CHEMISTRY

BOOKS - UNIVERSAL BOOK DEPOT 1960 CHEMISTRY (HINGLISH)

GENERAL ORGANIC CHEMISTRY

Ordinary Thinking (Bonding and hybridsation in organic compounds)

1. The hybridisation in ethane, ethene and Ethyne is

A. sp^3, sp^2 and sp

B. sp^3, sp, sp^2

C. sp^2, sp^3 and sp

D. sp, sp^2, sp^3

Answer: A

Watch Video Solution

2. In which bond angle is the highest

A. sp^3

B. sp^2

C. sp

D. sp^3d

Answer: C

Watch Video Solution

3. In which of the compounds below is there more than one kind of hybridization $\left(sp, sp^2, sp^3\right)$ for carbon?

(i) $CH_3CH_2CH_2CH_3$ (ii) $CH_3 - CH = CH - CH_3$

(iii) $H_2C - CH - CH - CH_2$ (iv) $H - C \equiv C - H$

A. (ii) and (iv)

B. (i) and (iv)

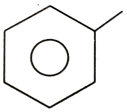
C. (ii) and (iii)

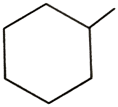
D. (ii)

Answer: D

Watch Video Solution

4. Examine the following common chemical structures to which simple functional groups are often attached

(i) 

(ii) 

(iii) 

(iv) $CH_3CH_2CH_2CH_2-$

(v) $H_2C=C<\begin{matrix}H\\H\end{matrix}$

Which of these systems have essentially planar geometry

A. (i) and (v)

B. (ii) and (iii)

C. (ii), (iii) and (iv)

D. (iv)

Answer: A

Watch Video Solution

5. Which of the following C-H bond has the lowest bond dissociation energy

A. Primary $(1^\circ)C-H$ bond

B. Secondary $(2^\circ)C-H$ bond

C. Tertiary $(3^\circ)C-H$ bond

D. All of these

Answer: C

Watch Video Solution

6. In the hydrocarbon

$\underset{6}{C}H_3 - \underset{5}{C}H = \underset{4}{C}H - \underset{3}{C}H_2 - \underset{2}{C} \equiv \underset{1}{C}H$

The state of hybridization of carbons 1,3 and 5 are in the following sequence

A. sp, sp^2, sp^3

B. sp^3, sp^2, sp

C. sp^2, sp, sp^3

D. sp, sp^3, sp^2

Answer: D

Watch Video Solution

7. Base strength of

$(1)H_3C\overset{\Theta}{C}H_2$, $(2)H_2C = \overset{\Theta}{C}H$ and (3) $H - C \equiv \overset{\Theta}{C}$ is in the order of

A. $(i) > (iii) > (ii)$

B. $(i) > (ii) > (iii)$

C. $(ii) > (i) > (iii)$

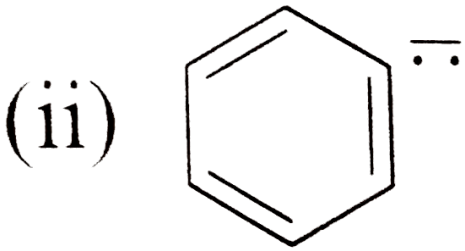
D. $(iii) > (ii) > (i)$

Answer: B

Watch Video Solution

8. The stability of carbanions in the following

(i) $RC \equiv \ddot{\underset{\cdot\cdot}{C}}^{-}$, (ii)

(ii) 

(iii) $R_2C = \ddot{\underset{..}{C}}H$, (iv) $R_3C - \ddot{\underset{..}{C}}H_2$

is in the order

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

B. $(i) > (iii) > (ii) > (iv)$

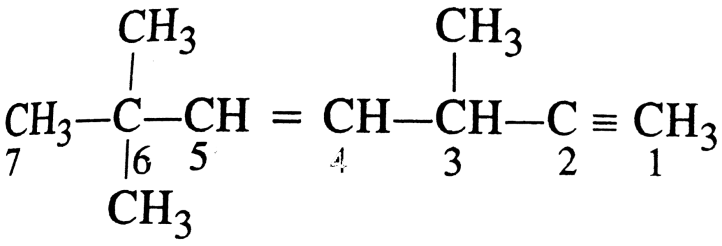
C. $(i) > (ii) > (iii) > (iv)$

D. $(ii) > (iii) > (iv) > (i)$

Answer: B

Watch Video Solution

9. The state of hybridization of C_2, C_3, C_5 and C_6 of the hydrocarbons



is in the following sequence

A. sp, sp^3, sp^2 and sp^3

B. sp^3, sp^2, sp^2 and sp

C. sp, sp^2, sp^2 and sp^3

D. sp, sp^2, sp^3 and sp^2

Answer: A

Watch Video Solution

10. The correct order of increasing bond length of C-H, C-O, C-C and C=C is-

A. $C-H<C-O<O<OC-C<C=C$

B. $C-H<C=C<C-O<C-C$

C. $C-C-\ <C=C<C-O<C-H$

D. $C-O<C-H<C-C<C=C$

Answer: B

Watch Video Solution

11. Considering the state of hybridization of carbon atoms, find out the molecule among the following which is linear?

A. $CH_3 - CH_2 - CH_2 - CH_3$

B. $CH_3 - CH = CH - CH_3$

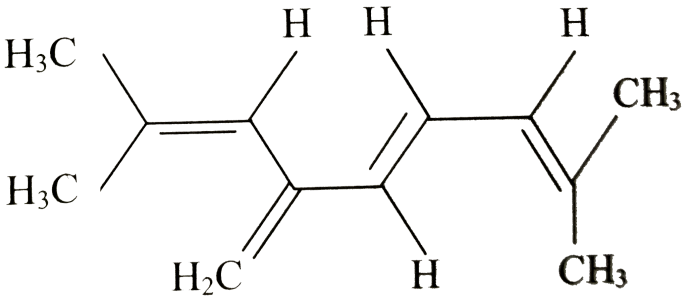
C. $CH_3 - C \equiv C - CH_3$

D. $CH_2 = CH - CH_2 - C \equiv CH$

Answer: C

Watch Video Solution

12. The total number of π-bond electrons in the following structure is



A. 8

B. 12

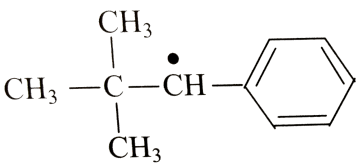
C. 16

D. 4

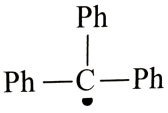
Answer: A

Watch Video Solution

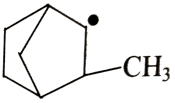
13. Consider the following compound. Hyperconjugation occurs in



(i)



(ii)



(iii)

A. II only

B. III only

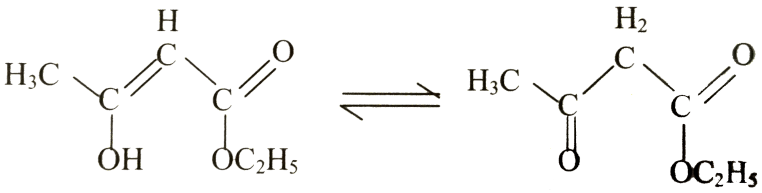
C. I and III

D. I only

Answer: B

Watch Video Solution

14. The enolic form of ethyl acetoacetate as below has



A. 16 sigma bonds and 1 pi-bond

B. 9 sigma bonds and 2 pi-bond

C. 9 sigma bonds and 1 pi-bond

D. 18 sigma bonds and 2 pi-bond

Answer: D

Watch Video Solution

15. Which of the following species contains equal number of pi and pi bonds ?

A. XeO_4

B. $(CN)_2$

C. $CH_2(CN)_2$

D. HCO_3^-

Answer: A

Watch Video Solution

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

A. 2p

B. sp^3

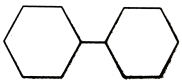
C. sp^2

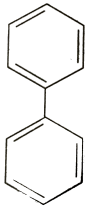
D. sp

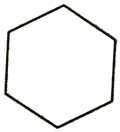
Answer: D

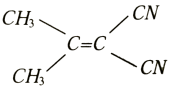
Watch Video Solution

17. In which of the following molecules, all atoms are coplanar?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

Watch Video Solution

18. The number of $\sigma -$ and π bonds present in pent-4en-1-yne is :

A. 10, 3

B. 3, 10

C. 4, 9

D. 9, 4

Answer: A

Watch Video Solution

19. The carbon atoms of benzene are:

A. sp^3

B. sp^2

C. sp

D. s^3p

Answer: B

Watch Video Solution

20. Graphite is soft while diamond is hard because

A. Graphite in powder form

B. Diamond has sp^2 hybridization but graphite has sp^3 hybridization

C. Graphite is in planar form while diamond is in tetrahedral form

D. Graphite is covalent and diamond is ionic

Answer: C

Watch Video Solution

21. Hybridization of 1 and 2 carbon atoms in $\overset{1}{C}H_2 = \overset{2}{C} = CH_2$

A. sp, sp

B. sp^2, sp^2

C. sp^2, sp

D. sp^3, sp^2

Answer: C

Watch Video Solution

22. In carbon tetrachloride, four valence of carbon are directed to four corners of

A. Rectangle

B. Square

C. Tetrahedron

D. None of these

Answer: C

Watch Video Solution

23. Toluene has

A. 6σ and 3π bond

B. 9σ and 3π bond

C. 9σ and 6π bond

D. 15σ and 3π bond

Answer: D

Watch Video Solution

24. Example of sp^2 hybridisation is

A. CH_3^+

B. CH_4

C. $C_2H_5^+$

D. C_2H_6

Answer: A::C

Watch Video Solution

25. In graphite, each C atom is

A. sp^3

B. sp

C. sp^2

D. None of these

Answer: C

Watch Video Solution

26. The shapes of methane, ethene and ethyne molecules are, respectively

A. Tetrahedral, planar and linear

B. Tetrahedral, linear and planar

C. Pyramidal, planar and lnear

D. Tetrahedral,pyramidal and planar

Answer: A

Watch Video Solution

27. Number of π electrons present in naphthalene is

A. 4

B. 6

C. 10

D. 14

Answer: C

Watch Video Solution

28. Consider the following compounds

A. Chloroethene B. Benzene

C. 1,3-butadiene D. 1,3,5-hexatriene

All the carbon atoms are sp^2 hybridised in

A. A, C, D only

B. A, B only

C. B, C, D only

D. A, B, C and D

Answer: D

Watch Video Solution

29. The enolic form of butanone contains

A. 12σ bonds, 1π bond and 2 lone pairs of electrons

B. 11σ bonds , 1π bond and 2 lone pairs of electrons

C. 12σ bonds , 1π bond and 1 lone pairs of electrons

D. 10σ bonds , 2π bond and 2 lone pairs of electrons

Answer: A

Watch Video Solution

30. In hexa-1,3-diene-5-yne, the number of $C-C\sigma$, $C-C\pi$ and $C-H\sigma$ bonds respectively are:

A. 5, 4 and 6

B. 6, 3 and 5

C. 5, 3 and 6

D. 6, 4 and 5

Answer: A

Watch Video Solution

31. The number of sigma (σ) and pi (π) bonds present in 1,3,5,7-octatetraene respectively are:

A. 14 and 3

B. 17 and 4

C. 16 and 5

D. 15 and 4

Answer: B

Watch Video Solution

32. The number of sigma and pi bonds in benzene are

A. 6σ and 3π

B. 12σ and 3π

C. 3π and 12π

D. 6σ and 6π

Answer: B

Watch Video Solution

33. How many methyl group are present in 2, 5-dimethyl-4-ethylheptane

A. 2

B. 3

C. 4

D. 5

Answer: D

Watch Video Solution

34. Heterolytic bond dissociation energy of alkyl halides follows the sequence

A. $R-F>R-Cl>R-Br>R-I$

B. $R-I>R-Br>R-Cl>R-F$

C. $R-I>R-F>R-Br>R-Cl$

D. $R-Cl>R-Br>R-I>R-F$

Answer: B

Watch Video Solution

35. The structure of di-chloromethane is

A. Tetrahedral

B. Trigonal

C. Linear

D. Hexagonal

Answer: A

Watch Video Solution

36. The number of sp^3 hybridized carbon atoms in cyclohexene are

A. 2

B. 3

C. 4

D. 6

Answer: C

Watch Video Solution

37. The strongest acid is :

A. $HC \equiv CH$

B. C_2H_6

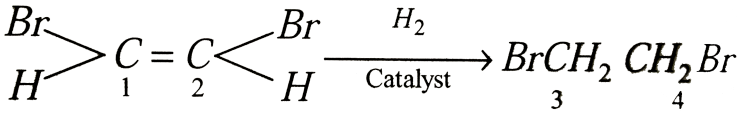
C. C_6H_6

D. CH_3OH

Answer: D

Watch Video Solution

38. In the reaction



The hybridisation states of carbon atoms 1,2,3,4 are

A. 1 and 2 sp^2, 3 and 4 sp^3

B. 1 and 2 sp^2, 3 and 4 sp

C. 1, 2, 3 and 4sp

D. 1,2 sp^3, 3, 4 sp^2

Answer: A

Watch Video Solution

39. Which of the following statements is false for isopentane

A. It has three CH_3 groups

B. It has one CH_2 group

C. It has one CH group

D. It has a carbon which is not bonded to hydrogen

Answer: D

Watch Video Solution

40. The number of σ and π bonds in o-xylene are

A. 6

B. 9

C. 12

D. 18

Answer: D

Watch Video Solution

41. The H-C-H bond angle in CH_4 is

A. $109^\circ 28'$

B. $107^\circ 28'$

C. 90°

D. 180°

Answer: A

Watch Video Solution

42. Allyl cyanide contains σ and π-bonds:

A. $9\sigma, 3\pi$

B. $9\sigma, 9\pi$

C. $3\sigma, 4\pi$

D. $5\sigma, 7\pi$

Answer: A

Watch Video Solution

43. In which of the following compound sp^2-hybridisation is absent

A. $CH \equiv C - CH = CH_2$

B. $CH \equiv C - CH_2 - CH_3$

C. $CH_3 - CH = CH_2$

D. $CH_2 = CH - CH_2 - CH_3$

Answer: B

Watch Video Solution

44. Hybridisation in $\dot{C}H_3$, $\overset{+}{C}H_3$ and $\overset{-}{C}H_3$ are respectively

A. sp^2,sp^2 and sp^3 respectively

B. sp^2, $sp^3$and sp^3 respectively

C. sp^3, sp^2 and sp^3 respectively

D. sp^3, sp^2 and sp^2 respectively

Answer: A

Watch Video Solution

45. Which carbon-atoms has tetrahedral geometry

$\overset{1}{C}H_2 = \overset{2}{C}H - \overset{3}{C}H_2 - \overset{4}{C}OOH$

A. 1

B. 2

C. 3

D. 4

Answer: C

Watch Video Solution

46. Number of unhybridised orbitals in vinyl acetylene are

A. 2

B. 3

C. 4

D. 6

Answer: D

Watch Video Solution

47. Maximum bond energy of C-H bonds is found in the compound

A. Ethane

B. Ethene

C. Ethyne

D. Equal in all the three

Answer: C

Watch Video Solution

48. Conjugated double bond is present in

A. 1, 2-butadiene

B. 1, 3-butadiene

C. 1, 3-pentadiene

D. β-butylene

Answer: B

Watch Video Solution

49. The number of double bonds in gammexane is

A. 0

B. 1

C. 2

D. 3

Answer: A

Watch Video Solution

50. In which of the following species the underlined carbon has sp^3 - hybridisation ?

A. $CH_3\underline{C}OOH$

B. $CH_3\underline{C}H_2OH$

C. $CH_3\underline{C}OCH_3$

D. $CH_2 = \underline{C}H - CH_3$

Answer: B

Watch Video Solution

51. Which one of the following does not have sp^2 hybridised carbon ?

A. Acetonitrile

B. Acetic acid

C. Acetone

D. Acetamide

Answer: A

Watch Video Solution

52. Which of the following has a bond formed by overlap of $sp^3 - sp$, hybrid orbitals?

A. $CH_3 - C \equiv C - H$

B. $CH_3 - CH = CH - CH_3$

C. $CH_2 = CH - CH = CH_2$

D. $HC \equiv CH$

Answer: A

Watch Video Solution

53. Select the molecules which has only one pi bond

A. $CH \equiv CH$

B. $CH_2 = CHCHO$

C. $CH_3CH = CH_2$

D. $CH_3CH = CHCOOH$

Answer: C

Watch Video Solution

54. Which of the following hybridisation is known as trigonal hybridisation?

A. sp^3

B. sp

C. sp^2

D. dsp^2

Answer: C

Watch Video Solution

55. The types of hybridization present in 1, 2-butadiene are

A. sp, sp^2 and sp^3

B. sp^2 and sp^3

C. sp^2 and sp

D. sp and sp^3

Answer: A

Watch Video Solution

56. The correct order for homolytic bond dissociation energies (ΔH in kcal/mol) for $CH_4(A)$, $C_2H_6(B)$ and $CH_3Br(C)$ is

A. $C > B > A$

B. $B > A > C$

C. $C > A > B$

D. $A > B > C$

Answer: B

Watch Video Solution

57. The C-H bond and C-C bond in ethane are formed by which of the following types of overlap?

A. $sp^2 - s$ and $sp^2 - sp^3$

B. $sp^2 - s$ and $sp^2 - sp^2$

C. $sp - s$ and sp - sp

D. p-s and p-p

Answer: A

Watch Video Solution

58. In 2-butene, which one of the following statements is true

A. $C_1 - C_2$ bond is a $sp^2 - sp^3\sigma$-bond

B. $C_2 - C_3$ bond is a $sp^3 - sp^2\sigma$-bond

C. $C_1 - C_2$ bond is a $sp^3 - sp^2\sigma$ - bond

D. $C_1 - C_2$ bond is a $sp^2 - sp^2\sigma$- bond

Answer: C

Watch Video Solution

59. Amongest the following compounds, the one which would not form a white precipitate with ammonical silver nitrate solution is

A. $HC \equiv CH$

B. $H_3C - C \equiv C - CH_3$

C. $H_3C - C = CH$

D. $CH_3CH_2CH_2C \equiv CH$

Answer: B

Watch Video Solution

60. Hydrogen bonding is maximum in

A. C_2H_5OH

B. $CH_3 - O - CH_3$

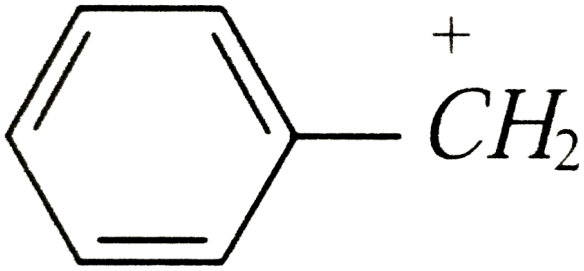
C. $(CH_3)_2C = O$

D. CH_3CHO

Answer: A

Watch Video Solution

61. What is the hybridisation state of benzyl carbonium ion



A. sp^2

B. spd^2

C. sp^2d

D. sp^3

Answer: A

Watch Video Solution

62. Assetion: Carbon possesses property of catenation.

Reason: Carbon atoms form double as well as triple bonds during catenation.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true of the reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

63. Assertion : Olefins have the general formula C_nH_{2n+1}.

Reason : There is one double bond between two carbon atoms in their molecules.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true of the reason is false.

D. If assertion is false but reason is true.

Answer: D

Watch Video Solution

64. Assertion : Each carbon in ethylene molecule is sp^2 hybridised.

Reason : The H-C-H bond angle in ethylene molecule is 120°.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true of the reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

65. Assertion : Carbon-oxygen bonds are of equal length in carbonate ion.

Reason : Bond length decreases with the multiplicity of bond between two atoms.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true of the reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

Dipole moment, resonance and reaction intermediates

1. Which one of the following orders is correct regarding the inductive effect of the substituents

A. $-NR_2 < -OR > -F$

B. $-NR_2 > -OR > -F$

C. $-NR_2 < -OR < -F$

D. $-NR_2 > -OR < -F$

Answer: C

Watch Video Solution

2. Which of the following is not an electrophile

A. NO_2

B. Na^+

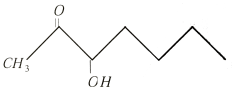
C. H^+

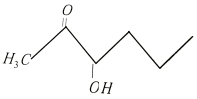
D. BF_3

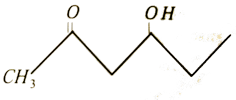
Answer: B

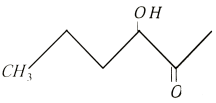
Watch Video Solution

3. Which one of the following compounds will be most readily dehydrated?

A. 

B. 

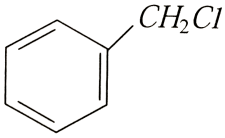
C. 

D. 

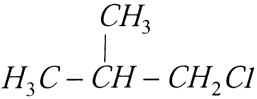
Answer: C

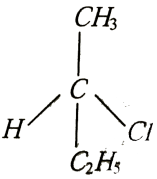
Watch Video Solution

4. Which of the following compounds will undergo racemisation when solution of KOH hydrolyses

(i) 

(ii) $CH_3CH_2CH_2Cl$

(iii) 

(iv) 

A. (iii) and (iv)

B. (i) and (iv)

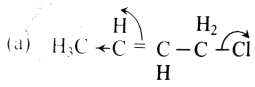
C. Only (iv)

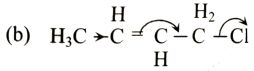
D. (ii) and (iv)

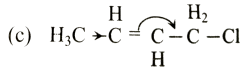
Answer: C

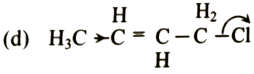
Watch Video Solution

5. Which of the following is the most correct electron displacement for a nuclephilic reaction to take place ?

A. 

