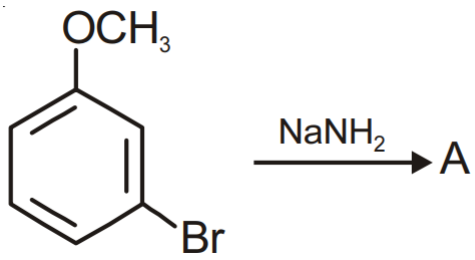
a) CO, NO
b) O_2, NO^+
c) CN^-, CO
d) N_2, O_2

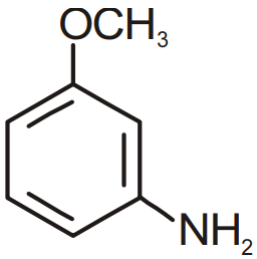
Answer (c)

Solution:

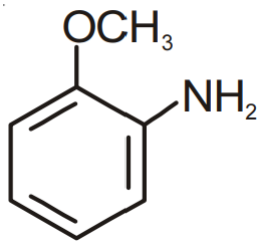
CN^- and CO have bond order 3 each.

35. Identify A and predict the type of reaction

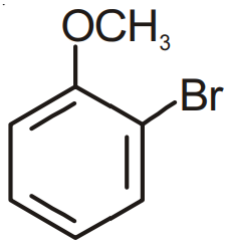


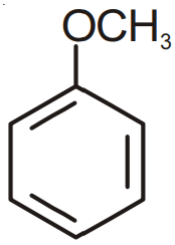
a) 

and substitution reaction

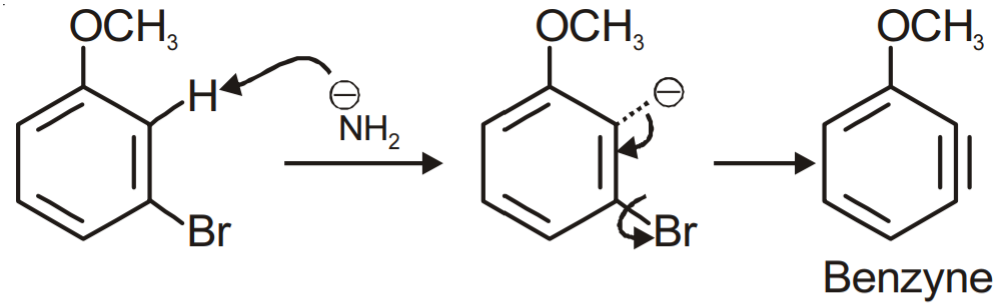
b) 

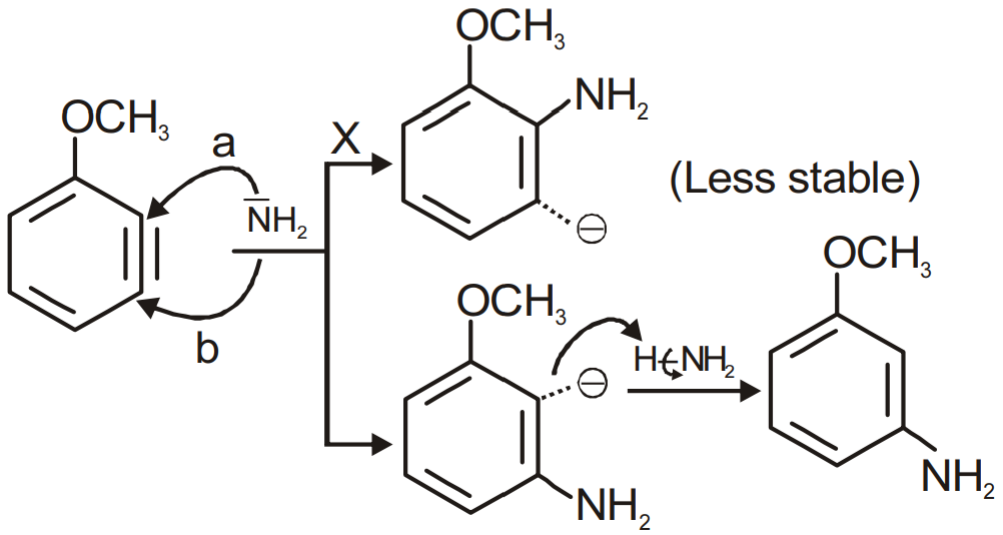
and elimination addition reaction

c)  and cine substitution reaction

d)  and cine substitution reaction

Answer (a)





More stable as –ve charge is close to electron withdrawing group

∵ Incoming nucleophile ends on same 'C' on which

'Br' (Leaving group) was present

So it is not cine substitution.