B. (b) 

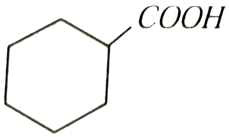
C. (c) 

D. (d) 

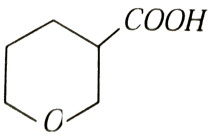
Answer: B

Watch Video Solution

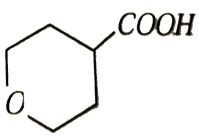
6. The correct order of strengths of carboxylic acids



I



II



III

is

A. $II > I > III$

B. $I > II > III$

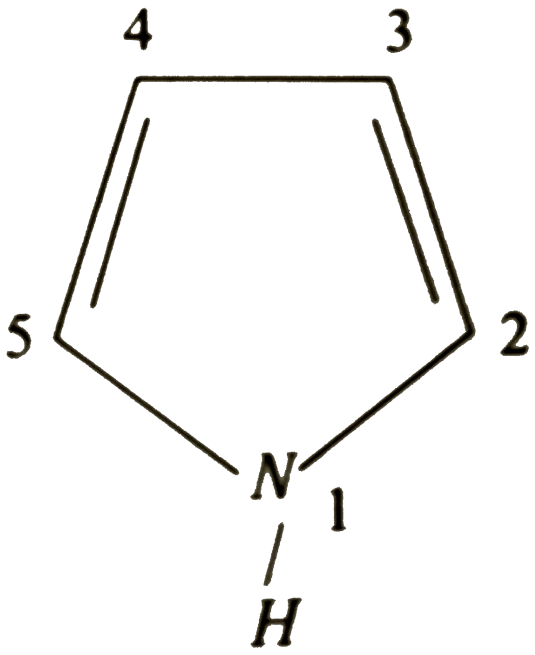
C. $II > III > I$

D. $III > II > I$

Answer: C

Watch Video Solution

7. In pyrrole



the electron density is maximum on

A. 2 and 5

B. 2 and 5

C. 3 and 4

D. 2 and 4

Answer: D

Watch Video Solution

8. Arrange the following in increasing order of stability

$(CH_3)_2\overset{\oplus}{C} - CH_2 - CH_3$ (2) $(CH_3)_3\overset{\oplus}{C}$

(3) $(CH_3)_2\overset{\oplus}{C}H$ (4) $CH_3\overset{\oplus}{C}H_2$

(5) $\overset{\oplus}{C}H_2$

A. $5 < 4 < 3 < 1 < 2$

B. $4 < 5 < 3 < 1 < 2$

C. $1 < 5 < 4 < 3 < 2$

D. $5 < 4 < 3 < 2 < 1$

Answer: A

Watch Video Solution

9. $C - C$ bond length in benzene is

A. 1.39 Å

B. 1.54 Å

C. 1.34 Å

D. Different in different bonds

Answer: A

Watch Video Solution

10. The dipole moment is the highest for

A. Trans-2-butene

B. 1, 3-dimethylbenzene

C. Acetophenone

D. Ethanol

Answer: C

Watch Video Solution

11. Which of the following contains three pairs of electrons

A. Carbocation

B. Carbanion

C. Free radical

D. None of these

Answer: A

Watch Video Solution

12. Which of the following is the most stable compound?

A. $Ph_3\overset{+}{C}$

B. $Ph_2\overset{+}{C}H$

C. $Ph_3C\overset{+}{C}H_2$

D. $Ph\overset{+}{C}H_2$

Answer: A

Watch Video Solution

13. Which kind of fission is favoured by sunlight

A. Heterolytic fission

B. Homolytic fission

C. Both (a) and (b)

D. None of these

Answer: B

Watch Video Solution

14. Orbital interaction (partial overlapping) between the sigma bonds of a substituent group and a neighbouring pi orbital is known as

A. Hyperconjugation

B. Inductive effect

C. Steric effect

D. Dipole-dipole interactions

Answer: A

Watch Video Solution

15. Which species are more resonance stabilized in the following pairs:

$[C_6H_5Cl, C_6H_5CH_3], [CH_2 = CHCl, CH_2 = CHCH_2Cl],$

$[C_6H_5Br, C_6H_5CH_2Br], [CH_3COOH, CH_3COO^-]$

A. $C_6H_5Cl, CH_2 = CHCH_2Cl, C_6H_5CH_2Br, CH_3COO^-$

B. $C_6H_5CH_3, CH_2 = CHCH_2Cl, C_6CH_2Br, CH_3COO^-$

C. $C_6HCH_3, CH_2 = CHCH_2CL, C_6H_5CH_2Br, CH_3COOH$

D. $C_6H_5Cl, CH_2 = CHCl, C_6H_5Br, CH_3COO^-$

Answer: D

Watch Video Solution

16. Which one of the following carbanions is the least stable?

A. $CH_3CH_2^-$

B. $HC \equiv C^-$

C. $(C_6H_5)_3C^-$

D. $(CH_3)_3C^-$

Answer: D

Watch Video Solution

17. Which among the following statements are true with respect to electronic displacement in a covalent bond?

(1) Inductive effect operates through a π - bond

(2) Resonance effect operates through a σ-bond

(3) Inductive effect operates through a σ -bond

(4) Resonance effect operates through a π — bond

(5) Resonance and inductive effects operate through σ-bond

A. 3 and 4

B. 1 and 2

C. 2 and 4

D. 1 and 3

Answer: A

Watch Video Solution

18. The temporary effect in which there is complete tranfer of a shared pair of pi-electrons to one of the atoms joined by a multiple bond on the demand of an attacking reagent is called

A. Inductive effect

B. Positive resonance effect

C. Negative resonance effect

D. Electromeric effect

Answer: D

Watch Video Solution

19. The least stable free radical is

A. $CH_3\dot{C}H_2$

B. $CH_3CH_2\dot{C}H_2$

C. $(CH_3)_2\dot{C}H$

D. $\dot{C}H_3$

Answer: D

Watch Video Solution

20. The shape of the carbonium ion is

A. Planar

B. Pyramidal

C. Linear

D. None of these

Answer: A

Watch Video Solution

21. C-Cl bond in $CH_2 = CH - Cl$ is difficult to cleave due to

A. Resonance

B. Electromeric effect

C. Inductive effect

D. Hyperconjugation

Answer: A

Watch Video Solution

22. Which is a nucleophile

A. Carbocation

B. Carbanion

C. Both (a) and (b)

D. None of these

Answer: B

Watch Video Solution

23. Hyperconjugation is also known as

A. Baker-Nathan effect

B. No bond resonance

C. Both (a) and (b)

D. None of these

Answer: C

Watch Video Solution

24. Relative stabilities of the following carbocations will be in the order

$\overset{\oplus}{C}H_3$ (i) $\quad CH_3\overset{\oplus}{C}H_2$ (ii) $\quad \overset{\oplus}{C}H_2OCH_3$ (iii)

A. $(iii) > (ii) > (i)$

B. $(iii) < (ii) < (i)$

C. $(ii) > (iii) > (i)$

D. $(iii) > (i) > (ii)$

Answer: A

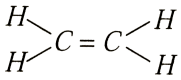
Watch Video Solution

25. Which of the following molecules does not have net dipole moment?

A. $CH_3 - Br$

B. CH_2Cl_2

C. HCOOH

D. (d) 

Answer: D

Watch Video Solution

26. Compound which shows positive mesomeric effect

A. $CH_2 = CH - Cl$

B. $C_6H_5 - N^+ - Me_3$

C. $CH_2 = CH - CH_2Cl$

D. $C_6H_5 - CH = CHCl$

Answer: A::D

Watch Video Solution

27. Aromatic properties of benzene are proved by

A. Aromatic sextet theory

B. Resonance theory

C. Molecular orbital theory

D. All of these

Answer: D

Watch Video Solution

28. Amongst the given structures , which are permissible resonance forms ?

A. $\overset{+}{C}H - \underset{\underset{CH_3}{|}}{N} - \overset{\cdot\cdot}{\underset{\cdot\cdot}{O}}^{-}$

B. $CH_2 = \underset{\underset{CH_3}{|}}{N} = \overset{\cdot\cdot}{O}:$

C. $CH_2 = \overset{+}{\underset{\underset{CH_3}{|}}{N}} - \overset{\cdot\cdot}{\underset{\cdot\cdot}{O}}:$

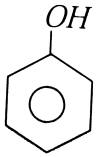
D. $:\overset{-}{C}H_3 - \overset{+}{\underset{\underset{CH_3}{|}}{N}} = \overset{\cdot\cdot}{O}:$

Answer: B

Watch Video Solution

29. Which one of the following will be the most easiliy attacked by an electrophile?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

Watch Video Solution

30. Which compound shows dipole moment

A. 1,4-dichloro benzene

B. 1, 2-dichloro benzene

C. Trans-1, 2-dichloro ethane

D. Trans-2-butene

Answer: B

Watch Video Solution

31. The species responsible for nitration is

A. NO_2^+

B. NO_3

C. NO_2

D. All the above

Answer: A

Watch Video Solution

32. C-C' bond length in benzene lies between single and double bond. The reason is

A. Resonance

B. Isomerism

C. Metamerism

D. Inductive effect

Answer: A

Watch Video Solution

33. Choose the chain terminating step

(1) $H_2 \rightarrow H^{\cdot} + H^{\cdot}$

(2) $Br_2 \rightarrow Br^{\cdot} + Br^{\cdot}$

(3) $Br^{\cdot} + HBr \rightarrow H^{\cdot} + Br_2$

(4) $H^{\cdot} + Br_2 \rightarrow HBr + Br^{\cdot}$

(5) $Br^{\cdot} + Br^{\cdot} \rightarrow Br_2$

A. 1

B. 3

C. 4

D. 5

Answer: D

Watch Video Solution

34. Arrangements of $(CH_3)_3C-$, $(CH_3)_2CH-$, $CH_3.CH_2-$ when attached to benzyl or n unsaturated group in increasing order of inductive effects is:

A. $(CH_3)_3-C- < (CH_3)_2-CH- < CH_3-CH_2-$

B. $CH_3-CH_2- < (CH_3)_2-CH- < (CH_3)_3-C-$

C. $(CH_3)_2-CH- < (CH_3)_3-C- < CH_3-CH_2-$

D. $(CH_2)_3 - C - < CH_3 - CH_2 - < (CH_3)_2 - CH -$

Answer: B

Watch Video Solution

35. Due to the presence of an unpaired electron, free radicals are:

A. Chemically reactive

B. Chemically inactive

C. Anions

D. Cations

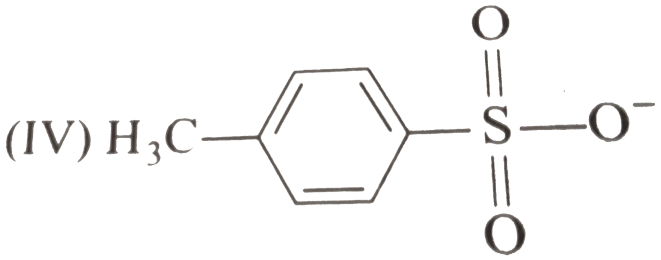
Answer: A

Watch Video Solution

36. The decreasing order of nucleophilicity among the nucleophiles is :

(I) $CH_3 - \underset{\underset{O}{||}}{C} - O^-$

(II) CH_3O^-

(IV) 

(III) CN^- (IV)

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

B. (iv), (iii), (ii), (i)

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

D. (iii), (ii), (i), (iv)

Answer: C

Watch Video Solution

37. The increasing order of stability of the following free radicals is :

A. $(CH_3)_2\dot{C}H < (CH_3)_3\dot{C} < (C_6H_5)_2\dot{C}H < (C_6H_5)_3\dot{C}$

B. $(C_6H_5)_3\dot{C} < (C_6H_5)_2\dot{C}H < (CH_3)_3\dot{C} < (CH_3)_2\dot{C}H$

C. $(C_6H_5)_2\dot{C}H < (C_6H_5)_3\dot{C} < (CH_3)_3\dot{C} < (CH_3)_2\dot{C}H$

D. $(CH_3)_2\dot{C}H < (CH_3)_3\dot{C} < (C_6H_5)_3\dot{C} < (C_6H_5)_2\dot{C}H$

Answer: A

Watch Video Solution

38. Among the following mixiture dipole-dipole as the mojor interaction is present is

A. Benzene and ethanol

B. Acetonitrile and acetone

C. KCl and water

D. Benzene and carbon tetrachloride

Answer: B

Watch Video Solution

39. Arrange the carbonions, $(CH_3)_3\bar{C}, \bar{C}Cl_3, (CH_3)_2\bar{C}H, C_6H_5\bar{C}H_2$ in order of their decreasing stability

A. $C_6H_5\bar{C}H_2 > \bar{C}Cl_3 > (CH_3)_3\bar{C} > (CH_3)_2\bar{C}H$

B. $(CH_3)_2\bar{C}H > \bar{C}Cl_3 > C_6H_5\bar{C}H_2 > (CH_3)_3\bar{C}$

C. $\bar{C}Cl_3 > C_6H_5\bar{C}H_2 > (CH_3)_2\bar{C}H > (CH_3)_3{}^-$

D. $(CH_3)_3\bar{C} > (CH_3)_2\bar{C}H > C_6H_5\bar{C}H_2 > \bar{C}Cl_3$

Answer: C

Watch Video Solution

40. In carbonium ion the carbon bearing the positive charge in the

A. sp^2-hybridized state

B. sp^3d-hybridized state

C. sp-hybridized state

D. sp^3-hybridized state

Answer: A

Watch Video Solution

41. Which of the following is observed in ethylene molecule

A. Electromeric effect

B. Inductive effect

C. Homolytic fission

D. None of these

Answer: A

Watch Video Solution

42. Which of the following is a polar compound

A. C_2H_6

B. CCl_4

C. HCl

D. CH_4

Answer: C

Watch Video Solution

43. An aromatic among other things should have a π-electron cloud containing electrons where n can't be

A. $1/2$

B. 3

C. 2

D. 1

Answer: A

Watch Video Solution

44. Which of the following is an electrophile ?

A. H_2O

B. SO_3

C. NH_3

D. ROR

Answer: B

Watch Video Solution

45. The presence of the chlorine atom on benzene ring makes the second substituent enter at a position

A. Ortho

B. Meta

C. Para

D. Ortho-para

Answer: D

Watch Video Solution

46. Which is most stable carbocation?

A. Iso-propyl

B. Triphenylmethyl cation

C. Ethyl cation

D. π- propyl cation

Answer: B

Watch Video Solution

47. The ascending order of stability of the carbanion $\bar{C}H_3(P), C_6H_5\bar{C}H_2(Q), (CH_3)_2\bar{C}H(R)$ and $H_2\bar{C}-CH=CH_2$ is

A. $P < R < S < Q$

B. $R < P < S < Q$

C. $R < P < Q < S$

D. $P < R < Q < S$

Answer: B

Watch Video Solution

48. The descending order of stability of the carbanion ions $\underset{(I)}{C_6H_5\overset{+}{C}H_2}, \underset{(II)}{p-(CH_3O)C_6H_4\overset{+}{C}H_2}, \underset{(III)}{p-(NO_2)C_6H_4\overset{+}{C}H_2}$ and $\underset{(IV)}{p-(CH_3)C_6H_4\overset{+}{C}H_2}$ is

A. $IV > II > I > III$

B. $II > IV > III > I$

C. $II > IV > I > III$

D. $IV > II > III > I$

Answer: C

View Text Solution

49. Stability of iso-butylene can be best explained by

A. Inductive effect

B. Mesomeric effect

C. Hyperconjugative effect

D. Steric effect

Answer: C

Watch Video Solution

50. Polarisation of electrons in acrolein may be written as :

A. $CH_2^{\delta-} = CH - CH^{\delta-} = O$

B. $CH_2^{\delta-} = CH - CH = O^{\delta+}$

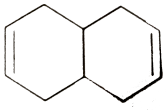
C. $CH_2^{\delta-} = CH^{\delta+} - CH = O$

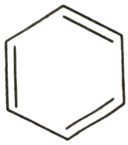
D. $CH_2^{\delta+} = CH - CH = O^{\delta-}$

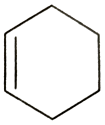
Answer: D

Watch Video Solution

51. Which of the following will show aromatic behaviour

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

Watch Video Solution

52. The order of decreasing stability of the carbanions

(1) $(CH_3)_3\overline{\ddot{C}}$ (2) $(CH_3)_2\overline{\ddot{C}}H$

(3) $CH_3\overline{\ddot{C}}H_2$ (4) $C_6H_5\overline{\ddot{C}}H_2$ is

A. $1 > 2 > 3 > 4$

B. $4 > 3 > 2 > 1$

C. $4 > 1 > 2 > 3$

D. $1 > 2 > 4 > 3$

Answer: B

Watch Video Solution

53. Benzene is unreactive because

A. It has double bonds

B. It has carbon-carbon single bond

C. Carbon are sp^3 hybridised

D. π electrons are delocalised

Answer: D

Watch Video Solution

54. Mesomeric effect involves delocalization of :

A. Proton

B. Sigma electrons

C. Pi electrons

D. None of these

Answer: C

Watch Video Solution

55. Chloroacetic acid is a stronger acid than acetic acid this can be explained using

A. $-M$ effect

B. $-I$ effect

C. $+M$ effect

D. $+I$ effect

Answer: B

Watch Video Solution

56. The stability of $Me_2C = CH_2$ is more than that of $MeCH_2CH = CH_2$ due to :

A. Inductive effect of the Me group

B. Resonance effect of the Me group

C. Hyperconjugative effect of the Me group

D. Resonance as well as inductive effect of the Me group

Answer: C

Watch Video Solution

57. Among the following carbocations the order of stability is :

(I) $Ph_2\overset{+}{C}CH_2Me$

(II) $PhCH_2CH_2\overset{+}{C}HPh$

(III) $Ph_2CH\overset{+}{C}HMe$

(IV) $Ph_2C(Me)\overset{+}{C}H_2$

A. $IV > II > I > III$

B. $I > II > III > IV$

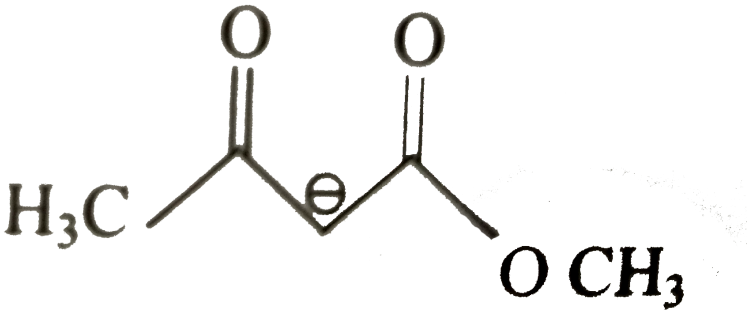
C. $II > I > IV > III$

D. $I > IV > III > II$

Answer: B

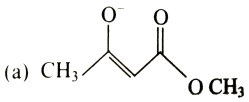
Watch Video Solution

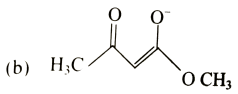
58. For the following anion,

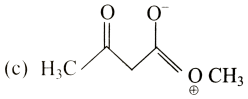


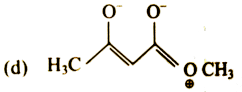
the resonance structure that contributes most is

A.



B. 

C. 

D. 

Answer: A

Watch Video Solution

59. Which of the following intermediates have the complete octet around the carbon atom?

A. Carbonium ion

B. Carbanion ion

C. Free radical

D. Carbene

Answer: A

Watch Video Solution

60. Reactivity towards nucleophilic additions reaction of (I) IHCHO (II), CH_3CHO (III) CH_3COCH_3 is

A. $II > III > I$

B. $III > II > I$

C. $I > II > III$

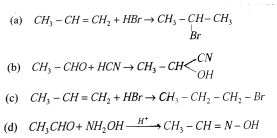
D. $I > II > III$

Answer: C

Watch Video Solution

61. Which of the following requires radical intermediate

A. $CH_3 - CH = CH_2 + HBr \rightarrow CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3$

B. 

C. $CH_3 - CH = CH_2 + HBr \rightarrow CH_3 - CH_2 - CH_2 - Br$

D. $CH_3CHO + NH_2OH \xrightarrow{H^+} CH_3 - CH = N - OH$

Answer: C

View Text Solution

62. Arrange the following free radiacals in order of decreasing stability.

Methyl (I), Vinyl(II), Allyl(III), Benzyl(IV)

A. $I > II > III > IV$

B. $III > II > I > IV$

C. $II > I > IV > III$

D. $IV > III > I > II$

Answer: D

Watch Video Solution

63. Carboxylic acids are easily ionised. The main reason of this statement

A. Absence of α-hydrogen

B. Resonance stabilisation of carboxylate ion

C. Reactivity of α-hydrogen

D. Hydrogen bond

Answer: B

Watch Video Solution

64. The compound which gives the most stable carbonium ion on dehydration is

A. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2OH$

B. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - OH$

C. $CH_3 - CH_2 - CH_2 - CH_2OH$

D. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH_3$

Answer: B

Watch Video Solution

65. Assertion : Aniline is better nucleophile than aniline ion.

Reason : Aniline ion have +ve charge.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

66. Assertion : The presence of nitro group facilitates nucleophilic substituation reactions in aryl halides.

Reason : The intermediate carbanion is stabilised due to the presence of nitro group.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

67. (A) Tertiary carbocations are generally formed more easily than primary carbocations.

(R) Hyperconjugation as well as inductive effect due to additional alkyl groups stabilize tertiary cabocations.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

68. Assertion: The order of reactivity of carbonium ions is $1^{\circ} > 2^{\circ} > 3^{\circ}$.

Reason: Carbon atom in carbonium ions is in sp^3 state of hybridisation.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: D

Watch Video Solution

69. Assertion : Free radicals are short lived and highly reactive.

Reason : Free radicals are highly unstable.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

70. Assertion : Same number of electron pairs are present in resonance structures.

Reason : Resonance structures differ in the location of electrons around the constituent atoms.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true..

Answer: A

Watch Video Solution

71. Which one is the correct order of acidity ?

A. $CH \equiv CH > CH_3 - C \equiv CH > CH_2 = CH_2 > CH_3 - CH_3$

B. $CH \equiv CH > CH_2 = CH_2 > CH_3 - C \equiv CH > CH_3 - CH_3$

C. $CH_3 - CH_3 > CH_2 = CH_2 > CH_3 - C \equiv CH > CH \equiv CH$

D.

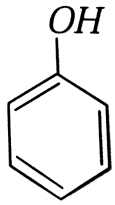
$$CH_2 = CH_2 > CH_3 - CH = CH_2 > CH_3 - C \equiv CH > CH \equiv C$$

Answer: A

Watch Video Solution

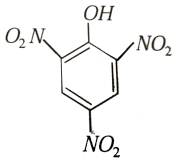
72. Which one is the most acidic compound?

A. (a)

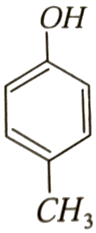


B. (b)

C. (c)



D. (d)



Answer: C

Watch Video Solution

73. The correct statement regarding electrophile is

A. Electrophile is a negatively charged species and can form a bond of accepting a pair of electrons from another electrophile

B. Electrophiles are generally neutral species and can form a bond of accpeting a pair of electrons from a nucleophile

C. Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nueclophile

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

Answer: C

Watch Video Solution

Organic reactions and their mechanism

1. Which of the following is lest reactive in a nucleophilic .

A. CH_3CH_2Cl

B. $CH_2 = CHCH_2Cl$

C. $(CH_3)_3C - Cl$

D. $CH_2 = CHCl$

Answer: D

Watch Video Solution

2. Which of the following undergoes nucleophilic substitution exclusively S_N1 mechanism?

A. Benzyl chloride

B. Ethyl chloride

C. Chlorobenzene

D. Isopropyl chloride

Answer: A

Watch Video Solution

3. For the following

$(i) I^- (ii) Cl^- (iii) Br^-$

the increasing order of nucleophilicity would be:

A. $I^- < Br^- < Cl^-$

B. $Cl^- < Br^- < I^-$

C. $I^- < Cl^- < Br^-$

D. $Br^- < Cl^- < I^-$

Answer: B

Watch Video Solution

4. Consider the following compounds

$(i) C_6H_5COCl$ (ii)(##ER

$RL_CHE_V02_C20_E01_{142}\_Q01.png$ width=80 % > (iii)

(##ERRL_CHE_V02_C20_E01_142_Q02##) " " (iv)

(##ERRL_CHE_V02_C20_E01_142_Q03.png" width="80%">

The correct decreasing order of their reactivity towards hydrolysis is

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

B. $(i) > (ii) > (iii) > (iv)$

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

D. $(ii) > (iv) > (i) > (iii)$

Answer: D

View Text Solution

5. The order of decreasing reactivity towards an electrphilic reagent for the following,

(i). Benzene

(ii). Toluene.

(iii). Chlorobenzoic acid.

(iv). Phenol. Would.

A. $A > B > C > D$

B. $B > D > A > C$

C. $D > C > B > A$

D. $D > B > A > C$

Answer: D

Watch Video Solution

6. The relative reactivities of acyl compound towards nucleophilic substitution are in the order of

A. Acid anhydride $>$ Amide $>$ Ester $>$ Acyl chloride

B. Acyl chloride $>$ Ester $>$ Acid anhydride $>$ Amide

C. Acyl chloride $>$ Acid anhydride $>$ Ester $>$ Amide

D. Ester $>$ Acyl chloride $>$ Amide $>$ Acid anhydride

Answer: C

Watch Video Solution

7. In a S_{N^2} substitution reaction of the type

$$R - Br + Cl^- \xrightarrow{\text{DMF}} R - Cl + Br^-$$

Which one of the following has the highest relative rate?

A. $$\begin{array}{l} CH_3 \\ | \\ CH_3 - C - CH_2Br \\ | \\ CH_3 \end{array}$$

B. CH_3CH_2Br

C. $CH_3 - CH_2 - CH_2Br$

D. $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}} - CH_2Br$

Answer: B

Watch Video Solution

8. Which of the following species is not electrophilic in nature

A. $\overset{\oplus}{C}l$

B. BH_3

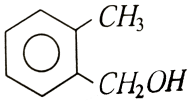
C. $H_3\overset{\oplus}{O}$

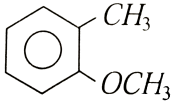
D. $\overset{\oplus}{N}O_2$

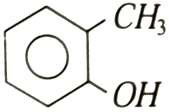
Answer: C

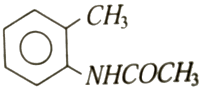
Watch Video Solution

9. Which one of the following is most reactive towards electrophilic reagent ?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: C

Watch Video Solution

10. Which one is a nucleophilic substitution reaction among the following ?

A. $CH_3CHO + HCN \rightarrow CH_3CH(OH)CN$

B. $CH_3 - CH = CH_2 + H_2O \xrightarrow{H^+} CH_3 - \underset{\underset{OH}{|}}{CH} - CH_3$

C. $RCHO + RMgX \rightarrow R - \underset{\underset{OH}{|}}{CH} - R$

D. $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{CH} - CH_2Br + NH_3 \rightarrow CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{CH} - CH$

Answer: D

Watch Video Solution

11. Condiser the reactions,

(i) $(CH_3)_2CH - CH_2Br \xrightarrow{C_2H_5OH} (CH_3)_2CH - CH_2OC_2H_5 + HBr$

(ii) $(CH_3)_2CH - CH_2Br \xrightarrow{C_2H_5O^-} (CH_3)_2CH - CH_2OC_2H_5 + Br^-$

The mechanism of reactions (i) and (ii) are respectively :

A. S_{N^2} and S_{N^2}

B. S_{N^2} and S_{N^1}

C. S_{N^1} and S_{N^2}

D. S_{N^1} and S_{N^1}

Answer: C

Watch Video Solution

12. Among the following compounds the one that is most reactive towards electrophilic nitration is

A. Benzoic acid

B. Nitrobenzene

C. Toluene

D. Benzene

Answer: C

Watch Video Solution

13. Which of the following statements is not correct for a nucleophiles?

A. Nucleophile is a Lewis acid

B. Ammonia is a nucleophile

C. Nucleophiles attack low e^- density sites

D. Nucleophiles are not electron seeking

Answer: A

Watch Video Solution

14. In an $S_N1$reaction on chiral centres, there is

A. 100% racemization

B. Inversion more than retention leading to partial racemization

C. 100% retention

D. 100% inversion

Answer: B

Watch Video Solution

15. Among the following the strongest nucleophilic is

A. C_2H_5SH

B. CH_3COO^-

C. CH_3NH_2

D. $NCCH_2^-$

Answer: A

Watch Video Solution

16. Which is least reactive towards nucleophilic substitution (S_{N^2})

A. $CH_3 = CH - CH_2Cl$

B. $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - Cl$

C. (c) 

D. $CH_3 - CH(Cl)CH_3$

Answer: C

Watch Video Solution

17. Which C-atom is the most electronegative in this structure $\overset{III}{C}H_3 - \overset{II}{C}H_2 - C \equiv \overset{I}{C}H$

A. I

B. II

C. III

D. All are equal electronegative

Answer: A

Watch Video Solution

18. Which of the following can't be used in Fridel-Crafts reactions?

A. $FeCl_3$

B. $FeBr_2$

C. $AlCl_3$

D. NaCl

Answer: D

Watch Video Solution

19. Conversion of CH_4 to CH_3Cl is an example of which of the following reaction

A. Electrophilic substitution

B. Free radical addition

C. Nucleophilic substitution

D. Free radical substitution

Answer: D

Watch Video Solution

20. In electrophilic substitution reaction nitrobenzene is

A. Meta-directing

B. Ortho-directing

C. Para-directing

D. Not reactive and does not undergo any substitution

Answer: A

Watch Video Solution

21. Neopentyl bromide undergoes dehydrohalogenation to give alkene even though it has no β -hydrogen. This is due to :

A. E_2 mechanism

B. E_1 mechanism

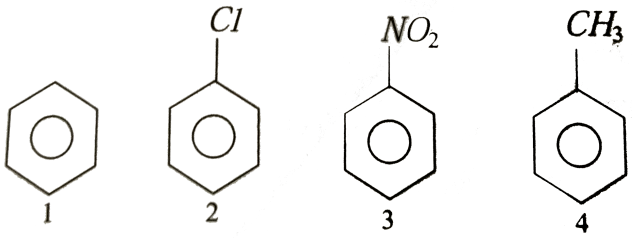
C. Due to rearrangement of carbocation by E_1 mechanism

D. E_1 cb mechanism

Answer: C

Watch Video Solution

22. The decreasing order of reactivity towards electrophilic substitution reaction of the following compounds is



A. $1 > 3 > 4 > 2$

B. $4 > 1 > 3 > 2$

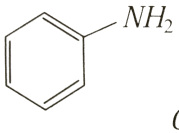
C. $4 > 1 > 2 > 3$

D. $4 > 2 > 1 > 3$

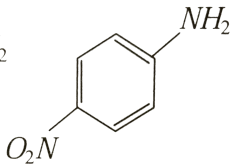
Answer: C

Watch Video Solution

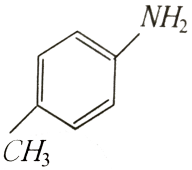
23. The correct order of increasing basic nature of the following bases is



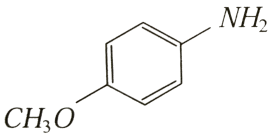
(i)



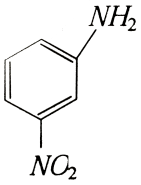
(ii)



(iii



(iv)



(v)

A. $(ii) < (v) < (i) < (iii) < (iv)$

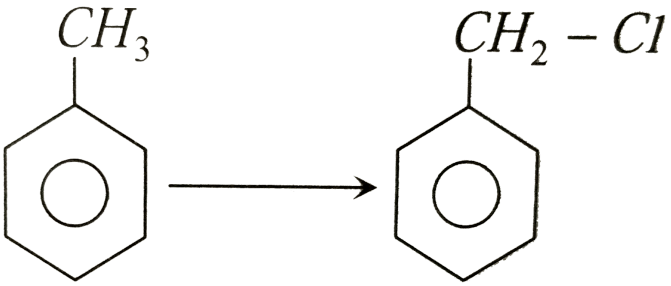
B. $(v) < (ii) < (i) < (iii) < (iv)$

C. $(ii) < (v) < (i) < (iv) < (iii)$

D. $(v) < (ii) < (i) < (iv) < (iii)$

Answer: A

Watch Video Solution



24.

The above reaction proceeds through

A. Nucleophilic substitution

B. Electrophilic substitution

C. Free radical substitution

D. More than one of the above processes

Answer: C

Watch Video Solution

25. Which of the following alkyl groups has the maximum $+I$ effect?

A. $CH_3 -$

B. $(CH_3)_2CH -$

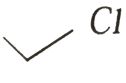
C. $(CH_3)_3C -$

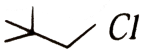
D. $CH_3CH_2 -$

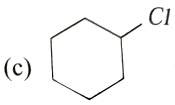
Answer: C

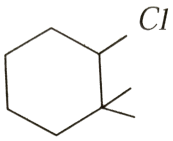
Watch Video Solution

26. Which one of the following species will be most reactive in S_{N^2} reaction

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

Watch Video Solution

27. Arrange the following set of compounds in order of their decreasing relative reactivity with an electrophile, E+

(a) Chlorobenzene, 2,4-dinitrochlorobenzene, p-nitrochlorobenzene

(b) Toluene, $p - H_3C - C_6H_4 - NO_2$, $p - O_2N - C_6H_4 - NO_2$.

A. $(iii) > (ii) > (i)$

B. $(ii) > (iii) > (i)$

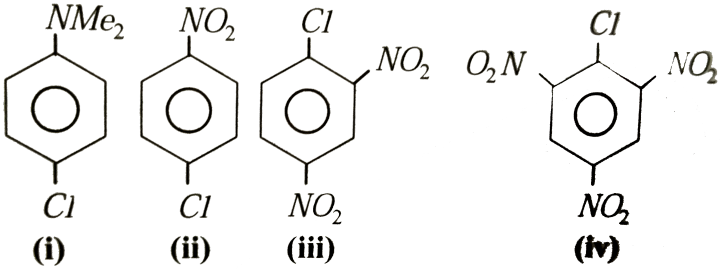
C. $(i) > (iii) > (ii)$

D. $(i) > (ii) > (iii)$

Answer: C

Watch Video Solution

28. Order of reactivity towards nucleophilic substitution reaction of the compounds



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

B. $(ii) > (i) > (iii) > (iv)$

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

D. $(iii) > (iv) > (ii) > (i)$

Answer: C

Watch Video Solution

29. The following reaction

$$CH_3 - \underset{CH_3}{\overset{H}{\underset{|}{\overset{|}{C}}}} - \underset{X}{\overset{CH_3}{\underset{|}{\overset{|}{C}}}} - CH_3 \xrightarrow[-H_2O,\,-KX]{\text{Alcoholic } KOH} CH_3 - \underset{CH_3}{\underset{|}{C}} = \overset{CH_3}{\overset{|}{C}} - CH_3$$

is an example of

A. α-elimination

B. β-elimination

C. Hofmann elimination

D. None of these

Answer: B

Watch Video Solution

30. Dehydrohalogenation of an alkyl halide is:

A. Nucleophilic substitution reaction

B. Elimination reaction

C. Both nucleophilic substitution and elimination reaction

D. Rearrangement

Answer: B

Watch Video Solution

31. The elimination reaction

$$CH_3 - CH_2.\underset{|}{CH} - CH_3$$
$$.^{\oplus} NMe_3 \xrightarrow{\Delta} \underset{\text{major}}{CH_3CH_2 - CH = CH_2}$$

is governed by

A. The Saytzeff rule

B. The Hofmann rule

C. The Saytzeff as well as the Hofmann rule

D. None of these

Answer: B

Watch Video Solution

32. Addition of HCl to vinyl chloride gives 1, 1-dichloroethane because of

A. Mesomeric effect of Cl

B. Inductive effect of Cl

C. Restricted rotation around double bond

D. None of these

Answer: D

Watch Video Solution

33. $Br_2 + H_2O \rightarrow Br^- + BrO_3$ In the above reaction, following takes place a

A. Bromine undergoes oxidation & reduction

B. Bromine is oxidised only

C. Bromine is reduced only

D. None

Answer: A

Watch Video Solution

34. Elimination of bromine from 2-bromobutane reults in the formation of

A. Equimolar mixture of 1 and 2-butene

B. Predominantly 2-butene

C. Predominantly 1-butene

D. Predominantly 2-butyne

Answer: B

Watch Video Solution

35. The reaction

$$R-C\overset{O}{\underset{X}{<}} + \overset{\ominus}{Nu} \rightarrow R-C\overset{O}{\underset{Nu}{<}} + \overset{\ominus}{X}$$

, is fastest when X is

A. Cl

B. NH_2

C. OC_2H_5

D. OCOR

Answer: A

Watch Video Solution

36. HBr reacts with $H_2C = CH - OCH_3$ under anhydrous conditions at room temperature to give:

A. CH_3CHO and CH_3Br

B. $BrCH_2CHO$ and CH_3OH

C. $BrCH_2 - CH_2 - OCH_3$

D. $H_3C - CHBr - OCH_3$

Answer: D

Watch Video Solution

37. $CH_3Br + Nu^- \rightarrow CH_3Nu + Br^-$

The decreasing order of the rate of the above reaction with nucleophiles (Nu^-) A to D is :

$[Nu^- = (A)PhO^-, (B)AcO^-, (C)HO^-, (D)CH_3O^-]$

A. $D > C > A > B$

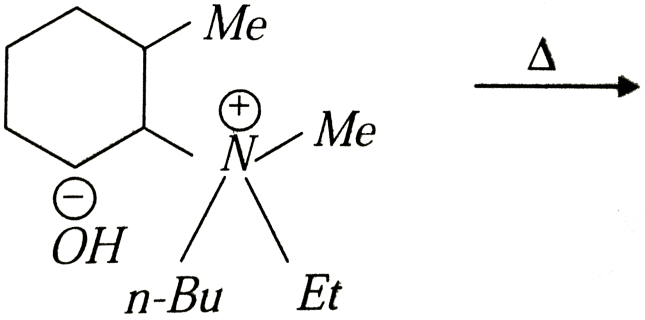
B. $D > C > B > A$

C. $A > B > C > D$

D. $B > D > C > A$

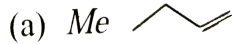
Answer: A

Watch Video Solution

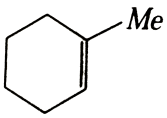


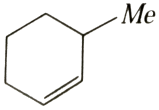
38.

The alkene formed as a major product in the above elimination reaction is

A. (a) 

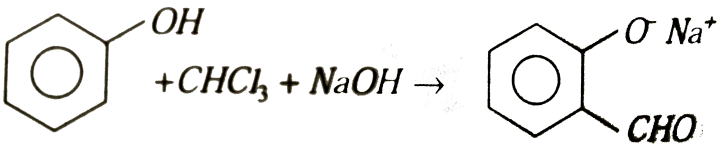
B. $CH_2 = CH_2$

C. (c) 

D. (d) 

Answer: B

Watch Video Solution



39.

The electrophile involved in the above reaction is

A. Dichloromethyl cation $\left(\overset{\oplus}{C}HCl_2\right)$

B. Dichlorocarbene $(:CCl_2)$

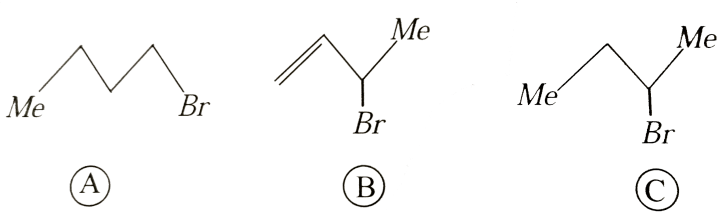
C. Trichloromethyl anion $\left(\overset{\ominus}{C}Cl_3\right)$

D. Formyl cation (CHO)

Answer: B

Watch Video Solution

40. Consider the following bromides



The correct order of S_{N1} reactivity is

A. $A > B > C$

B. $B > C > A$

C. $B > A > C$

D. $C > B > A$

Answer: B

Watch Video Solution

41. Geometry of reaction intermediate in S_{N1} reaction is

A. Tetrahedral

B. Planar

C. Triangular bipyramidal

D. None of these

Answer: B

Watch Video Solution

42. Which of the following cannot undergo nucleophilic substitution under ordinary conditions

A. Chlorobenzene

B. Tert-butylchloride

C. Isoproply chloride

D. None of these

Answer: A

Watch Video Solution

43. For $CH_3Br + OH \rightarrow CH_3OH + Br$

the rate of reaction is given by the expression .

A. CH_3Br, OH

B. CH_3Br only

C. OH only

D. CH_3Br, CH_3OH

Answer: A

Watch Video Solution

44. Reaction between propene and HCl to form isopropyl chloride takes place throufh

A. Nucleophilic addition reaction

B. Electrophilic addition reaction

C. Nucleophilic substitution reaction

D. Electrophilic substitution reaction

Answer: A

Watch Video Solution

45. For an electrophilic aromatic substitution reaction

A. Chlorine is o-p directing group and also electron releasing group

B. Chlorine is o-p directing group and also electron withdrawing group

C. Chlorine is meta directing group and also electron releasing group

D. Chlorine is meta directing group and also electron withdrawing group

Answer: B

Watch Video Solution

46. The correct order of leaving group ability in a nucleophilic substitution reaction is

A. $Br^- > Cl^- > CH_3CO_2^- > HO^- > H^-$

B. $H^- > OH^- > CH_3CO_2^- > Cl^- > Br^-$

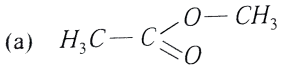
C. $Br^- > CH_3CO_2^- > Cl^- > OH^- > H^-$

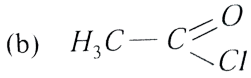
D. $CH_3CO_2^- > Br^- > Cl^- > OH^- > H^-$

Answer: A

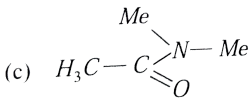
Watch Video Solution

47. Least active electrophile is :

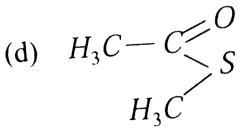
A. (a) 

B. (b) 

C.



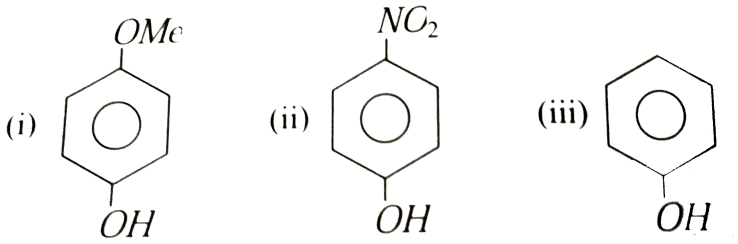
D.



Answer: C

Watch Video Solution

48. Given



The decreasing order of the acidic character is

A. $(i) > (ii) > (iii)$

B. $(ii) > (i) > (iii)$

C. $(ii) > (iii) > (i)$

D. $(iii) > (ii) > (i)$

Answer: C

Watch Video Solution

49. The function of $AlCl_3$ in Friedel-Craft's reaction is to

A. To absorb HCl

B. To absorb water

C. To produce nucleophile

D. To produce electrophile

Answer: D

Watch Video Solution

50. In electrophilic aromatic substitution reaction, the nitro group is meta directing because it

A. Decreases electron density at meta position

B. Increases electron density at meta position

C. Increases electron density at ortho and para position

D. Decreases electron density at ortho and para position

Answer: D

Watch Video Solution

51. Which of the following is not true for S_{N1} reaction ?

A. Favoured by polar solvents

B. 3°-alkyl halides generally react through S_{N1} reaction

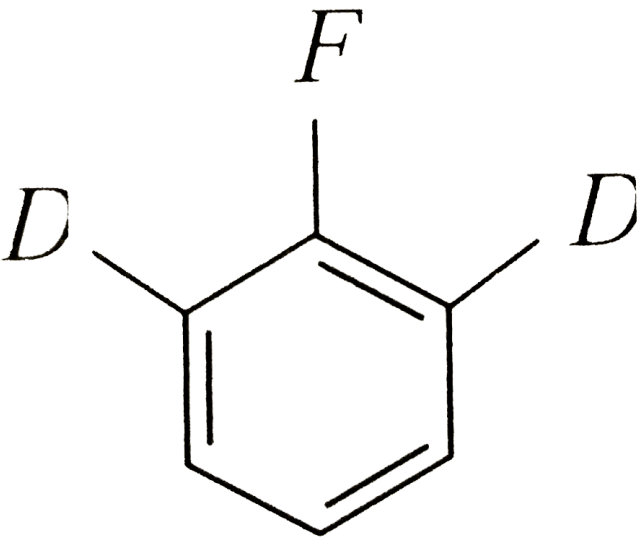
C. The rate of the reaction does not depend upon the molar concentration of the nucleophile

D. 1°-alkyl halides generally react through S_{N^1} reaction

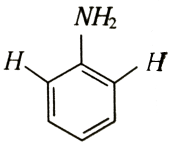
Answer: D

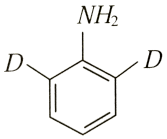
Watch Video Solution

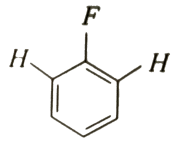
52. Treatment of

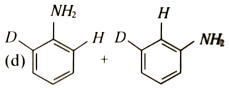


with $NaNH_2$ /liq. NH_3 gives

A. (a) 

B. (b) 

C. (c) 

D. 

Answer: D

View Text Solution

53. The most common type of reaction in aromatic compounds is

A. Elimination reaction

B. Addition reaction

C. Electrophilic substitution reaction

D. Rearrangement reaction

Answer: C

Watch Video Solution

54. Which represents nucleophilic aromatic substitution reaction ?

A. Reaction of benzene with Cl_2 in sunlight

B. Benzyl bromide hydrolysis

C. Reaction of NaOH with dinitrofluorobenzene

D. Sulphonation of benzene

Answer: B::C

Watch Video Solution

55. Which of the following applies in the reaction,

$CH_3CHBrCH_2CH_3 \xrightarrow{alc.KOH}$

(i) $CH_3CH = CHCH_3$ (major product)

(ii) $CH_2 = CHCH_2CH_3$ (minor product)

A. Markonikoff's rule

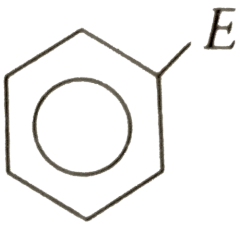
B. Saytzeff's rule

C. Kharasch effect

D. Hofmann's rule

Answer: B

Watch Video Solution



56. The compound electrophilic substitution has occurred The substituent -E are methyl, $-CH_2Cl$, $-CCl_3$ and $-CHCl_2$. The correct increasing order towards electrophilic substitution is

A. $-CH_3 < -CH_2Cl < -CHCl_2 < -CCl_3$

B. $-CH_3 < CHCl_2 < -CH_2Cl < CCl_3$

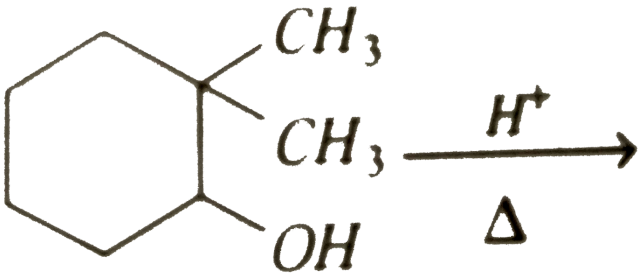
C. $-CCl_3 < -CH_2Cl < -CHCl_2 < -CHCl_2 < -CH_3$

D. $-CCl_3 < -CHCl_2 < CH_2Cl < -CH_3$

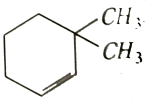
Answer: D

Watch Video Solution

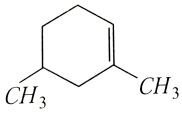
57. Find the product of the given reaction



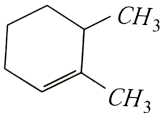
A. (a)



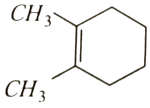
B. (b)



C. (c)



D. (d)



Answer: D

Watch Video Solution

58. The following compound will undergo electrophilic substitution more readily than benzene

A. Nitrobenzene

B. Benzoic acid

C. Benzaldehyde

D. Phenol

Answer: D

Watch Video Solution

59. CH_3CH_2Cl undergoes homolytic fission, produces

A. $CH_3\dot{C}H_2$ and $\dot{C}l$

B. $CH_3\overset{\oplus}{C}H_2$ and $Cl^{\ominus}$

C. $CH_3\overset{\oplus}{C}H_2$ and $\dot{C}l$

D. $CH_3\dot{C}H_2$ and Cl^{Θ}

Answer: A

Watch Video Solution

60. Which of the following is most basic

A. Benzamide

B. Butamine

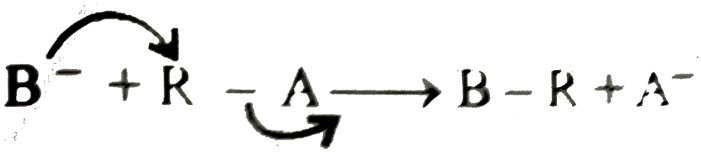
C. Nitrobenzene

D. Benzene

Answer: B

Watch Video Solution

61. To which of the following four types does this reaction belong ?



A. Unimolecular electrophilic substitution

B. Biomolecular electrophilic substitution

C. Unimolecular nucleophilic substitution

D. Biomolecular nucleophilic substitution

Answer: D

Watch Video Solution

62. Which of the following statement is incorrect for biomolecular nucleophilic substitution reaction $(S_{N^2}$

A. It is a second order reaction

B. In S_{N^2} reaction the substrate does not undergo heterolytic fission

C. The rate of S_{N^2} reaction does not depends on concentration of both substrate and nucleophilic reagent

D. S_{N^2} reaction occurs in single step without forming intermediate

Answer: C

Watch Video Solution

63. Examine the following statements pertaining to an S_N2 reaction.

(a) The rate of reaction is independent of the concentration of the nucleophile

(b) The nucleophile attacks the C - atom on the side of the molecule opposite to the group being displaced

(c)The reaction proceeds with simultaneous bond formation and bond rupture

Among the following which are true?