36. A first order reaction has a specific reaction rate of 10^{-2} s^{-1}. How much time will it take for 20 g of the reactant to reduce to 5 g?

a) 238.6 second
b) 138.6 second
c) 346.5 second
d) 693.0 second

Answer (b)

Solution:

$$t_{1/2} = \frac{0.693}{10^{-2}} \text{ second}$$

For the reduction of 20 g of reactant to 5 g, two $t_{1/2}$ is required.

$$\therefore \quad t = 2 \times \frac{0.693}{10^{-2}} \text{ second}$$

$$= 138.6 \text{ second}$$

37. Name the gas that can readily decolourises acidified $KMnO_4$ solution:

a) CO_2
b) SO_2
c) NO_2
d) P_2O_5

Answer (b)

Solution:

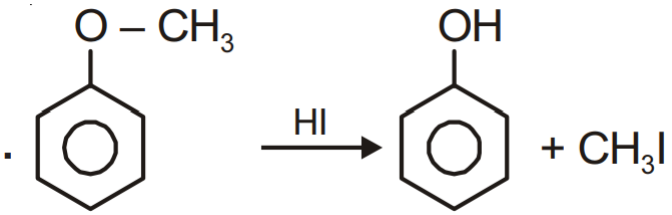
SO_2 is readily decolourises acidified $KMnO_4$.

38. The heating of phenyl-methyl ethers with HI produces.

a) Ethyl chlorides
b) Iodobenzene
c) Phenol
d) Benzene

Answer (c)

Solution:



39. Pick out the correct statement with respect $[Mn(CN)_6]^{3-}$:

a) It is sp^3d^2 hybridised and octahedral

b) It is sp^3d^2 hybridised and tetrahedral

c) It is d^2sp^3 hybridised and octahedral

d) It is dsp^2 hybridised and square planar

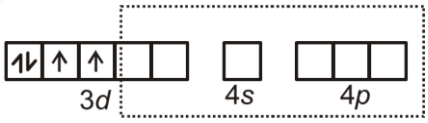
Answer (c)

Solution

$[Mn(CN)_6]^{3-}$ Mn(III) = $[Ar]3d^4$

CN^- being strong field ligand forces pairing of electrons

This gives t24 0g ge □ Mn(III) = [Ar]

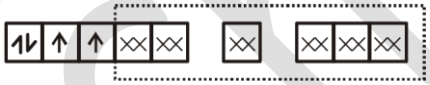


dsp23

∵ Coordination number of Mn = 6

So the Structure is octahedral

$[Mn(CN)_6]^{3-}$ =



d^2sp^3

40. Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field?

a) Na

b) K

c) Rb

d) Li

Answer (d)

Sol. Li^+ being smallest, has maximum charge density

Therefore, Li^+ is most heavily hydrated among all alkali metal ions. Effective size of Li^+ in aq solution is therefore, largest.
It Moves slowest under electric field.

41. The equilibrium constants of the following are.

$$N_2 + 3H_2 \rightleftharpoons 2NH_3 \quad K_1$$

$$N_2 + O_2 \rightleftharpoons 2NO \quad K_2$$

$$H_2 + \frac{1}{2}O_2 \longrightarrow H_2O \quad K_3$$

The equilibrium constant (K) of the reaction:

$$2NH_3 + \frac{5}{2}O_2 \overset{K}{\rightleftharpoons} 2NO + 3H_2O, \text{ will be}$$

a) $K_1K_3^3 / K_2$

b) $K_2K_3^3 / K_1$

c) K_2K_3 / K_1

d) $K_2^3K_3 / K_1$

Answer (b)
Solution:

. (I) $N_2 + 3H_2 \rightleftharpoons 2NH_3; K_1 = \frac{[NH_3]^2}{[N_2][H_2]^3}$

(II) $N_2 + O_2 \rightleftharpoons 2NO; K_2 = \frac{[NO]^2}{[N_2][O_2]}$

(III) $H_2 + \frac{1}{2}O_2 \longrightarrow H_2O; K_3 = \frac{[H_2O]}{[H_2][O_2]^{1/2}}$

(II + 3 × III – II) will give

$2NH_3 + \frac{5}{2}O_2 \overset{K}{\rightleftharpoons} 2NO + 3H_2O;$

$\therefore \quad K = K_2 \times K_3^3 / K_1$

42. Which of the following reactions is appropriate for converting acetamide to methanamine?

a) Carbylamine reaction
b) Hoffmann hypobromamide reaction
c) Stephens reaction
d) Gabriels phthalimide synthesis

Answer (b)

Solution:

This is Hoffmann Bromamide reaction.

$$CH_3 - \overset{\overset{O}{\|}}{C} - NH_2 + Br_2 + 4NaOH \xrightarrow{\Delta}$$

$$CH_3 - NH_2 + 2NaBr + Na_2CO_3 + 3H_2O$$

43. Mechanism of a hypothetical reaction $X_2 + Y_2 \rightarrow 2XY$ is given below :

(i) $X_2 \rightarrow X + X$ (fast)

(ii) $X + Y_2 \rightleftharpoons XY + Y$ (slow)

(iii) $X + Y \rightarrow XY$ (fast)

The overall order of the reaction will be

a) 1
b) 2
c) 0
d) 1.5

Answer (d)

Solution:

The solution of this question is given by assuming step (i) to be reversible which is not given in question

Overall rate = Rate of slowest step (ii)

$= k[X]\,[Y_2]$...(1)

k = rate constant of step (ii)

Assuming step (i) to be reversible, its equilibrium constant,

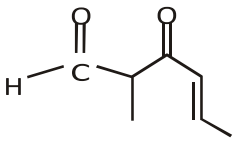
$$k_{eq} = \frac{[X]^2}{[X_2]} \Rightarrow [X] = k_{eq}^{\frac{1}{2}}[X_2]^{\frac{1}{2}} \qquad ...(2)$$

Put (2) in (1)

$$\text{Rate} = kk_{eq}^{\frac{1}{2}}[X_2]^{\frac{1}{2}}[Y_2]$$

$$\text{Overall order} = \frac{1}{2} + 1 = \frac{3}{2}$$

44. The IUPAC name of the compound

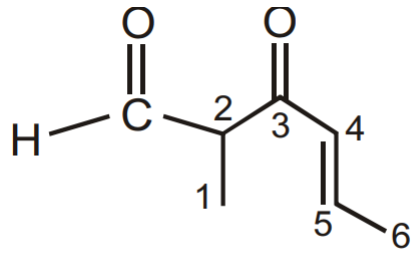


is _____.

a) 3-keto-2-methylhex-4-enal
b) 5-formylhex-2-en-3-one
c) 5-methyl-4-oxohex-2-en-5-al
d) 3-keto-2-methylhex-5-enal

Answer (1)

Solution:



Aldehydes get higher priority over ketone and alkene in numbering of principal C-chain.

So, 3-keto-2-methylhex-4-enal

45. Extraction of gold and silver involves leaching with CN^- ion. Silver is later recovered by

a) Liquation
b) Distillation
c) Zone refining
d) Displacement with Zn

Answer (d)

Solution:

Zn being more reactive than Ag and Au, displaces them.

From Native ore,

$$4Ag + 8NaCN + 2H_2O + O_2 \xrightarrow{\text{Leaching}}$$

$$4Na[Ag(CN)_2] + 4NaOH$$

Soluble
Sodium dicyanoargentate(I)

$$2Na[Ag(CN)_2] + Zn \xrightarrow{\text{Displacement}}$$

$$Na_2[Zn(CN)_4] + 2Ag\downarrow$$