A. 1,2

B. 1,3

C. 1, 2, 3

D. 2, 3

Answer: D

Watch Video Solution

64. Assertion: Hydroxyketones are not directly used in Grignard reaction.

Reason : Griganard reagnts react with hydroxyl group.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

65. Assertion: Benzyl bromide when kept in acetone water produces benzyl alcohol.

Reason: The reaction follows S_N2 mechanism.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

66. Which of the following is correct with respect to -|-effect of the substituents? (R = alkyl)

A. $-NH_2 < -OR < -F$

B. $-OR < -NR_2 < -F$

C. $-NH_2 > -OR > -F$

D. $-NR_2 > -OR > -F$

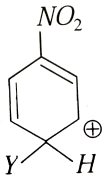
Answer: A

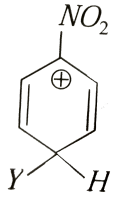
Watch Video Solution

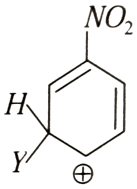
67. Which of the following carbocations is expected to be most stable?

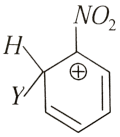
A.

(a)



B. (b) 

C. (c) 

D. (d) 

Answer: C

Watch Video Solution

Structural and stereo isomerism

1. Isomers have essentially identical :

A. Structural formula

B. Chemical properties

C. Molecular formula

D. Physical properties

Answer: C

Watch Video Solution

2. Which of the following may exist in enantiomorphs

A. $$\begin{array}{c} CH_3 \\ | \\ CH_3 - CH - COOH \end{array}$$

B. $CH_2 = CHCH_2CH_2CH_3$

C. $$\begin{array}{c} NH_2 \\ | \\ CH_3 - CH - CH_3 \end{array}$$

D. $$\begin{array}{c} NH_2 \\ | \\ CH_3 - CH_2 - CH - CH_3 \end{array}$$

Answer: D

Watch Video Solution

3. Which one of the following is an optically active compound?

A. n-propanol

B. 2-chlorobutane

C. n-butanol

D. 4-hydroxyheptane

Answer: B

Watch Video Solution

4. Separating of d and l enantiorphs from a racemic mixture is called

A. Resolution

B. Dehydration

C. Rotation

D. Dehydrohalogenation

Answer: A

Watch Video Solution

5. Which of the following can exhibit cis-trans isomerism?

A. $HC \equiv CH$

B. $ClCH = CHCl$

C. $CH_3.CHCl.COOH$

D. $ClCH_2 - CH_2Cl$

Answer: B

Watch Video Solution

6. How many isomers of $C_5H_{11}OH$ will be primary alcohols?

A. 2

B. 3

C. 4

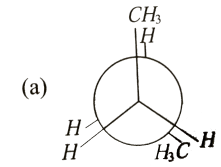
D. 5

Answer: C

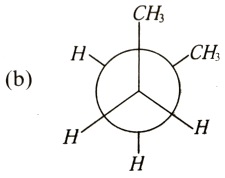
Watch Video Solution

7. In the following the most stable conformation m-butane is:

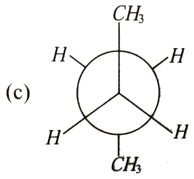
A.



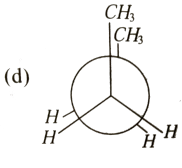
B.



C.



D.



Answer: C

Watch Video Solution

8. Which of the following compounds is not chiral

A. $DCH_2CH_2CH_2Cl$

B. CH_3CH_2CHDCl

C. $CH_3CHDCH_2CH_2Cl$

D. $CH_3CHClCH_2D$

Answer: A

Watch Video Solution

9. Reason for geometrical isomerism shown by 2- butene is

A. Chiral carbon

B. Free rotation about single bond

C. Free rotation about double bond

D. Restricted rotation about double bond

Answer: D

Watch Video Solution

10. Geometrical isomers differ in

A. Position of atoms

B. Length of carbon

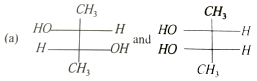
C. Spatial arrangement of atoms

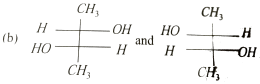
D. Position of functional group

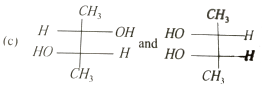
Answer: C

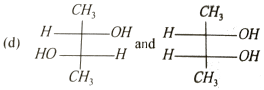
Watch Video Solution

11. Which of the following pairs of compounds are enantiomers

A. 

B. 

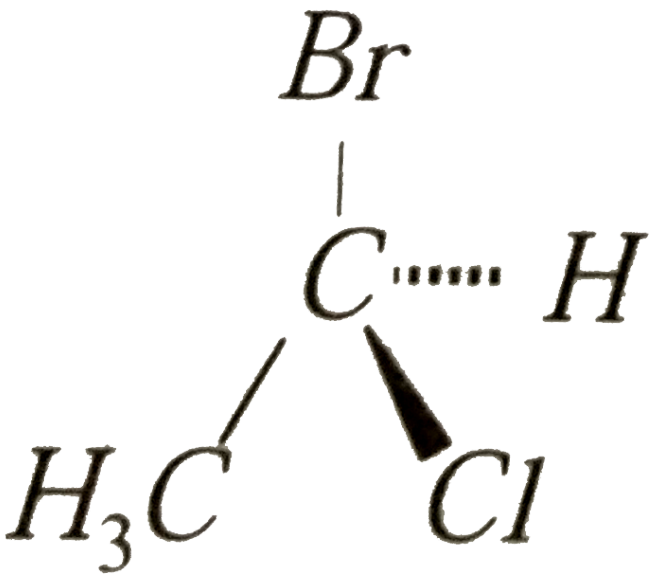
C. 

D. 

Answer: B

View Text Solution

12. The chirality of the compound



A. R

B. S

C. Z

D. E

Answer: A

Watch Video Solution

13. Which one of the following pairs represent stereoisomerism?

A. Chain isomerism and rotational isomerism

B. Structural isomerism and geometric isomerism

C. Linkage isomerism and geometric isomerism

D. Optical isomerism and geometric isomerism

Answer: D

Watch Video Solution

14. Which of the following is not chiral?

A. 3-bromopentane

B. 2-hydroxypropanoic acid

C. 2-butanol

D. 2, 3-dibromopentane

Answer: A

Watch Video Solution

15. If there is no rotation of plane polarized light by a compound in a specific solvent, through to be chiral, it may mean that:

A. The compound is certainly a chiral

B. The compound is certainly meso

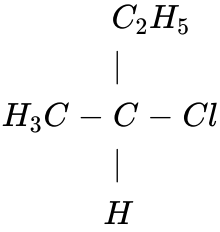
C. There is no compound in the solvent

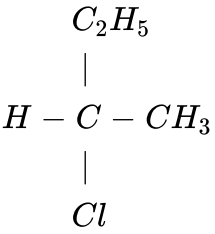
D. The compound may be a racemic mixture

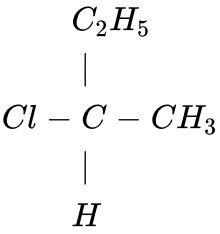
Answer: D

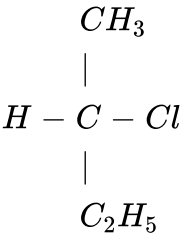
Watch Video Solution

16. $CH_3 - CHCI - CH_2 - CH_3$ has a chiral centre. Which one of the following represents its R configuration?

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

17. How many stereoisomerse does this molecule has?

$CH_3CH = CHCH_2CHBrCH_3$

A. 8

B. 2

C. 4

D. 6

Answer: C

Watch Video Solution

18. Which of the following acids does not exhibit optical isomerism?

A. Maleic acid

B. α-amino acids

C. Lactic acid

D. Tartaric acid

Answer: A

Watch Video Solution

19. The order of stability of the following tautomeric compounds is

(i). $CH_2 = \overset{OH}{\overset{|}{C}}H - CH_2 - \overset{O}{\overset{||}{C}} - CH_3 \Leftrightarrow$

(ii). $CH_3 - \overset{O}{\overset{||}{C}} - CH_2 - \overset{O}{\overset{||}{C}} - CH_3 \Leftrightarrow$

(iii). $CH_3 - \overset{OH}{\overset{|}{C}} = CH - \overset{O}{\overset{||}{C}} - CH_3$

A. $II > III > I$

B. $I > II > III$

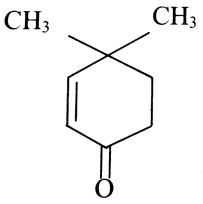
C. $III > II > I$

D. $II > I > III$

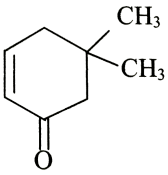
Answer: C

Watch Video Solution

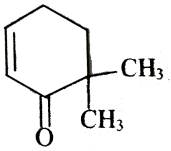
20. Given



(I)



(II)



(III)

Which of the given compounds can exhibit tautomerism

A. I and II

B. II and III

C. I, II and III

D. I and II

Answer: C

Watch Video Solution

21. The number of structure isomers possible from the molecular formula C_3H_9N is:

A. 4

B. 5

C. 2

D. 3

Answer: A

Watch Video Solution

22. Two possible stereostructures of $CH_3CHOH.COOH$, which are optically active, are called:

A. Diastereomers

B. Atropisomers

C. Enantiomers

D. Mesomers

Answer: C

Watch Video Solution

23. The correct statement the comparison of staggered and eclipsed conformations of ethan 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 not 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, because staggered conformation has no tosional strain

Answer: D

Watch Video Solution

24. The correct statement regarding a carbonyl compound with a hydrogen atom on its alphacarbon, is

A. A carbonyl compound with a hydrogen atom om its alphacarbon never equilibrates with its corresponding enol

B. A carbonyl compound with a hydrogen atom on its alphacarbon rapidly equilibrates with its corresponding enol and this process is known as aldehyde-ketone equilibration

C. A carbonyl compound compound with a hydrogen atom on its alphacarbon rapidly equilibrates with its corresponding enol and this process is known as carbonylation

D. A carbonyl compound with a hydrogen atom on its alphacarbon rapidly equilibrates with its corresponding enol and this process is

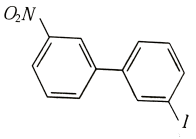
known as keto-enol tautomerism

Answer: D

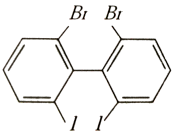
Watch Video Solution

25. Which of the following biphenyls is optically active?

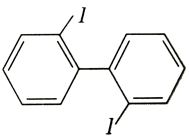
A. (a)



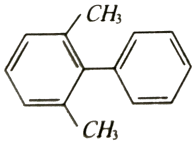
B. (b)



C. (c)



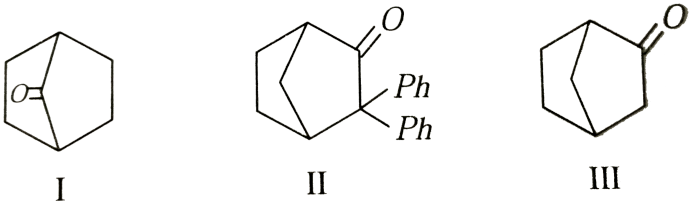
D. (d)



Answer: B

Watch Video Solution

26. Which among the given molecules can exihibit tautomerism



I II III

A. Both II and III

B. III only

C. Both I and III

D. Both I and II

Answer: B

Watch Video Solution

27. The type of isomerism not found in alkenes is :

A. Chain isomerism

B. Geometrical isomerism

C. Metamerism

D. Position isomerism

Answer: C

Watch Video Solution

28. Meso-tartaric acid is optically inactive due to the presence of

A. Molecular symmetry

B. Molecular asymmetry

C. External compensation

D. Two asymmetric C-atoms

Answer: A

Watch Video Solution

29. The isomers which can be converted into another forms by rotations of the molecules around single bond are

A. Geometrical isomers

B. Conformers

C. Enantiomers

D. Diastereomers

Answer: B

Watch Video Solution

30. The number of enantiomers of the compound $CH_3CHBrCHBrCOOH$ is

A. 0

B. 1

C. 3

D. 4

Answer: D

Watch Video Solution

31. Which of the following is a chiral compound?

A. Hexane

B. Methane

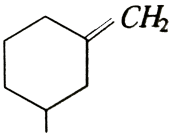
C. n-butane

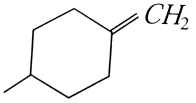
D. 2,3,4-trimethyl hexane

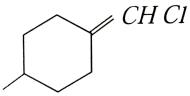
Answer: D

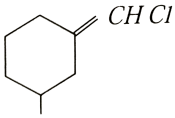
Watch Video Solution

32. The geometrical isomerism is shown by:

A. (a) 

B. (b) 

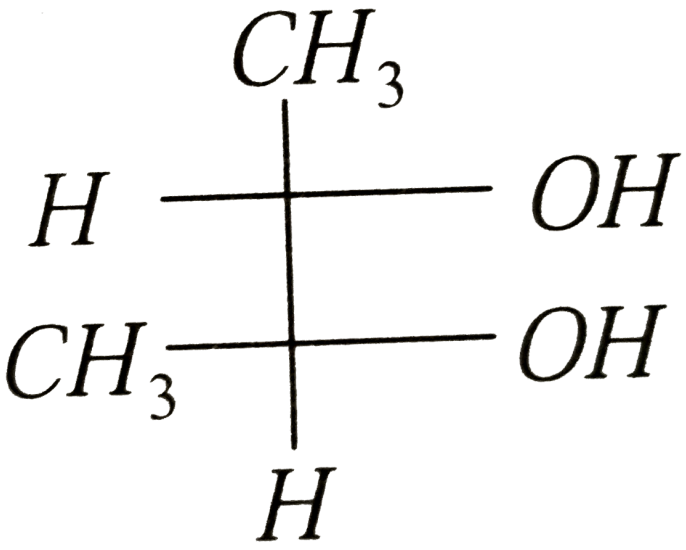
C. (c) 

D. (d) 

Answer: D

Watch Video Solution

33. Correct configuration of the following is



A. 1S, 2S

B. 1S, 2R

C. 1R, 2S

D. 1R, 2R

Answer: A

Watch Video Solution

34. Among the following the most stable compound is

A. cis - 1,2 - cyclohexanediol

B. trans - 1,2 - cyclohexanediol

C. cis - 1,3 - cyclohexanediol

D. trans - 1,3 - cyclohexanediol

Answer: D

Watch Video Solution

35. Among the following which one can have a meso form?

A. $CH_3CH(OH)CH(Cl)C_2H_5$

B. $CH_3CH(OH)CH(OH)CH_3$

C. $C_2H_5CH(OH)CH(OH)CH_3$

D. $HOCH_2CH(Cl)CH_3$

Answer: B

Watch Video Solution

36. The type of isomerism found in urea molecule is

A. Chain

B. Position

C. Geometrical

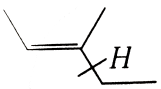
D. Tautomerism

Answer: D

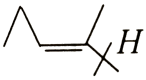
Watch Video Solution

37. C_6H_{16} that can from cis trens isomerism and also chrial centre is

A. (a)



(b)



B.

C. Both of these

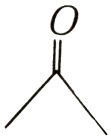
D. None of these

Answer: A

Watch Video Solution

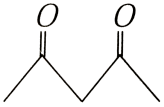
38. Maximum enol content is in

(a)



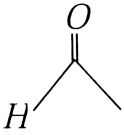
A.

(b)

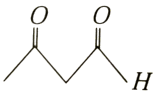


B.

(c)



C.

D. (d) 

Answer: B

View Text Solution

39. Which of the following compounds exhibits optical isomerism?

A. CH_3CH_2COOH

B. $CH_3CHOHCOOH$

C. $CH_3CH_2CH_2OH$

D. $CH_3CHOHCH_3$

Answer: B

Watch Video Solution

40. An alkane forms isomers if the number of least carbon atom is

A. 1

B. 2

C. 3

D. 4

Answer: D

Watch Video Solution

41.

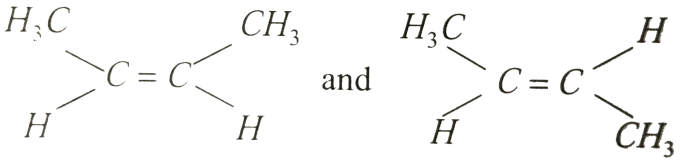


exhibit which isomerism

A. Position isomerism

B. Geometrical isomerism

C. Optical isomerism

D. Functional isomerism

Answer: B

Watch Video Solution

42. On bromination, propionic acid gives two isomeric 2-bromopropionic acids. This pair is an example of

A. Chain isomers

B. Optical isomers

C. Cis-trans isomers

D. Position isomers

Answer: B

Watch Video Solution

43. Lactice acid shows which types of isomerism

A. Geometrical isomerism

B. Tautomerism

C. Optical isomerism

D. Metamerism

Answer: C

Watch Video Solution

44. The isomer of diethyl ether is

A. $(CH_3)_2CHOH$

B. $(CH_3)_3C - OH$

C. C_3H_7OH

D. $(C_2H_5)_2CHOH$

Answer: B

Watch Video Solution

45. How many isomeric compounds are possible for $C_4H_{10}O$?

A. 3

B. 4

C. 5

D. 7

Answer: D

Watch Video Solution

46. Rotation of plane polarized light is measured by

A. Manometer

B. Polarimeter

C. Viscometer

D. Refractometer

Answer: B

Watch Video Solution

47. Dimethyl ether and ethyl alcohol are

A. Metamers

B. Homologues

C. Functional isomers

D. Position isomers

Answer: C

Watch Video Solution

48. Which of the following compounds may not exist as enantiomers?

A. $CH_3CH(OH)CO_2H$

B. $CH_3CH_2CH(CH_3)CH_2OH$

C. $C_6H_5CH_2CH_3$

D. $C_6H_5CHClCH_3$

Answer: C

Watch Video Solution

49. Which of the following contains asymmetric centre

A. 2-butene

B. 2,2-dimethylpropane

C. 2-hexyne

D. Lactic acid

Answer: D

Watch Video Solution

50. C_7H_9N has how many isomeric forms that contain a benzene ring?

A. 4

B. 5

C. 6

D. 7

Answer: B

Watch Video Solution

51. When isomers have the same structural formula but differ in relative arrangement of atoms or groups are called

A. Mesomers

B. Stereoisomers

C. Optical isomers

D. Geometrical mesomers

Answer: B

Watch Video Solution

52. Which type of isomerism is shown by the propanal and propanone ?

A. Functional group

B. Metamerism

C. Tautomerism

D. Chain isomerism

Answer: A

Watch Video Solution

53. The total number of possible isomeric trimethylbenzenes is

A. 2

B. 3

C. 4

D. 6

Answer: B

Watch Video Solution

54. Which one of the following conformations of cyclohexane is chiral?

A. Twist boat

B. Rigid

C. Chair

D. Boat

Answer: A

Watch Video Solution

55. Diethyl ether is not associated with which one of these isomers

A. Butanoic acid

B. Methyl propionate

C. Stereoisomerism

D. None of these

Answer: D

Watch Video Solution

56. Diethyl ether and methyl n propyl ether are

A. Position isomers

B. Functional isomers

C. Metamers

D. Chain isomers

Answer: C

Watch Video Solution

57. At room temperature, the eclipsed and staggered forms of ethane can not be isolated because

A. They interconvert rapidly

B. Both the conformers are equally stable

C. The energy difference between the conformers is large

D. There is a large energy barrier of rotation about the σ bond

Answer: A

Watch Video Solution

58. Ethyl acetoacetate shows, which type of isomerism

A. Chain

B. Optical

C. Metamerism

D. Tautomerism

Answer: D

Watch Video Solution

59. The total number of acyclic isomers, including the stereoisomers, with formula C_4H_7Cl is

A. 11

B. 12

C. 9

D. 10

Answer: B

Watch Video Solution

60. The number of possibel enantiomeric paira that can be produced during monochlorination of 2-methyl butane is :

A. 3

B. 4

C. 1

D. 2

Answer: D

Watch Video Solution

61. Chirality of carbon compound is because to its

A. Tetrahedral nature of carbon

B. Monovalent nature of carbon

C. Divalent nature of carbon

D. Trivalent nature of carbon

Answer: A

Watch Video Solution

62. If the light waves pass through a nicol prism then all the oscillations occur only in one plane, such beam of light is called as

A. Non-polarised light

B. Plane polarised light

C. Polarised light

D. Optical light

Answer: B

Watch Video Solution

63. Disymmetrical object is one which image

A. Superimposable on its mirror image

B. Non-superimposable on its mirror image

C. Optically inactive

D. Achiral

Answer: B

Watch Video Solution

64. Of the following, the compound possessing optical isomerism

A. CH_3CH_2OH

B. $CH_3CHClBr$

C. CCl_2BrF

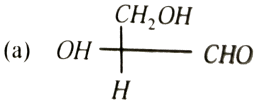
D. CCl_2F_2

Answer: B

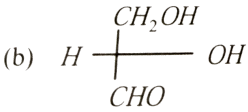
Watch Video Solution

65. Which of the following Fischer projection formula is same as D-Glyceraldehyde ?

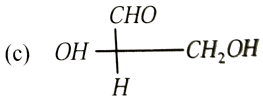
A.



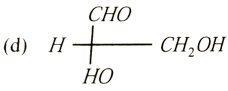
B.



C.



D.



Answer: C

Watch Video Solution

66. The number of optical isomers of CH_3CH(OH)CH(OH)CHO is :-

A. Zero

B. 2

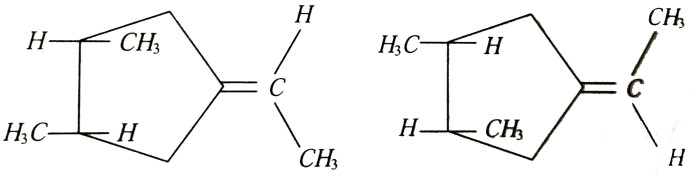
C. 3

D. 4

Answer: D

Watch Video Solution

67. Consider the structures given below



They are

A. Enantiomers

B. Diastereoisomers

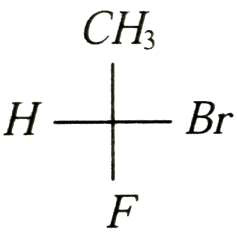
C. Geometrical isomers

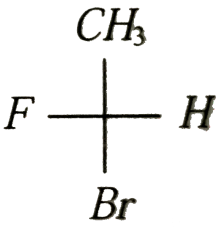
D. Homomers

Answer: A

Watch Video Solution

68. Consider the following representation





They are

A. Enantiomers

B. Diastereomers

C. Conformational isomers

D. Identical

Answer: D

Watch Video Solution

69. Which one of the following compound is capcabel of existing in a meso form

A. 3,3-dibromopentane

B. 4-bromo-2-pentanol

C. 3-bromo-pentanol

D. 2,4-dibromopentane

Answer: D

Watch Video Solution

70. Acylic stereioisomers having the molecular formula C_4H_7Cl are classified and tabulated. Find out the correct set of numbers

A. $\begin{matrix}\text{Geometrical} & \text{Optical} \\ 6 & 2\end{matrix}$

B. $\begin{matrix}\text{Geometrical} & \text{Optical} \\ 4 & 2\end{matrix}$

C. $\begin{matrix}\text{Geometrical} & \text{Optical} \\ 6 & 0\end{matrix}$

D. $\begin{matrix}\text{Geometrical} & \text{Optical} \\ 5 & 2\end{matrix}$

Answer: A

View Text Solution

71. Which of the following compounds will exhibit optical isomerism ?

A. Tert-butylamine

B. Sec-butylamine

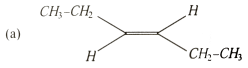
C. Isobutylamine

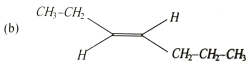
D. n-butylamine

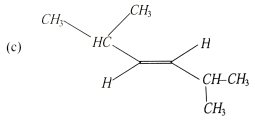
Answer: B

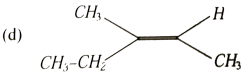
Watch Video Solution

72. The most geometrical isomer among the following is

A. 

B. 

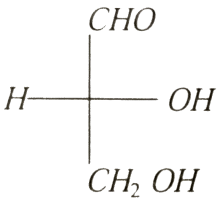
C. 

D. 

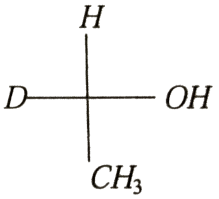
Answer: A

View Text Solution

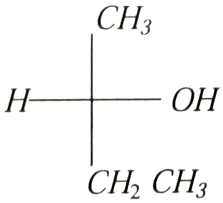
73. The R-isomers among the following are



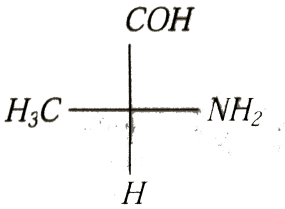
(i)



(ii)



(iii)



(iv)

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iii)

D. (iii) and (iv)

Answer: A

Watch Video Solution

74. Of the isomeric haexanes, the isomers that give the minimum and maximum number of monochloro derivatives are, respectively,

A. 3-methylpentane and 2,3-dimethylbutane

B. 2,3- dimethylbutane and n-hexane

C. 2,2- dimethylbutane and 2-methylpentane

D. 2,3- dimethylbutane and 2-methylpentane

Answer: D

Watch Video Solution

75. Which one of the following exhibits geometrical isomerism

A. 1,2-dibromopropene

B. 2,3-dimethylbut-2-ene

C. 2,3-dibromobut-2-ene

D. 2-methylbut-2-ene

Answer: A::C

Watch Video Solution

76. The compounds $CH_3CH = CHCH_3$ and $CH_3CH_2CH = CH_2$

A. Are tautomers

B. Are position isomers

C. Contain same number of $sp^3 - sp^3$, $sp^3 - sp^2$ and $sp^2 - sp^2$ carbon-carbon bonds

D. Exist together in dynamic equilibrium

Answer: B

Watch Video Solution

77. Among the following pairs, the pairs that illustrates stereioisomerism is

A. 1-butanol and 2-butanol

B. Cis-2-butene and trans-2-butene

C. Dimethyl ether and ethanol

D. Acetone and propanal

Answer: B

Watch Video Solution

78. The compound $CHCl = CHCHOHCOOH$ with molecular formuls $C_4H_5O_3Cl$ can exhibit

A. Geometric, optical, position and functional isomerism

B. Geometric, optical and functional isomerism only

C. Geometric and functional isomerism only

D. Geometric and optical isomerism only

Answer: A

Watch Video Solution

79. Among the three conformations of ethane, the order of stability follows the sequence

A. Eclipsed $>$ gauche $>$ staggered

B. Eclipsed $>$ staggered $>$ gauche

C. Staggered $>$ gauche $>$ eclipsed

D. Gauche $>$ staggered $>$ eclipsed

Answer: C

Watch Video Solution

80. Which one of the following is the correct statement

A. Archiral molecules are superimposable

B. Alanine is optically inactive amino acid

C. Glycine is optically active amino acid

D. Racemic lactic acid is optically active

Answer: A

Watch Video Solution

81. How many primary amines are possible for the formula $C_4H_{11}N$

A. 1

B. 2

C. 3

D. 4

Answer: D

Watch Video Solution

82. Which of the following statement is wrong

A. Diethyl ketone and methyl propyl ketone are position isomers

B. 2-chloro pentane and 1-chloro pentane are position isomers

C. n-butane and 2-methyl propane are chain isomers

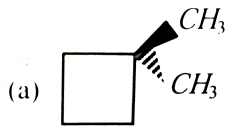
D. Acetone and propinaldehyde are functional isomers

Answer: A

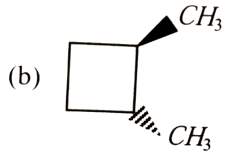
Watch Video Solution

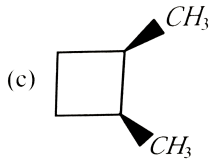
83. Which of the following is a chiral molecule

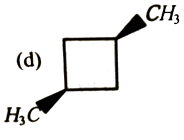
A.



B.



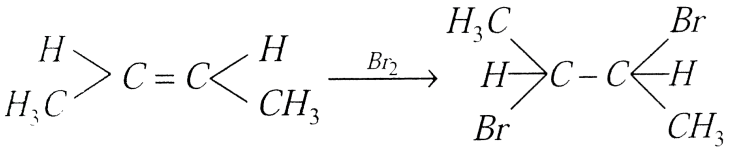
C. 

D. 

Answer: B

Watch Video Solution

84. Products of the reaction



are

A. Meso-compounds

B. Racemic mixtures

C. Mixtures of racemic and meso-compounds

D. None of the above

Answer: B

Watch Video Solution

85. n-Propyl alcohol and isopropyl alcohol are examples of

A. Position isomerism

B. Chain isomerism

C. Tautomerism

D. Geometrical isomerism

Answer: A

Watch Video Solution

86. Isomers of propionic acid are

A. $HCOOC_2H_5$ and CH_3COOCH_3

B. $HCOOC_2H_5$ and $C_3H_7COOCH_3$

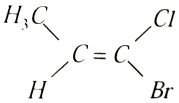
C. CH_3COOCH_3 and C_3H_7OH

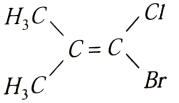
D. C_3H_7OH and CH_3COCH_3

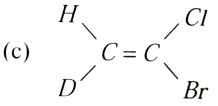
Answer: A

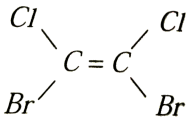
Watch Video Solution

87. Which one of the following will not show geometrical isomerism

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

Watch Video Solution

88. Which statement is true for cyclohexane ?

A. It has two possible isomers

B. It has three conformations

C. Boat conformation is most stable

D. Chair and boat conformation differ in energy by 30 kj/mol

Answer: D

Watch Video Solution

89. Which of the following compounds shows tautomerism

A. HCHO

B. CH_3CHO

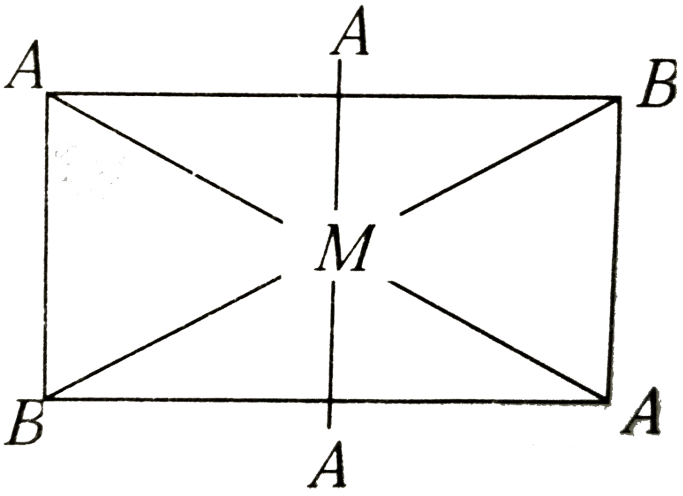
C. CH_3COCH_3

D. HCOOH

Answer: C

Watch Video Solution

90. The isomer is



A. Dextro isomer

B. Laevo isomer

C. cis-isomer

D. trans-isomer

Answer: D

Watch Video Solution

91. Which of the following will have the least hindered rotation about carbon-carbon bonds?

A. Ethane

B. Ethylene

C. Ethyne

D. Hexachloroethane

Answer: A

Watch Video Solution

92. Isomerism shown by $CH_3-(CH_2)_3-O-CH_3$
$CH_3-CH_2-O-CH_2-CH_2-CH_3$
$CH_3-\underset{\underset{CH_3}{|}}{C}H-O-CH_2-CH_3$ is

A. Position isomerism

B. Chain isomerism

C. Metamerism

D. Optical isomerism

Answer: C

Watch Video Solution

93. A similarity between optical and geometrical isomerism is that

A. Each forms equal number of isomers for a given compound

B. If in a compound one is present then so is the other

C. Both are included in stereoisomerism

D. They have no similarity

Answer: C

Watch Video Solution

94. Which of the following will have a mesoisomer also

A. 2,3-dichloropentane

B. 2-3,-dichlorobutane

C. 2-chlorobutane

D. 2-hydroxypropanoic acid

Answer: B

Watch Video Solution

95. For which of the following parameters the structural isomers C_2H_5OH and CH_3OCH_3 would be expected to have the same values (Assume ideal behaviour)

A. Boiling points

B. Vapour pressure at the same temperature

C. Heat of vaporization

D. Gaseous densities at the same temperature and pressure

Answer: D

Watch Video Solution

96. Which types of isomerism is shown by 2,3-dichlorobutane

A. Distereo

B. Optical

C. Geometric

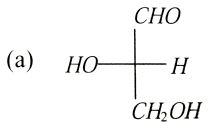
D. Structural

Answer: B

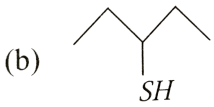
Watch Video Solution

97. Which of the following molecules is expected to rotate the plane polrized light?

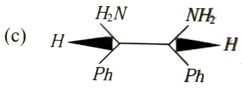
A.



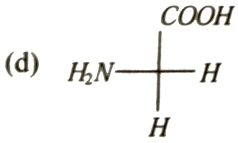
B.



C.



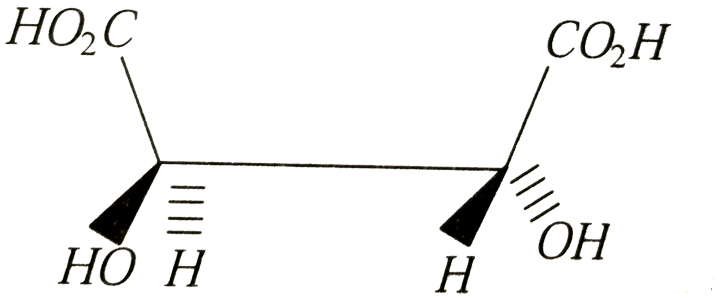
D.



Answer: A

Watch Video Solution

98. The absolute configuration of



is

A. R, R

B. R, S

C. S, R

D. S, S

Answer: A

Watch Video Solution

99. $\alpha - D(+) -$ glucose and $\beta - D(+) -$ glucose are:

A. Epimers

B. Anomers

C. Enantiomers

D. Conformers

Answer: B

Watch Video Solution

100. The number of stereoisomers possible for a compound of the molecular formula $CH_3 - CH = CH - CH(OH) - Me$ is

A. 3

B. 2

C. 4

D. 6

Answer: C

Watch Video Solution

101. Out of the following the alkene that exhibits optical isomerism is

A. 2-methyl-2-pentene

B. 3-methyl-2-pentene

C. 4-methyl-1-pentene

D. 3-methyl-1-pentene

Answer: D

Watch Video Solution

102. Lactic acid in which a methyl group, a hydroxyl group, a carboxylic acid group and a hydrogen atom are attached to a central carbon atom, show optical isomerism due to the molecular geometry at the

A. Central carbon atom

B. Carbon atom of the methyl group

C. Carbon atom of the carboxylic acid group

D. Oxygen of the hydroxyl groups

Answer: A

Watch Video Solution

103. What type of isomerism is possible for $1-$ chloro$-2-$ nitroethene?

A. Functional group isomerism

B. Position isomerism

C. E/Z isomerism

D. Optical isomerism

Answer: C

Watch Video Solution

104. n-Pentane and 2-methylbutane are a pair of

A. Enantiomers

B. Stereoisomers

C. Diastereomers

D. Constitutional isomers

Answer: D

Watch Video Solution

105. The dihedral angle between two adjacent axial hydrogens in the most stable cyclohexane at r.t.

A. 180°

B. 120°

C. 60°

D. 0°

Answer: D

Watch Video Solution

106. The number of chiral centres in D-(+)-glucose is

A. 4

B. 3

C. 2

D. 1

Answer: A

Watch Video Solution

107. The total number of acylic structural and optical isomers possible for a hydrocarbon of molecular formula C_7H_{16} is

A. 12

B. 8

C. 10

D. 6

Answer: C

View Text Solution

108. The optical rtation of an optically active compound is

A. Directly proportional to length of the polarimeter tube only

B. Directly proportional to the molar concentration of the compound

C. Independent of the length of the polarimeter tube and concentration of the compound

D. Directly proportional to both the length of the polarimeter tube and molar concentration of the compound

Answer: C

Watch Video Solution

109. The d and l enantiomers of an optically active compound differ in

A. Their boiling and melting point

B. Their rotation of plane polarized light

C. Their solubility

D. Their refractive index

Answer: B

Watch Video Solution

110. Which one of the following conformations of cyclohexane is the least stable ?

A. Half-chair

B. Boat

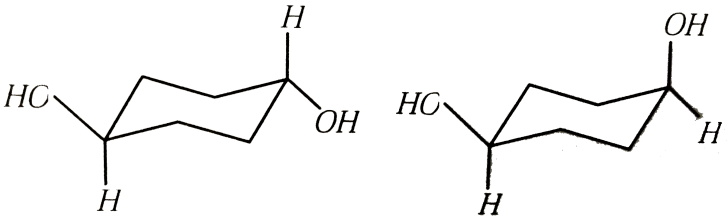
C. Twisted-boat

D. Chair

Answer: A

Watch Video Solution

111. The correct relation between the following pair of compounds is



A. Constitutional isomers

B. Enantiomers

C. Diastereomers

D. None of these

Answer: D

Watch Video Solution

112. Glucose has optical isomers

A. 8

B. 12

C. 16

D. Cannot be predicted

Answer: C

Watch Video Solution

113. Consider the following organic compound

$\overset{1}{C}H_3\overset{2}{C}H_2\overset{3}{C}H_2\overset{4}{C}H_2\overset{5}{C}H_2\overset{6}{C}H_2\overset{7}{C}H_3$

To make it a chiral compound, the attack should be on carbon

A. 1

B. 3

C. 4

D. 7

Answer: B

Watch Video Solution

114. Which of the following statements is not true about enantiomers

A. They have same physical properties

B. They have different biological properties

C. They have same chemical properties towards chiral compounds

D. None of these

Answer: A

Watch Video Solution

115. Nitroethane can exhibit one of the following kind of isomerism

A. Metamerism

B. Optical activity

C. Tautomerism

D. Position isomerism

Answer: C

Watch Video Solution

116. The number of isomeric pentyl alcohols possible is

A. Two

B. Four

C. Six

D. Eight

Answer: D

Watch Video Solution

117. Which of the following compounds is expected to be optically active ?

A. $(CH_3)_2CHCHO$

B. $CH_3CH_2CH_2CHO$

C. $CH_3CH_2CHBrCHO$

D. $CH_3CH_2CBr_2CHO$

Answer: C

Watch Video Solution

118. How many optically active stereomers are possible for butane-2,3-diol

A. 3

B. 4

C. 1

D. 2

Answer: A

Watch Video Solution

119. A compound is formed by substitution of two chlorine for two hydrogens in propane. The number of possible isomeric compound is

A. 4

B. 3

C. 5

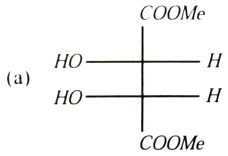
D. 2

Answer: C

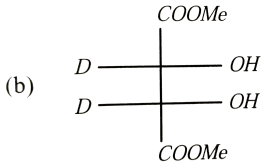
Watch Video Solution

120. The optically active molecule is

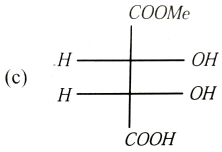
A.



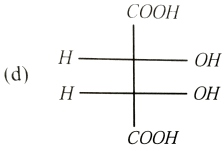
B.



C.



D.



Answer: C

View Text Solution

121. Which isomer of hexane has only two different sets of structurally equivalent hydrogen atoms?

A. 2, 2-dimethylbutane

B. 2-methyl pentane

C. 3-methylpentane

D. 2, 3-dimethylbutane

Answer: D

Watch Video Solution

122. Which of the following compounds will show geometrical isomerism

A. Cyclohexene

B. 2-hexene

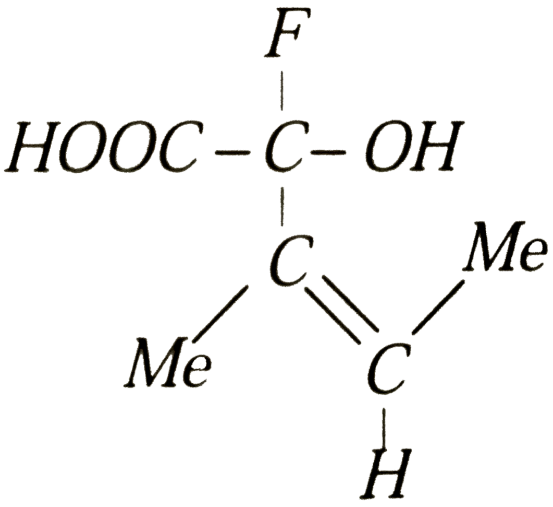
C. 3-hexyne

D. 1, 1-diphenylethylene

Answer: B

Watch Video Solution

123. The configuration of the chiral centre and the geometry of the double bond in the following molecule can be described by



A. R and E

B. S and E

C. R and Z

D. S and Z

Answer: C

Watch Video Solution

124. Which of the following is most likely to show optical isomerism

A. $$\begin{array}{l} \qquad\qquad\quad H \\ \qquad\qquad\quad | \\ HC \equiv C - C - C \equiv CH \\ \qquad\qquad\quad | \\ \qquad\qquad\quad Cl \end{array}$$

B. $$\begin{array}{l} \qquad\qquad\quad H \\ \qquad\qquad\quad | \\ HC \equiv C - C - C - CH_3 \\ \qquad\qquad\quad | \\ \qquad\qquad\quad Cl \end{array}$$

C. $$\begin{array}{l} \qquad\qquad\quad H \\ \qquad\qquad\quad | \\ HC \equiv C - C - H \\ \qquad\qquad\quad | \\ \qquad\qquad\quad Cl \end{array}$$

D. $$\begin{array}{l} \qquad\qquad\quad Cl \\ \qquad\qquad\quad | \\ HC \equiv C - C = CH_2 \end{array}$$

Answer: B

Watch Video Solution

125. Which of the following hydride is capable of showing conformations ?

A. $NH_2 - NH_2$

B. B_2H_6

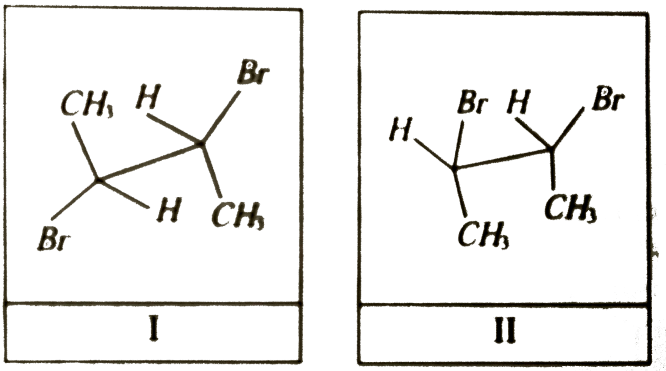
C. CH_4

D. None of these

Answer: A

Watch Video Solution

126. Given



I and II are

A. Identical

B. A pair of conformers

C. A pair of geometrical isomers

D. A pair of optical isomers

Answer: B

Watch Video Solution

127. In a particular isomer of $\left[Co(NH_3)_4Cl_2\right]$, the Cl-Co-Cl angle is 90°, the isomer is known as

A. Optical isomer

B. Cis-isomer

C. Position isomer

D. Linkage isomer

Answer: B

Watch Video Solution

128. Restricted rotation is present in

A. Ethane

B. Ethene

C. Alcohol

D. Propyne

Answer: B

Watch Video Solution

129. The number of racemic mixture obtained by optical isomers of 2, 3-dihydroxy butanal is/are

A. Three

B. Two

C. One

D. Zero

Answer: B

Watch Video Solution

130. Which one of the following objects is 'achiral'

A. Letter P

B. Letter F

C. Ball

D. A pair of hand

Answer: C

Watch Video Solution

131. Which of the following pairs is an example of position isomerism?

A. $CH_3 - CH_2 - CH_2 - CH_3$ and $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_3$

B. $CH_3 - CH_2 - CH = CH_2$ and $CH_3 - CH = CH - CH_3$

C. $CH_3 - CH_2OH$ and $CH_3 - O - CH_3$

D. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3$ and $CH_3 - CH_2 - CH_2 - CH_2 - CH_3$

Answer: B

Watch Video Solution

132. The number of geometrical isomers in case of a compound with the structure $CH_3 - CH = CH - CH - C_2H_5$ is

A. 4

B. 3

C. 2

D. 5

Answer: C

Watch Video Solution

133. Assertion: Neopentane forms one mono substitutes compound

Reason: Neopentane is an isomer of pentane.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

134. Assertion : trans $-2-$ Butene on reaction with Br_2 gives meso $-2,3-$ dibromobutane.

Reason : The reaction involves syn $-$ addition of bromine.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: C

Watch Video Solution

135. Assertion : $Cis-1,3$ dihydroxy cyclohexane exists in chair conformation.

Reason : In the chair form, there will not be hydrogen bonding between the two hydroxyl groups.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: C

Watch Video Solution

136. Assertion: Diastereoisomers have different physical properties.

Reason: They are non-superimpossible mirror images.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

137. Assertion : Boiling points of cis-isomers are higher than trans - isomers.

Reason : Dipole moments of cis - isomers are higher than trans - isomers.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

138. Assertion : Saturated hydrocarbons are chemically less reactive.

Reason : All isomeric paraffins have same parent name.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: B

Watch Video Solution

139. Assertion: Cyclohexane exhibits keto-enol tautomerism.

Reason: In cyclohexanone, one form contains the keto group $(C = O)$ while other contains enolic group $(- C = C - OH)$.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

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

A. Bond angle changes but bond length remains same

B. Both bond angles and bond length change

C. Both bond angles and bond length remains same

D. Bond angle remains same but bond length changes

Answer: C

Watch Video Solution

Classification and nomenclature of organic compounds

1. The IUPAC name of CH_3CHO is :

A. Acetaldehyde

B. Methyl aldehyde

C. Ethanol

D. Ethanal

Answer: D

Watch Video Solution

2. The IUPAC name of $\begin{matrix} CH_3 - CH - CH_2 - CH - CHO \\ | \qquad\qquad\quad | \\ OH \qquad\quad CH_3 \end{matrix}$ will be

A. 4-hydroxyl-1-methylpentanal

B. 4-hydroxy-2-methylpentanal

C. 3-hydroxy-2-methylpentanal

D. 3-hydroxy-3-methylpentanal

Answer: B

Watch Video Solution

3. The IUPAC name of

$(CH_3)_2CH - CH_2 - CH_2Br$ is

A. 1-bromo pentane

B. 2-methyl-4-bromo butane

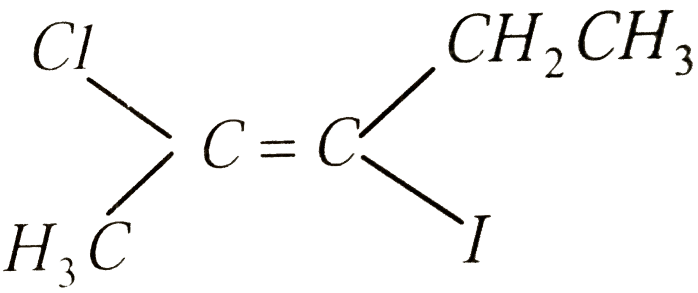
C. 1-bromo-3-bromo propane

D. 2-methyl-3-bromo propane

Answer: C

Watch Video Solution

4. IUPAC name for the compound



A. Trans 2-iodo-4-chloro-3-pentane

B. Cis 3-chloro-3-iodo-2-pentane

C. Trans 2-chloro-3-iodo-2-pentene

D. Cis 3-iodo-4-chloro-3-pentene

Answer: C

Watch Video Solution

5. The IUPAC name of the compound $CH_2 = CH - CH_2 - CH_2 - C \equiv CH$ is

A. 1, 5-hexenyne

B. 1-hexyne-5-ene

C. 1, 5-hexynene

D. 1-hexene-5-yne

Answer: D

Watch Video Solution

6. The general molecular formula, which represents the homologous series of alkanols is

A. $C_nH_{2n+1}O$

B. $C_nH_{2n+2}O$

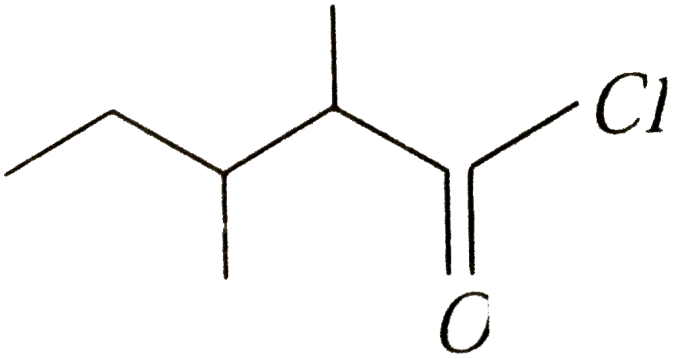
C. $C_nH_{2n}O_2$

D. $C_nH_{2n}O$

Answer: B

Watch Video Solution

7. The IUPAC name of



A. 2-ethyl-3-methylbutanonyl chloride

B. 2, 3-dimethylpentanonyl chloride

C. 3, 4-dimethylpentanonyl chloride

D. 1-chloro-1-oxo-2,3-dimethylpentane

Answer: B

Watch Video Solution

8. The IUPAC name of

$CH_3 - CH = CH - C \equiv CH$ is

A. Pent-2-en-4-yne

B. Pent-3-en-1-yne

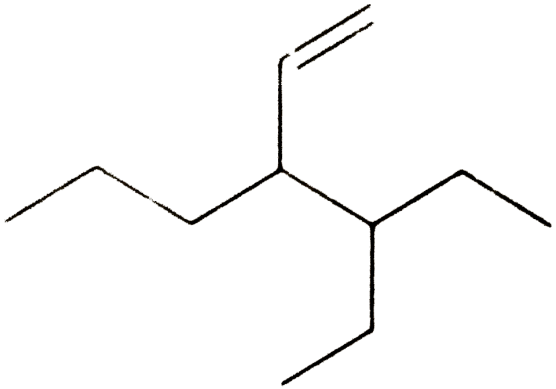
C. Pent-3-yne-1-en

D. Pent-2-yne-1-en

Answer: B

Watch Video Solution

9. The correct IUPAC name of the compound



is

A. 3-(1-ethyl propyl) hex-1-ene

B. 4-ethyl-3-propyl hex-1-ene

C. 3-ethyl-4-ethenyl heptane

D. 3-ethyl-4-propyl hex-5-ene

Answer: B

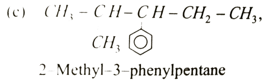
Watch Video Solution

10. Which nomenclature is not according to IUPAC system

A. $Br-CH_2-CH=CH_2$, 1-Bromo-prop-2-ene

B.
$$\begin{array}{ccccccccc} & & & & CH_3 & & & & \\ & & & & | & & & & \\ CH_3 & - & CH_2 & - & C & - & CH_2 & - & CHCH_3, \\ & & & & | & & & & | \\ & & & & Br & & & & CH_3 \end{array}$$

4 - Bromo, 2, 4-di-methylhexane

C. 

D.
$$\begin{array}{ccccccccc} CH_3 & - & C & - & CH_2 & - & CH_2 & - & CH_2COOH \\ & & \| & & & & & & \\ & & O & & & & & & \end{array}$$

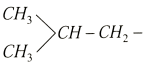
5-Oxohexanoic acid

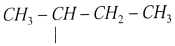
Answer: A

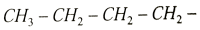
View Text Solution

11. The structure of isobutyl group in an organic compound is

A.
$$\begin{array}{ccc} & & CH_3 \\ & & | \\ CH_3 & - & C- \\ & & | \\ & & CH_3 \end{array}$$

(b) 

(c) 

B. (d) 

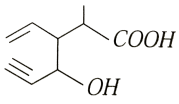
C. $CH_3 - \underset{|}{CH} - CH_2 - CH_3$

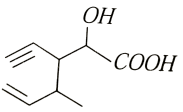
D. $CH_3 - CH_2 - CH_2 - CH_2 -$

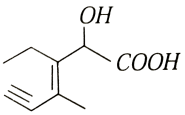
Answer: B

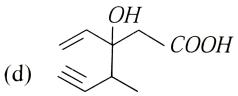
Watch Video Solution

12. Structure of the compound whose $IUPAC$ name is $3-$ ethyl$-2-$ hydroxy$-4-$ methylhex$-3-$ en$-5-$ ynoic acid is

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: C

Watch Video Solution

13. The IUPAC name of $CH_3 - CH(OH) - CH_2 - C(OH)(CH_3)_2$ is :

A. 1,1-dimethyl - 1, 3-butanediol

B. 2-methyl - 2, 4-pentanediol

C. 4-methyl-2, 4-pentanediol

D. 1, 3, 3-trimethyl-1, 3-propanediol

Answer: B

Watch Video Solution

14. Empirical formula of compound is CH_2O.If its molecular weight is 180 then the molecular formula of the compound is

A. $C_3H_6O_3$

B. $C_4H_8O_4$

C. $C_6H_{12}O_6$

D. $C_5H_{10}O_5$

Answer: C

Watch Video Solution

15. IUPAC name of

$$\begin{array}{l} CH_3 - CH - CH_2 - CH - CH_3 \\ \quad\quad\quad | \quad\quad\quad\quad | \\ \quad\quad CH_3 \quad\quad\quad CN \end{array}$$

A. 2-cyano-3-methyl hexane

B. 3-methyl-5-cyanohexane

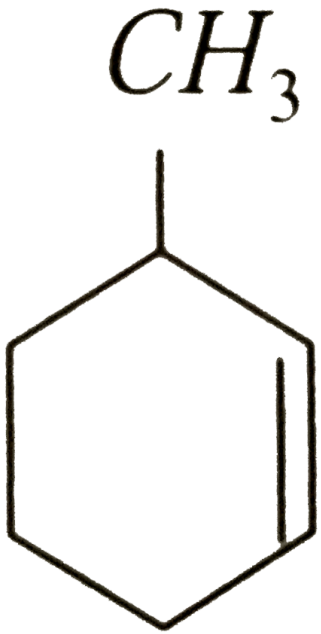
C. 2,4-dimethyl-cyanopentane

D. 2- cyano - 3- methylhexane

Answer: C

Watch Video Solution

16. IUPAC name of the following compound is



A. 3-methyl cyclohex-1-ene

B. 1- methyl cyclohex-2-ene

C. 6-methyl cyclohexene

D. 1-methyl cyclohex-5-ene

Answer: A

Watch Video Solution

17. The compound having only primary hydrogen atoms is

A. Isobutene

B. 2,3-dimethylbutene

C. Cyclohexane

D. Propyne

Answer: A::D

Watch Video Solution

18. The IUPAC name of $\begin{matrix} & CH_3O & \\ & | \quad || & \\ CH_3 - C - C - CH_2 - CH_2OH & & \end{matrix}$ is

A. 1 - hydroxy - 4 - methyl pentan - 3 - one

B. 2-methyl-5-hydroxy pentane-3-one

C. 4-methyl-3-oxopentan-1-ol

D. Hexan-1-ol-3-one

Answer: A

Watch Video Solution

19. The correct structure of 4 - bromo - 3 - methyl but - 1 - ene is

A. $Br - CH = C(CH_3)_2$

B. $CH_2 = CH - CH(CH_3) - CH_2Br$

C. $CH_2 = C(CH_3)CH_2CH_2Br$

D. $CH_3 = C(CH_3) = CHCH_2 - Br$

Answer: B

Watch Video Solution

20. The systematic name of $CH_3 - CHBr - CH_2OH$ is

A. 3-hydroxy - 2-bromopropane

B. 2-bromopropan-1-ol

C. 2-bromo-3-propanol

D. 3-hydroxy isopropyl bromide

Answer: B

Watch Video Solution

21. IUPAC name of the compound is

$$CH_3 - CH = \underset{\displaystyle CH_2 - CH_3}{\overset{\displaystyle |}{C}} - CH_3$$

A. 2-ethyl-2-butene

B. 3-ethyl-2-butene

C. 3-methyl-3-pentene

D. 3-methyl-2-pentene

Answer: D

Watch Video Solution

22. IUPAC name of $CH_3 - \underset{\underset{C_2H_5CH_3}{|}}{\overset{\overset{H}{|}}{C}} - \overset{\overset{C_4H_9}{|}}{C} - CH_3$ is

A. 2-butyl-2-methyl-3-ethylbutane

B. 2-ethyl-3, 3-dimethylheptane

C. 3, 4, 4-trimethylheptane

D. 3, 4, 4-trimethyloctane

Answer: D

Watch Video Solution

23. The IUPAC name of the compound $\begin{matrix} CH_3 - C = CH_2CH_2OH \\ | \\ CH_3 \end{matrix}$ is

A. 2-methyl-2-butenol

B. 2-methyl-3-butenol

C. 3-methyl-2-butenol

D. 3-methyl-but-2-en-1-ol

Answer: D

Watch Video Solution

24. The IUPAC name of the compound $CH_3 - CH(C_2H_5) - CH = CH - CH_3$ is

A. 4-ethyl-2-pentene

B. 4-methyl 2-hexene

C. 3-ethyl-2-pentene

D. 2-ethyl-3-pentene

Answer: B

Watch Video Solution

25. The IUPAC name of the compound

$$CH_3 - CH_2 - \underset{|}{\overset{OCH_3}{CH}} - CH_2 - OH$$ is

A. 2-methoxy-1-butanol

B. 3-methoxy-1-butanol

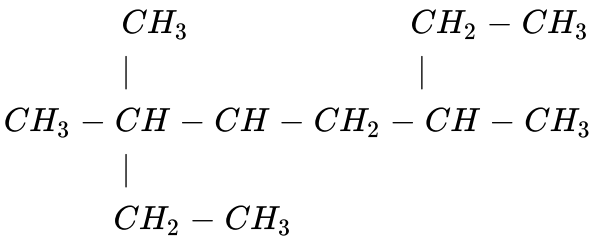
C. 2-methoxy-1-butanal

D. 1, 2-methoxy-butanol

Answer: A

Watch Video Solution

26. What will be the IUPAC name of the given compound ?



A. 2, 5-diethyl-4-methylhexane

B. 3, 4,6-trimethyloctane

C. 2, 5,6-trimethyloctane

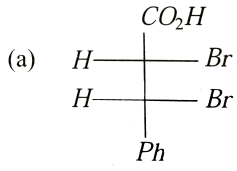
D. 3, 5-dimethyl-6-ethylheptane

Answer: B

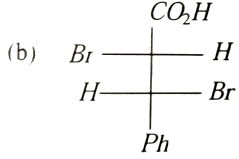
Watch Video Solution

27. The structure of 2R, 3S-dibromocinnamic acid is

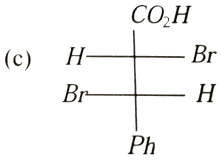
A.



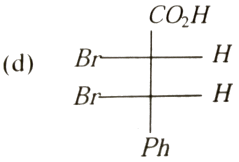
B.



C.



D.



Answer: A

Watch Video Solution

28. Alicyclic compounds are

A. Aromatic

B. Aliphatic

C. Heterocyclic

D. Aliphatic cyclic

Answer: D

Watch Video Solution

29. Freon-114 used in refrigerator and air conditioners is 1, 2-dichlorotetrafluoroethane. Its structural formula is

A. $\begin{array}{cccc} & F & F & \\ & | & | & \\ Cl & - & C & - & C & - & H \\ & | & | & \\ & Cl & F & \end{array}$

B. v $\begin{array}{cccc} & H & F & \\ & | & | & \\ F & - & C & - & C & - & F \\ & | & | & \\ & Cl & Cl & \end{array}$

C. $\begin{array}{cccc} & Cl & F & \\ & | & | & \\ F & - & C & - & C & - & Cl \\ & | & | & \\ & F & F & \end{array}$

D. $\begin{array}{cccccc} & F & Cl & F & \\ & | & | & | & \\ F & - & C & - & C & - & C & - & F \\ & | & | & | & \\ & Cl & H & F & \end{array}$

Answer: C

Watch Video Solution

30. IUPAC name of $\begin{array}{c} CH_3 - CH_2 - CH - NH_2 \\ | \\ CH_3 \end{array}$ is

A. 1-methyl-1-aminopropane

B. 2-aminobutane

C. 2-methyl-3-aminopropane

D. None of the above

Answer: B

Watch Video Solution

31. The IUPAC name of

$$CH_3-\underset{\underset{OH}{|}}{CH}-CH_2-\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_3 \text{ and } \begin{array}{l} CH_2-CH-CH_2 \\ | \quad\quad | \quad\quad | \\ CN \quad CN \quad CN \end{array}$$

A. 1, 1-dimethyl-1,3-butanediol and propanetricarbyl amine

B. 4-methyl-2, 4-pentanediol and 1,2,3 propanetrinitrile

C. 2-methyl-2, 4-pentanediol and propane 1, 2, 3-tricarbonitrile

D. 1, 3, 3-trimethyl 1, 3-propanediol and 1, 2, 3 tricyanopropane

Answer: C

Watch Video Solution

32. IUPAC name of $(CH_3)_2CH-CH=CH-CH_3$ is

A. 2-methyl-3-pentene

B. 4-methyl-2-pentene

C. 1, 2-isopropyl-1-propene

D. 3-isopropyl-2-propene

Answer: B

Watch Video Solution

33. The IUPAC name of $CH_3CH(CH_3)COOH$ is

A. Dimethyl acetic acid

B. 2-methyl propanoic acid

C. Propanoic acid

D. Butyric acid

Answer: B

Watch Video Solution

34. The IUPAC name of

$$H_3C - \underset{\underset{C_2H_5}{|}}{CH} - CH_2 - \underset{\underset{OH}{|}}{CH} - CH_2Cl$$

A. 1-chloro-4-methyl-2-hexanal

B. 1-chloro-4-ethyl-2-pentanol

C. 1-chloro-4-methyl-2-hexanol

D. 1-chloro-2-hydroxy-4-methyl hexane

Answer: C

Watch Video Solution

35. IUPAC name of acetyl salicylic acid is

A. Butan-1-ol

B. 2-acetoxy benzoic acid

C. p-benzene acid

D. p-acetyl benzoic acid

Answer: B

Watch Video Solution

36. IUPAC name of teritary butyl alcohol is

A. Butan-1-ol

B. Butan-2-ol

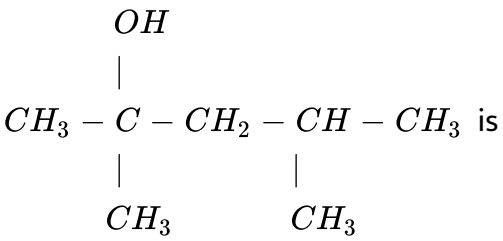
C. 2-methyl propan-1-ol

D. 2-methyl propan-2-ol

Answer: D

Watch Video Solution

37. IUPAC name of



A. 2, 4-dimethyl pentanol-2

B. 2, 4-dimethyl pentanol-4

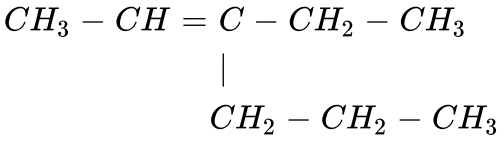
C. 2, 2-dimethyl butanol-2

D. None of these

Answer: A

Watch Video Solution

38. IUPAC name of the following compound will be



A. 3-ethyl-2-hexene

B. 3-propyl-2-hexene

C. 3-propyl-3-hexene

D. 4-ethyl-4-hexene

Answer: A

Watch Video Solution

39. The $IUPAC$ name of $CH_3CH_2C(Br) = CHCl$ is

A. 2-bromo-1-chloro butene

B. 1-chloro-2-bromo butene

C. 3-chloro-2-bromo butene

D. None of the above

Answer: A

Watch Video Solution

40. IUPAC name of the compound is

$$CH_3 - \underset{\underset{CH_3}{|}}{\underset{CH_2}{|}}{CH} - CH_2 - CH(OH) - CH_3$$

is

A. 4-ethyl-2-pentanol

B. 4-methyl-2-hexanol

C. 2-ethyl-2-pentanol

D. 3-methyl-2-hexanol

Answer: B

Watch Video Solution

41. The IUPAC name of the compound having structure

$$C_2H_5 - \underset{\|}{C} - \underset{|}{CH} - CH_3$$
$$CH_2CH_3$$

is

A. 3-methyl-2-ethyl but 1-ene

B. 2-ethyl-3-methyl but 1-ene

C. 3-ethyl-3-methyl but 1-ene

D. Ethyl isopropyl ethane

Answer: B

Watch Video Solution

42. The I.U.P.A.C. name of $(C_2H_5)_2CH.CH_2OH$ is

A. 2-ethyl butanol-1

B. 2-methyl pentanol-1

C. 2-ethyl pentanol-1

D. 3-ethyl butanol-1

Answer: A

Watch Video Solution

43. Write the IUPAC name of CH_3CH_2COOH

A. Ethyl formic acid

B. Ethyl carboxylic acid

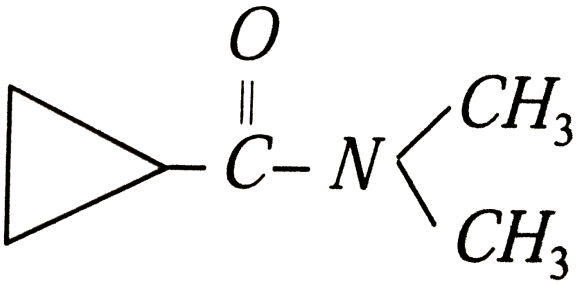
C. Ethane methanoic acid

D. Propanoic acid

Answer: D

Watch Video Solution

44. IUPAC name of the following compound



A. N, N-dimethylcyclopropanecarboxamide

B. N-methylcyclopropanamide

C. Cyclopropanamide

D. None of the above

Answer: A

Watch Video Solution

45. IUPAC nomenclature of

$$H_3C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH=\overset{\overset{CH_3}{|}}{C}-CH_3$$

A. 2, 4,4-trimethylpent-2-ene

B. 2, 4,4-trimethylpent-3-ene

C. 2, 2,4-trimethylpent-3-ene

D. 2, 2,4-trimethylpent-2-ene

Answer: A

Watch Video Solution

46. The IUPAC name of $CH_3C \equiv CCH(CH_3)_2$ is

A. 4-methyl-2-pentyne

B. 4, 4-dimethyl-2-butyne

C. Methyl isopropyl acetylene

D. 2-methyl-4-pentyne

Answer: A

Watch Video Solution

47. If CH_4 is known as methane, then C_9H_{20} is known as

A. Hexane

B. Nonane

C. Octane

D. Butane

Answer: B

Watch Video Solution

48. Cycloalkane has the formula

A. C_nH_{2n+1}

B. C_nH_{2n-2}

C. C_nH_{2n}

D. $C_{2n}H_2$

Answer: C

Watch Video Solution

49. Name the alkene with molecular formula $C_{10}H_{20}$

A. Dodecene

B. Undecene

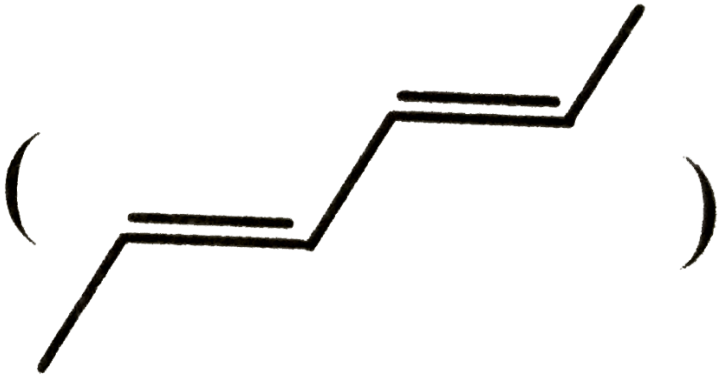
C. Decene

D. Heptene

Answer: C

Watch Video Solution

50. The IUPAC name of compound



is

A. (2Z, 4Z)-2, 4-hexa diene

B. (2Z, 4E)-2, 4-hexa diene

C. (2E, 4E)-2, 4-hexa diene

D. (2E, 4Z)-2, 4-hexa diene

Answer: D

Watch Video Solution

51. The IUPAC name of the following compound is

$$HOOC - CH_2 - \underset{\underset{COOH}{|}}{CH} - CH_2 - CH_2 - COOH$$

A. 2-(carboxy methyl)-pentane-1, 5-dioic acid

B. 3-carboxy hexane-1, 6 dioic acid

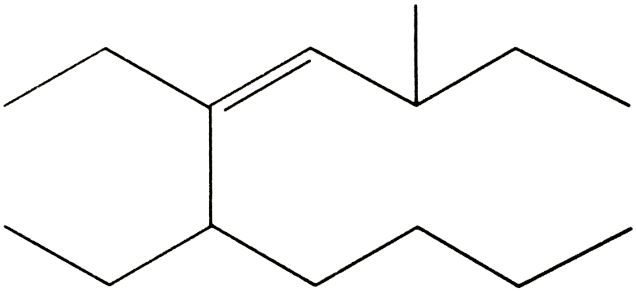
C. Butane , 1, 2, 4, -tricarboxylic acid

D. 4-carboxy hexane-1, 6 dioic acid

Answer: C

Watch Video Solution

52. Consider the following compound



IUPAC name of this compound is

A. 5, 6-diethyl-3-methyl decane

B. 5, 6-diethyl-3-methyl dec-4-ene

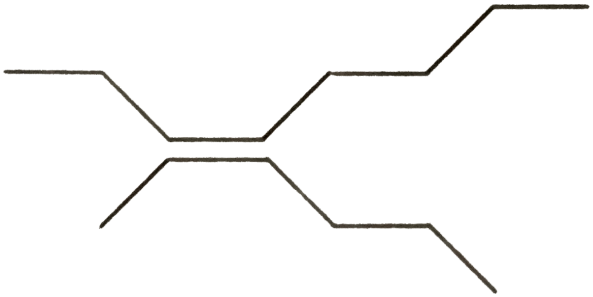
C. 3, 5, 6-trimethyl-dec-6-ene

D. 3, 5,6-triethyl-dec-4-ene

Answer: B

Watch Video Solution

53. Give the IUPAC name of the alkene



A. Z-3-methyl-4-propyl-3-octene

B. E-3-methyl-4-propyl-3-octene

C. E-4-butyl-3-methyl-3-heptene

D. E-2-ethyl-3-propyl-2-heptene

Answer: A

Watch Video Solution

54. The IUPAC name of the following compound is

$$(CH_3)_2CH - CH_2CH = CH - CH = CH - \underset{\displaystyle C_2H_5}{\underset{|}{CH}}CH_3$$

A. 1,1,7,7-tetramethyl-2,5-octadiene

B. 2,8-dimethyl-3, 6-decadiene

C. 1,5-di-iso-propyl-1, 4-hexadiene

D. 2,8-dimethyl-4,6-decadiene

Answer: D

Watch Video Solution

55. The number of primary, secondary, tertiary and quaternary carbons in neo-pentane are respectively,

A. 4,3,2 and 1

B. 5,0,0 and 1

C. 4, 0,0 and 1

D. 4,0,1 and 1

Answer: C

Watch Video Solution

56. The IUPAC name of the compound $CH_3 - CH(CH_3) - CO - CH_3$, is

A. 3-methyl-2-butanone

B. 2-methyl-3-butanone

C. Isopropyl methyl ketone

D. Methyl isopropyl ketone

Answer: A

Watch Video Solution

57. Which one of the following is a non-benzenoid aromatic compound

A. Aniline

B. Benzoic acid

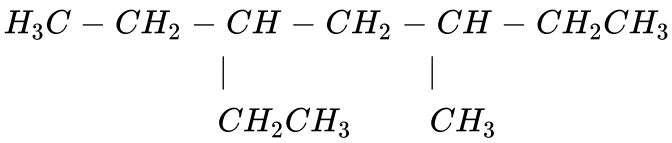
C. Naphthalene

D. Tropolone

Answer: D

Watch Video Solution

58. IUPAC name of the following compound



is

A. 3-ethyl-5-methylheptane

B. 5-ethyl-3-methylheptane

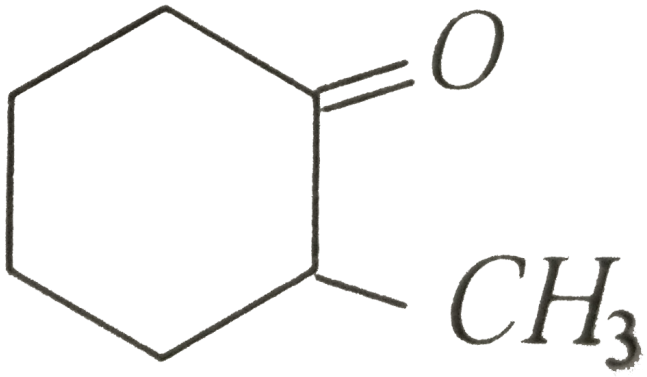
C. 3,5-diethylhexane

D. 1,1-diethyl-3-methylpentane

Answer: A

Watch Video Solution

59. IUPAC name for the compound



is

A. α-methyl cyclohexanone

B. 2-methyl cyclohexanone

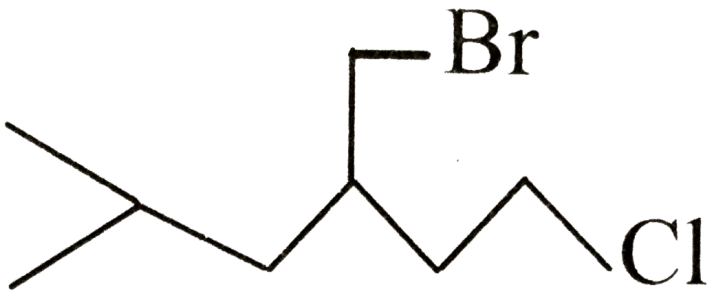
C. Heptanone-2

D. Methyl cyclohexanone

Answer: B

Watch Video Solution

60. IUPAC name



is

A. 1,1-dimethyl-3-bromoethyl-5-chloropentane

B. 3-bromomethyl-1-chloro-5-methylhexane

C. 1-bromomethyl-1-chloroethyl-4-methylpentane

D. 4-bromomethyl-1-chloro-6-methylheptane

Answer: B

Watch Video Solution

61. IUPAC name of the following compound is

$$CH_3 - \underset{\underset{C_6H_5}{|}}{\overset{\overset{H}{|}}{C}} - CH_2 - CH_3$$

A. 2-cyclohexybutane

B. 2-phenylbutane

C. 3-cyclohexylbutane

D. 3-phenylbutane

Answer: B

Watch Video Solution

62. The IUPAC name of $\underset{\underset{CH_3}{|}}{CH_3 - CH_2CH = CCH_2OH}$ will be

A. 2-methyl pentyl alcohol

B. 4-methyl-3-pentene-ol

C. 2-methyl pent-2-ene-1-ol

D. 4-methyl pentyl alcohol

Answer: C

Watch Video Solution

63. The $IUPAC$ name of the following compound $Cl_3C - CH_2CHO$ is

A. 3,3,3-trichloropropanal

B. 1,1,1-trichloropropanal

C. 2,2,2-trichloropropanal

D. Chloral

Answer: A

Watch Video Solution

64. IUPAC name of crotonaldehyde is

A. Prop-2-ene-1-al

B. Propenal

C. But-2-ene-1-al

D. Butenal

Answer: C

Watch Video Solution

65. The $IUPAC$ name of acraldehyde is

A. Prop-2-ene-1-al

B. Propenyl aldehyde

C. But-2-ene-1-al

D. Propenal

Answer: A

Watch Video Solution

66. The number of tetirary carbon atoms in the compound $(CH_3)_2CHCH_2C(CH_3)_3$ is

A. 2

B. 3

C. 1

D. 4

Answer: C

Watch Video Solution

67. The name of $\begin{matrix} H_3C - CH - CH - CH_3 \\ \quad\quad | \quad\quad\quad | \\ \quad CH_3 \quad\quad OH \end{matrix}$ in IUPAC nomenclature system is

A. Butanol

B. 2-methyl butanol-3

C. 3-methyl butanol-2

D. Pentanol

Answer: C

Watch Video Solution

68. The name of

$$ClCH_2 - \underset{\underset{Br}{|}}{C} = \underset{\underset{Br}{|}}{C} - CH_2 - Cl$$

according to $IUPAC$ nomenclature system is :

A. 2,3 dibromo-1,4-dichlorobutene -2

B. 1,4-dichloro-2,3-bromobutene-2

C. Dichlorobromobutene

D. Dichlorobromobutane

Answer: A

Watch Video Solution

69. IUPAC name of $(CH_3)_2N - C_2H_5$ is

A. Dimethyl ethyl amine

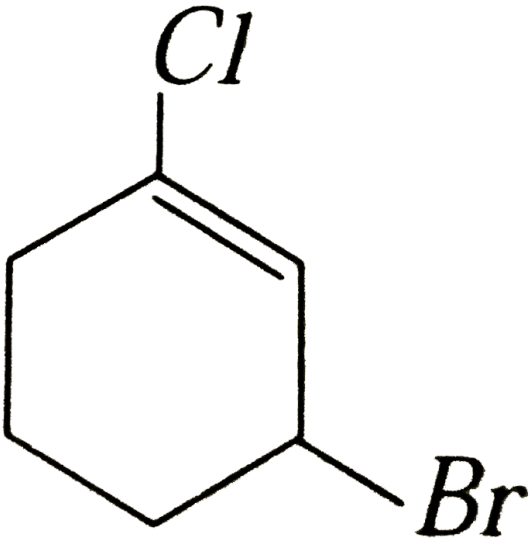
B. Dimethyl amino methane

C. Dimethyl amino ethane

D. N, N-dimethyl amino ethane

Answer: D

Watch Video Solution



70. IUPAC name is

Watch Video Solution

71. IUPAC name of $(CH_3)_2CH - CHO$ is

A. Dimethyl propanal

B. Acetone

C. Propanal

D. Propanone

Answer: D

Watch Video Solution

72. IUPAC name of $(CH_3)_2CH - CHO$ is

A. 2-methyl propanal

B. 1-methyl-2-propanal

C. 2,2-dimethyl propanal

D. None of these

Answer: A

Watch Video Solution

73. The IUPAC name of $CH_3COOC_2H_5$ will be

A. Ethyl acetate

B. Ethyl ethanoate

C. Methyl propanoate

D. None of these

Answer: B

Watch Video Solution

74. $CH_3CH(OH)CH_2CH_2COOH$

A. 4-hydroxy pentanoic acid

B. 1-carboxy-3-butanoic acid

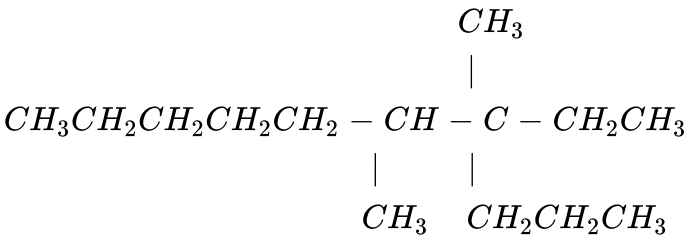
C. 1-carboxy-4-butanol

D. 4-carboxy-2-butanol

Answer: A

Watch Video Solution

75. IUPAC name of the compound is



A. 3,4-dimethyl-3-n propyl nonane

B. 5, 7-dimethyl-7-n-propyl nonane

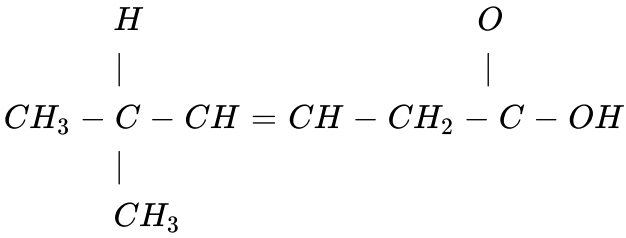
C. 4-ethyl -4,5-dimethyl decane

D. 6, 7-dimethyl-7-ethyl decane

Answer: C

Watch Video Solution

76. What is correct IUPAC name for



A. 5-methyl-3-hexenoic acid

B. 5-carboxyl-2-methylpentene

C. 4-isopropyl-3-butanoic acid

D. None of the above

Answer: A

Watch Video Solution

77. The IUPAC name of $CH_3 - O - C_2H_5$ is :

A. Ethoxymethane

B. Methoxyethane

C. Methylethyl ether

D. Ethylmethyl ether

Answer: B

Watch Video Solution

78. Which of the following alkanes contain primary, secondary, tertiary and quaternary carbon atoms together

A. $(CH_3)_3CH$

B. $(C_2H_5)CH$

C. $(CH_3)_3CCH_2CH(CH_3)_2$

D. $(CH_3)_4C$

Answer: C

Watch Video Solution

79. IUPAC name of Gammexane is

A. Benzene hexachloride

B. Hexachlorobenzene

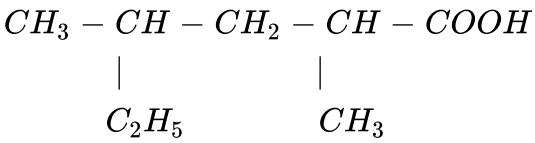
C. 1,2,3,4,5,6, hexachlorobenzene

D. 1,2,3,4,5,6, hexachlorocyclohexane

Answer: C

Watch Video Solution

80. The IUPAC name of this compound



A. 2,2-diethyl pentanoic acid

B. 2, 4-dimethyl hexanoic acid

C. 2-methyl-4-ethyl pentanoic acid

D. 4-ethyl-2-methyl pentanoic acid

Answer: B

Watch Video Solution

81. Hexa-2-ene-4-yne is

A. $CH_3 - CH_2 - C \equiv C - CH = CH_2$

B. $CH_3 - C \equiv C - CH = CH - CH_3$

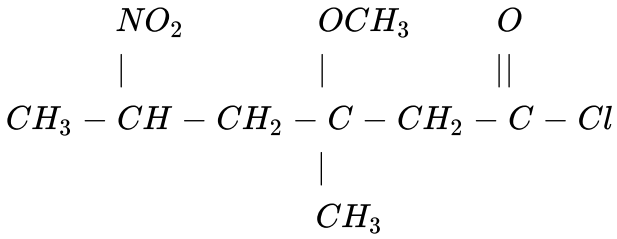
C. $CH_3CH_2 - CH = CH - C \equiv CH$

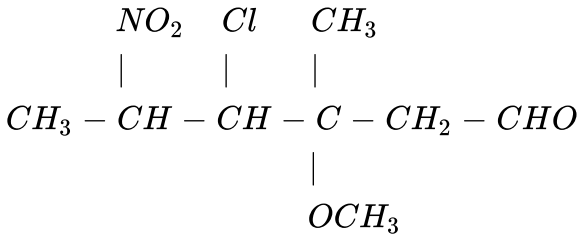
D. $CH_3 - C \equiv C - CH_2 - CH = CH_2$

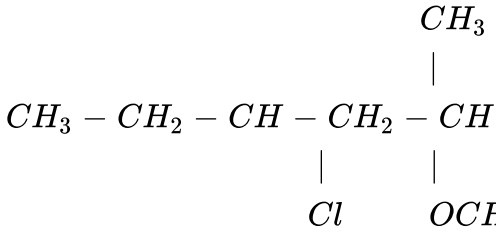
Answer: B

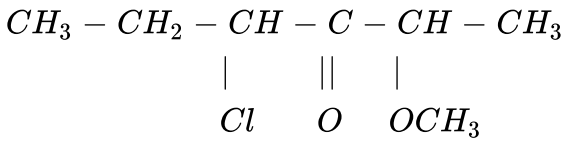
Watch Video Solution

82. Correct structural formula of compound 5-nitro-3-methoxy-3-methylhexanolchloride is

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

83. The IUPAC name of the following structure is

$$CH_3 - \underset{\underset{O}{||}}{C} - CH_2 - COOH$$

A. 3-ketobutanoic acid

B. 2-ketobutanoic acid

C. 4-ketobutanoic acid

D. 3-oxopropanoic acid

Answer: A

Watch Video Solution

84. The IUPAC name of compound

$CH_3 - CH_2CH(CH_3)CH_2COCl$ is

A. 3-methyl pentanoyl chloride

B. 3-methyl butanoyl chloride

C. 1-chloro-3-methyl pentanol

D. None of these

Answer: A

Watch Video Solution

85. The IUPAC name of
$$\begin{array}{l} CH_2 = CH - CH - CH_2 - CH_3 \\ \qquad\qquad\quad | \\ \qquad\qquad CH_2 - CH_2 - CH_3 \end{array}$$
is

A. 3-propyl pentene-1

B. 3-ethyl-pentene-1

C. 4-ethyl-hexene-1

D. 3-ethyl-hexene-1

Answer: D

Watch Video Solution

86. Which of the following compound has wrong IUPAC name?

A. $CH_3 - CH_2 - CH_2 - COO - CH_2CH_3 \rightarrow$ ethyl butanoate

B. $\begin{array}{l} CH_3 - CH - CH_2 - CHO \rightarrow \\ \quad\quad | \\ \quad CH_3 \end{array}$ 3-methyl-butanal

C. $\begin{array}{l} CH_3 - CH - CH - CH_3 \rightarrow \\ \quad\quad | \quad\quad | \\ \quad OH \quad CH_3 \end{array}$ 2-methyl-3-butanol

D. $\begin{array}{l} CH_3 - CH - C - CH_2 - CH_3 \rightarrow \\ \quad\quad | \quad\quad || \\ \quad CH_3 \quad\quad O \end{array}$ 2-methyl-3-pentanone

Answer: C

Watch Video Solution

87. The $IUPAC$ name of $CH_3COCH(CH_3)_2$ is

A. Isopropylmethyl ketone

B. 2-methyl-3-butanone

C. 4-methylisopropyl ketone

D. 3-methyl-2-butanone

Answer: D

Watch Video Solution

88. Which of the following compounds is not chiral

A. 1-chloro-2-methyl pentane

B. 2-chloropentane

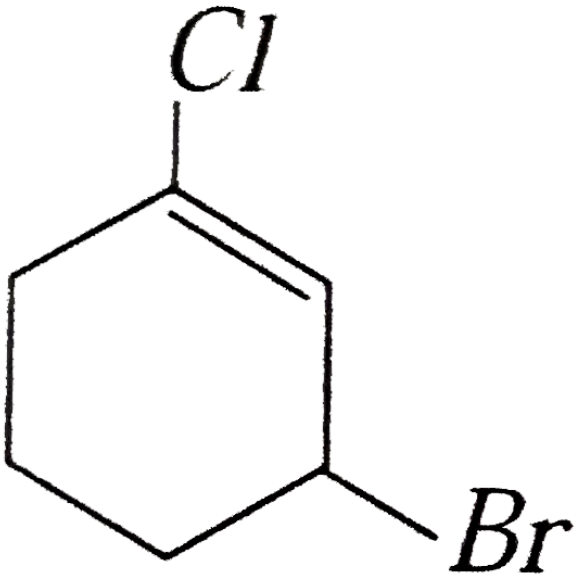
C. 1-chloropentane

D. 3-chloro-2-methyl pentane

Answer: C

Watch Video Solution

89. The IUPAC name of the compound shown below is



A. 2-bromo-6-chlorocyclohex-1-ene

B. 6-bromo-2-chlorocyclohexene

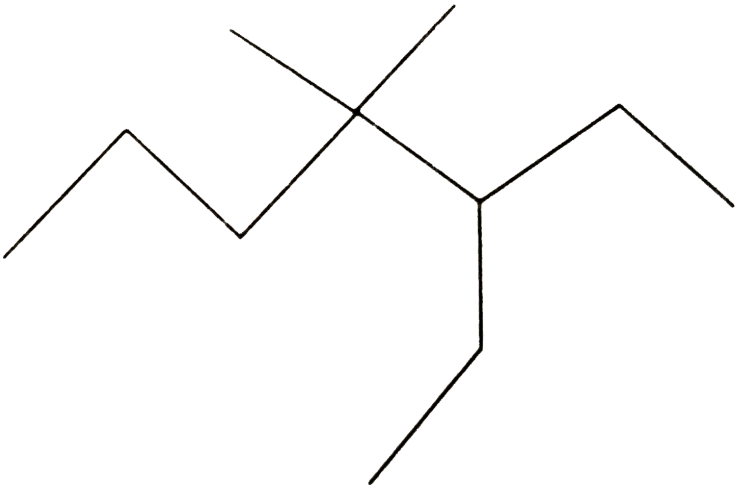
C. 3-bromo-1-chlorocyclohexene

D. 1-bromo-3-chlorocyclohexene

Answer: C

Watch Video Solution

90. The IUPAC name of



A. 1,1-diethyl-2,2-dimethylpentane

B. 4, 4-dimethyl-5,5-diethylpentane

C. 5, 5-diethyl-4,4-dimethylpentane

D. 3-ethyl-4,4-dimethylheptane

Answer: D

Watch Video Solution

91. The correct decreasing order of priority for the functional groups of organic compounds in the IUPAC system of nomenclature is

A. $-SO_3H,\ -COOH,\ -CONH_2,\ -CHO$

B. $-CHO,\ -COOH,\ -SO_3H,\ -CONH_2$

C. $-CONH_2,\ -CHO,\ -SO_3H,\ -COOH$

D. $-COOH,\ -SO_3H,\ -CONH_2,\ -CHO$

Answer: D

Watch Video Solution

92. The IUPAC name for the formula

$$CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle }{\underset{|}{\overset{|}{C}}}}=\underset{|}{\overset{H}{C}}-COOH$$

A. 2-methyl-2-butanoic acid

B. 3-methyl-3-butenoic acid

C. 3-methyl-2-butenoic acid

D. 2-methyl-3-butenoic acid

Answer: C

Watch Video Solution

93. IUPAC name of

$$\begin{array}{l} CH_3 - CH - CH_3 \\ \quad\quad | \\ \quad\quad NH_2 \end{array}$$ is

A. Dimethyl amine

B. Propan-2-amine

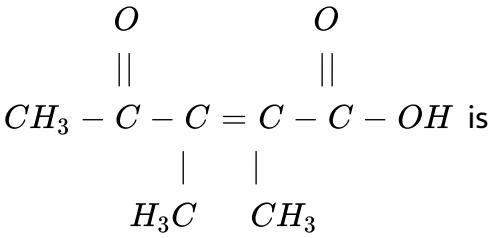
C. Isopropylamine

D. 2-propanamine

Answer: B

Watch Video Solution

94. The IUPAC name of the molecule



is

A. 4-oxo-2, 3-dimethylpent-2-ene-1 oic acid

B. 2-carboxy-3-methylpent-2-en-2-one

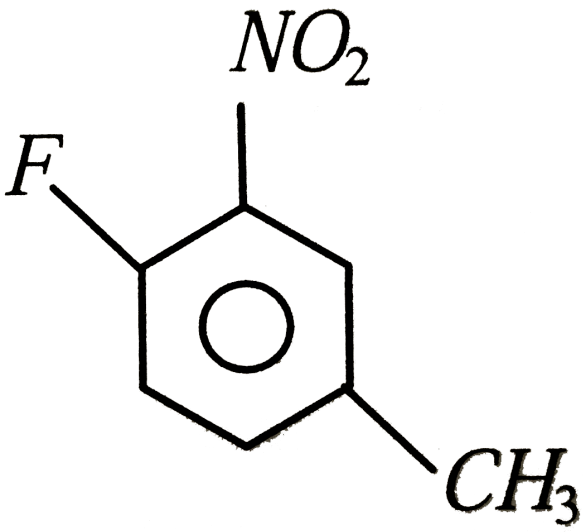
C. 4-carboxy-3-methylpent-3-en-2-one

D. 2, 3-dimethyl-4-oxo-pent-2-en-1-oic acid

Answer: A

Watch Video Solution

95. IUPAC name of the compound is



A. 1-fluoro-4-methyl-2-nitrobenzene

B. 4-fluoro-1-methyl-3-nitrobenzene

C. 4-methyl-1-fluoro-2-nitrobenzene

D. 2-fluoro-5-methyl-1-nitrobenzene

Answer: A

Watch Video Solution

96. The IUPAc name of the compound $CHO-(CH_2)_4-COOH$

A. Hexan-1-al-6-oic acid

B. 6-oxohexanoic acid

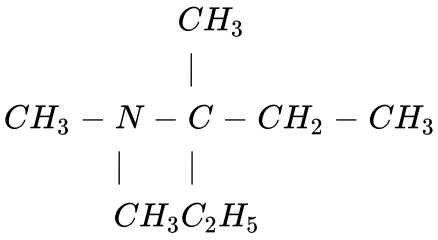
C. Hexanal-1-carboxylic acid

D. Hexanoic acid 5-al-1

Answer: B

Watch Video Solution

97. IUPAC name of the following are



A. 3-dimethylamino-3-methyl pentane

B. 3 (N, N-trimethyl)-3-aminopentane

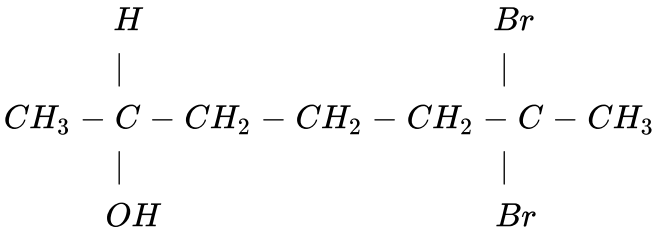
C. 3, (N, N-trimethyl) pentanammine

D. 3-N, N-dimethyl-3-methyl pentan-3-amine

Answer: D

Watch Video Solution

98. Write the IUPAC name of



A. 6,6-dibromoheptane-2-ol

B. 2,2-dibromoheptane-6-ol

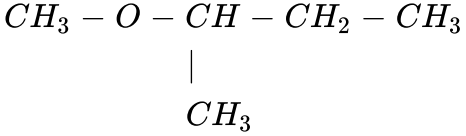
C. 6, 6-dibromoheptane-3-ol

D. None of these

Answer: A

Watch Video Solution

Watch Video Solution

99. Write the IUPAC name of 

A. 3-methoxy butane

B. 2-methoxy butane

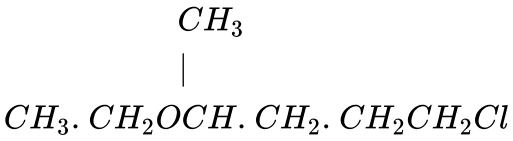
C. 3-methyl-3-methoxy propane

D. Butoxy methane

Answer: B

Watch Video Solution

100. Give the correct IUPAC name of



A. 2-ethoxy-5-chloropentane

B. 1-chloro-4-ethoxy-4-methylbutane

C. 1-chloro-4-ethoxypentane

D. Ethyl-1-chloropentylether

Answer: A

Watch Video Solution

101. Which is the IUPAC name of $CH_3 - \underset{\underset{C_2H_5}{|}}{\overset{\overset{C_2H_5}{|}}{C}} - CH_2Cl$

A. 1-chloro-2, 2-diethylpropane

B. 3-chloro-2, 2-diethylpropane

C. 1-chloro-2-ethyl-2-methylethane

D. 1-chloro-2, 2-diethyl-2- methylethane

Answer: C

View Text Solution

102. An alkane has a C/H-ratio (by mass) of 5.1428. Its molecular formula is

A. C_5H_{12}

B. C_6H_{14}

C. C_8H_{18}

D. C_7H_{10}

Answer: B

Watch Video Solution

103. IUPAC name of $(CH_3)_3CCl$ is

A. 3-chlorobutane

B. 2-chloro-2-methylpropane

C. t-butyl chloride

D. n-butyl chloride

Answer: B

Watch Video Solution

104. Which one of the following formular does not represents an organic compound?

A. $C_4H_{10}O_4$

B. $C_4H_8O_4$

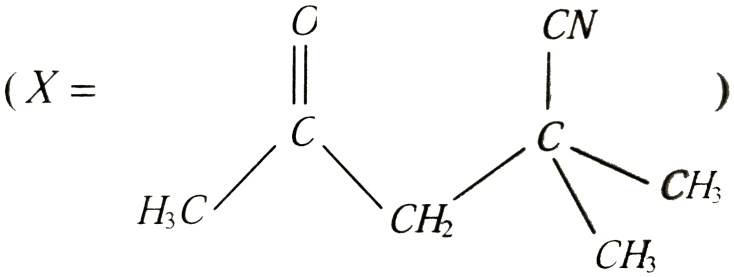
C. $C_4H_7ClO_4$

D. $C_4H_9O_4$

Answer: D

Watch Video Solution

105. The IUPAC name of the compound X is



A. 4-cyano-4-methyl-2-oxopentane

B. 2-cyano-2-methyl-4-oxopentane

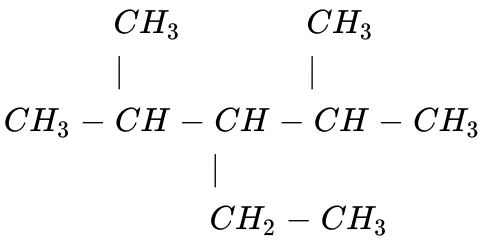
C. 2,2-dimethyl-4-oxopentanenitrile

D. 4-cyano-4-methyl-2-pentanone

Answer: C

Watch Video Solution

106. Which is correct IUPAC name of the following compound



A. 3-isopropyl-2-methylpentane

B. 3-ethyl-2,4-dimethylpentane

C. 2, 4-dimethyl-3-ethylpentane

D. 3-isopropyl-4-methylpentane

Answer: B

Watch Video Solution

107. The IUPAC name of

is :

A. 4-bromo-2-ethyl-1, 4-pentadiene

B. 2-bromo-3-ethyl-1, 4-pentadiene

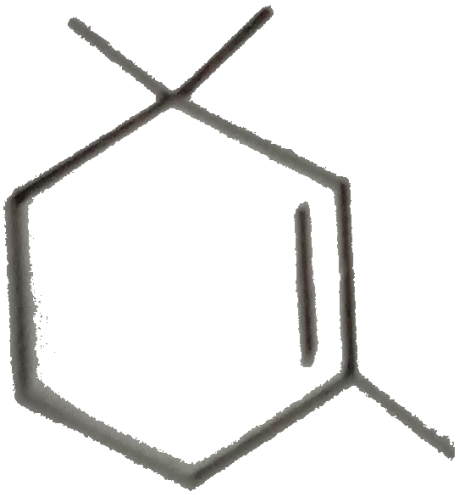
C. 2-bromo-3-ethyl-1, 5-pentadiene

D. None of these

Answer: B

Watch Video Solution

108. Give the IUPAC name of the compound



A. 1,1,3 - trimethylcyclohex-2-ene

B. 1,3,3 - trimethylcyclohex-1-ene

C. 1,1,5 - trimethylcyclohex-5-ene

D. 2,6,6 - trimethylcyclohex-1-ene

Answer: B

Watch Video Solution

109. The systematic name of $PhCH_2COOH$ is

A. Benzene acetic acid

B. Phenylmethyl carboxylic acid

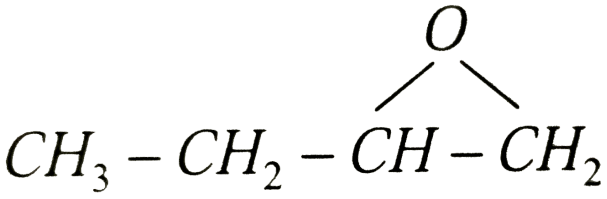
C. 2-phenylethanonic acid

D. 2-phenylmethanoic acid

Answer: C

Watch Video Solution

110. IUPAC name of the following compound



A. 1, 2-epoxy butane

B. Ethyl methyl ether

C. Keto pentanone

D. None of these

Answer: A

Watch Video Solution

111. Which of the following compound has the functional group $-OH$

A. 1, 2-ethandiol

B. 2-butanone

C. Nitrobenzene

D. Ethanal

Answer: A

Watch Video Solution

112. In the structure

$$
\begin{array}{c} \quad CH_3 \\ | \\ .^1\ H_3C -^2 C -^3 CH_2 -^4 CH_3 \\ | \\ \quad CH_3 \end{array}
$$

Which one is quanternary carbon atom

A. C-1

B. C-2

C. C-3

D. C-5

Answer: B

Watch Video Solution

113. Which is the correct structure of the compound 3- hexyn-1-oic acid ?

A. $CH_3 - CH_2 - CH_2 - C \equiv C - COOH$

B. $CH_3 - CH_2 - C \equiv C - CH_2 - COOH$

C. $CH_3 - C \equiv C - CH_2 - CH_2 - COOH$

D. $CH_3 - CH_2 - CH = CH - CH_2 - COOH$

Answer: B

Watch Video Solution

114. Choose the correct IUPAC name of the compound

$$\begin{array}{l} \quad CH_3 \quad CH_3 \\ \quad\ \ | \quad\ \ | \\ CH_3 - CH - CH - C \equiv C - CH_3 \end{array}$$

A. 2, 3-dimethyl-4-hexyne

B. 4, 5-dimethyl-2-hexyne

C. 5-propyl-2-pentyne

D. 2-propyl-3-pentyne

Answer: B

Watch Video Solution

115. The correct IUPAC name of $H_3C - C(CH_3)_2 - CH = CH_2$ is

A. 3,3,3-trimethylprop-1-ene

B. 1, 1, 1 trimethyl-α-propene

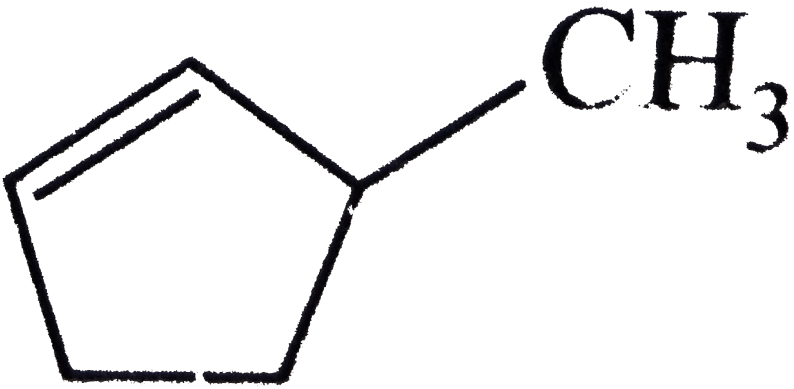
C. 3, 3-dimethylbut-1-ene

D. 2,2-dimethylbut-3-ene

Answer: C

Watch Video Solution

116. Assertion :



is $3-$ methyl cyclopentene.

Reason : In numbering, double bonded carbon atoms gets preference to the alkyl group in cycloalkenes.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

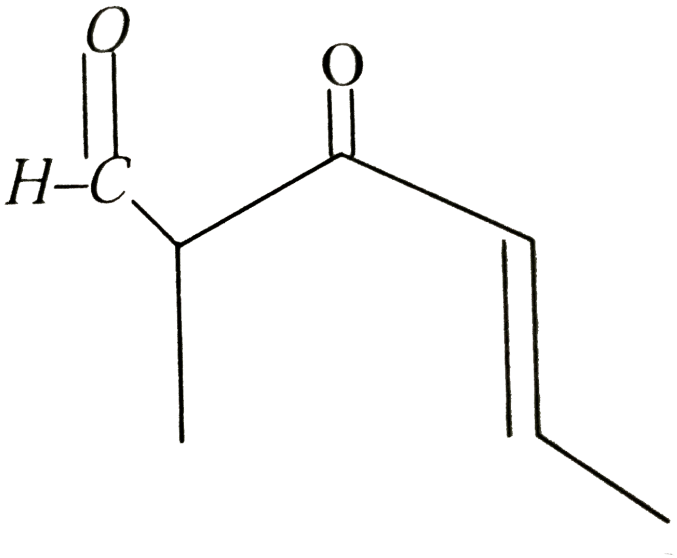
C. If assertion is true but reason is false.

D. If the assertion and reason both are false.

Answer: A

Watch Video Solution

117. The IUPAC name of the compound :



A. 5-formylhex-2-ene-3-one

B. 5-methyl-4-oxohex-2-en-5-al

C. 3-keto-2-methylhex-5-enal

D. 3-keto-2-methylhex-4-enal

Answer: D

Watch Video Solution

Critical Thinking (Objective Questions)

1. In the reaction $CH_3CHO + HCN \rightarrow CH_3CH(OH)CN$ a chiral centre is produced. This product would be

A. Laevorotatory

B. Meso compound

C. Dextrorotatory

D. Racemic mixture

Answer: D

Watch Video Solution

2. Number of isomers of C_4H_{10} is

Watch Video Solution

3. Among the following compounds $(I - II)$ the correct order of reaction with electrophilic reagent is

A. $II > III > I$

B. $III > I > II$

C. $I > II > III$

D. $I = II > III$

Answer: C

Watch Video Solution

4. Tautomerism is exhibited by

A. $(CH_3)_3CNO$

B. $(CH_3)_2NH$

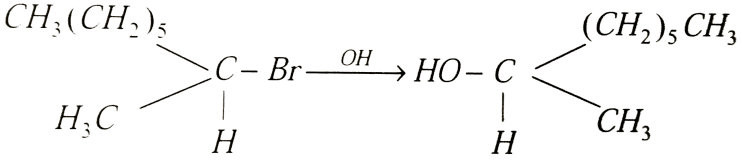
C. R_3CNO_2

D. RCH_2NO_2

Answer: D

Watch Video Solution

5. The following reaction is described as



A. S_{E^2}

B. S_{N^1}

C. S_{N^2}

D. S_{N^0}

Answer: C

Watch Video Solution

6. How many structural isomers are possible for a compound with molecular formula C_3H_7Cl

A. 2

B. 5

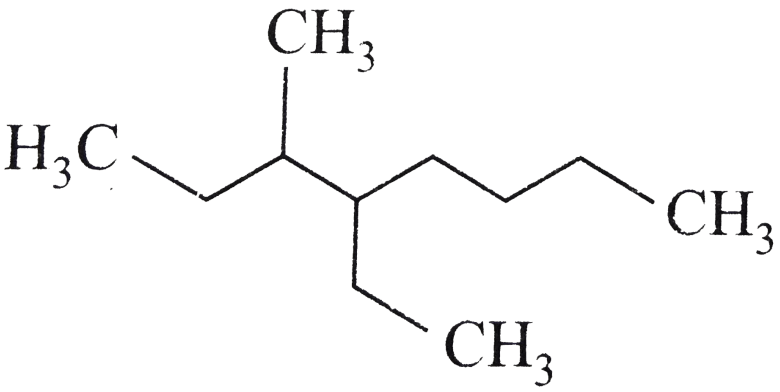
C. 7

D. 9

Answer: A

Watch Video Solution

7. Name of the compound given below is



A. 5-ethyl-6-methyloctane

B. 4-ethyl-3-methyloctane

C. 3-methyl-4-ethyloctane

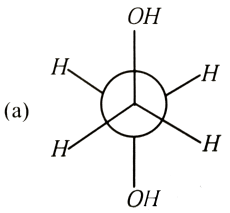
D. 2, 3-diethylheptane

Answer: B

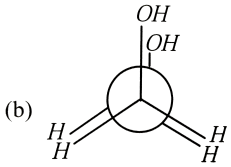
Watch Video Solution

8. Which of the following conformers for ethylene glycol is most stable?

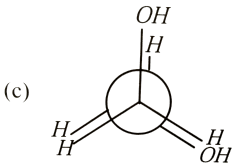
A.



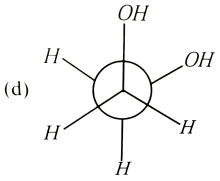
B.



C.



D.



Answer: D

Watch Video Solution

9. The molecule formula of diphenyl methane is $C_{13}H_{12}$.

How many structural isomers are possible when one of the hydrogen is replaced by a chlorine atom?

A. 8

B. 7

C. 6

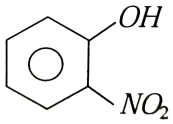
D. 4

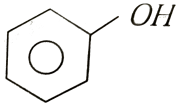
Answer: D

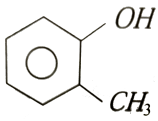
Watch Video Solution

10. Which one of the following compounds is most acidic

A. $Cl - CH_2 - CH_2 - OH$

B. (b) 

C. (c) 

(d) 

D.

Answer: B

Watch Video Solution

11. In a reaction of C_6H_5Y the major product $(>60\,\%)$ is m-isomer, so the group Y is

A. $-COOH$

B. $-NH_2$

C. $-OH$

D. $-Cl$

Answer: A

Watch Video Solution

12. Among the following the dissociation constant is highest for

A. C_6H_5OH

B. $C_6H_5CH_2OH$

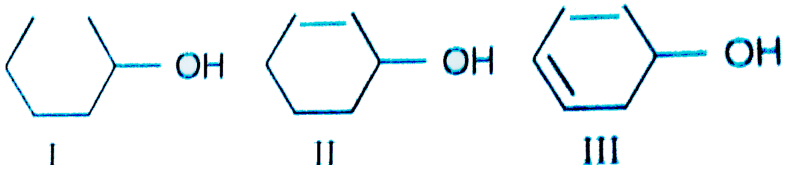
C. $CH_3C \equiv CH$

D. $CH_3NH_3^+Cl^-$

Answer: D

Watch Video Solution

13. The correct order of ease of dehydration of following is



I II III

A. $I > II > III$

B. $III > II > I$

C. $I > III > II$

D. $III > I > II$

Answer: B

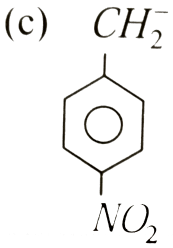
Watch Video Solution

14. Most stable carbanion is

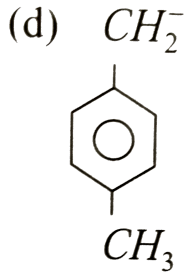
A. CH_3^-

B. $CH_3CH_2^-$

C.



D.



Answer: C

Watch Video Solution

15. Carbocation which is most stable

A. $CH_3CH_2^+$

B. CH_3^+

C. $C_6H_5CH_2^+$

D. $CH_3CH_2CH_2^+$

Answer: C

Watch Video Solution

16. How many enantiomer pairs are obtained by monochlorination of 2, 3-dimethylbutane

A. Nil

B. Four

C. Two

D. One

Answer: D

Watch Video Solution

17. The stablest free radical among the following is :

A. $C_6H_5CH_2 - CH_2$

B. CH_3CH_2

C. $C_6H_5 - CH - CH_3$

D. $CH_3 - CH - CH_3$

Answer: C

Watch Video Solution

18. when (-)-2-methyl butan-1-ol is heated with conc. HCI (+)-1-chloro-2-methyl butane is obtained .The reaction is an example of :

A. Retention

B. Inversion

C. Racemisation

D. Resolution

Answer: A

Watch Video Solution

19. Which one is electrophilic addition

A. $CH_3 - CH_3 + Cl_2 \rightarrow C_2H_5Cl + HCl$

B. $CH_3CH = O + HCN \rightarrow (CH_3)_2C(OH)CN$

C. $(CH_3)_2C = O + HCN \rightarrow CH_3CH(OH)CN$

D. $CH_2 = CH_2 + Br_2 \rightarrow CH_2BrCH_2Br$

Answer: D

Watch Video Solution

20. Arrange the following compounds in increasing order of their boiling points.

$CH_3CHO, CH_3CH_2OH, CH_3OCH_3, CH_3CH_2CH_3$

A. $CH_3CH_2CH_3 < CH_3OCH_3 < CH_3CHO < CH_3CH_2OH$

B. $CH_3CH_2CH_3 < CH_3CHO < CH_3OCH_3 < CH_3CH_2OH$

C. $CH_3CH_2CH_3 > CH_3CHO > CH_3OCH_3 > CH_3CH_2OH$

D. $CH_3CH_2OH > CH_3CHO > CH_3OCH_3 > CH_3CH_2CH_3$

Answer: B

Watch Video Solution

21. How many chiral stereoisomers can be drawn for 2 - bromo - 3 - chlorobutane ?

A. 2

B. 3

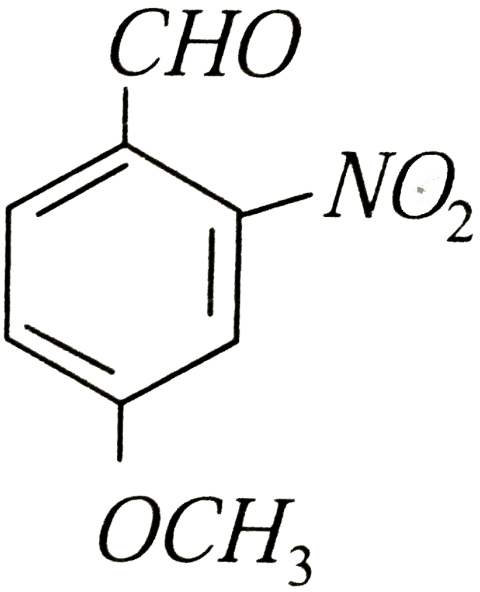
C. 4

D. 5

Answer: C

Watch Video Solution

22. What is the correct IUPAC name of



A. 4-methoxy-2-nitrobenzaldehyde

B. 4-formyl-3-nitro anisole

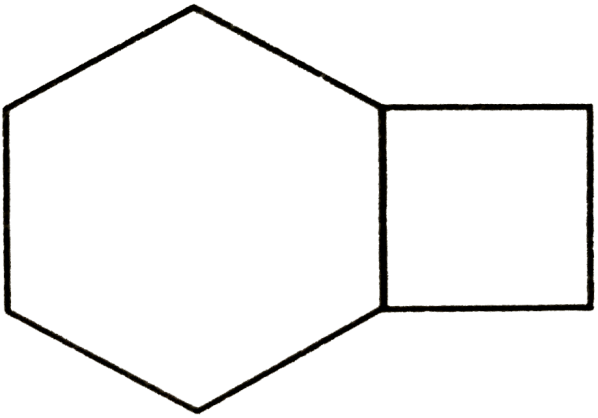
C. 4-methoxy-6-nitrobenzaldehyde

D. 2-formyl-5-methoxy nitrobenzene

Answer: A

Watch Video Solution

23. The name of the compound is



A. Bicyclo [2.2.2] octane

B. Bicyclo [3.2.1] octane s

C. Bicyclo [4.1.1] octane

D. Bicyclo [4.2.0] octane

Answer: D

Watch Video Solution

24. The number of optical isomers of an organic compound having n asymmetric carbon atoms will be

A. 2^{n+1}

B. n^2

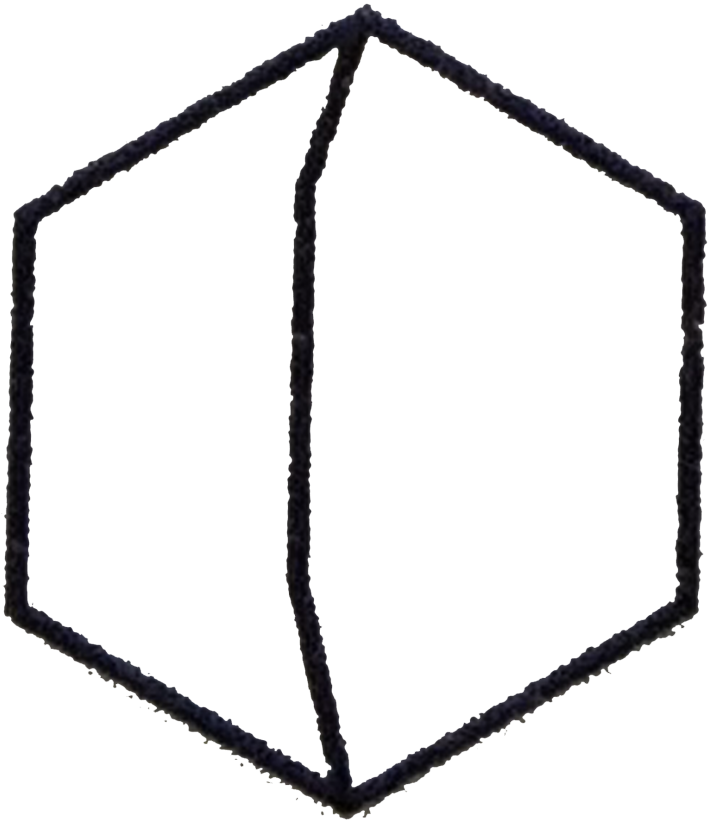
C. 2^n

D. 2^{n-1}

Answer: C

Watch Video Solution

25. The compound



is known by which of the following names

A. Bicyclo -[2,2,2] octane

B. Bicyclo-[2,2,1] octane

C. Bicyclo-[1,2,1] octane

D. Bicyclo-[1,1,1] octane

Answer: A

Watch Video Solution

26. Which of the following gives most stable carbocation by dehydration

A. $(CH_3)_2CH - OH$

B. $(CH_3)_3C - OH$

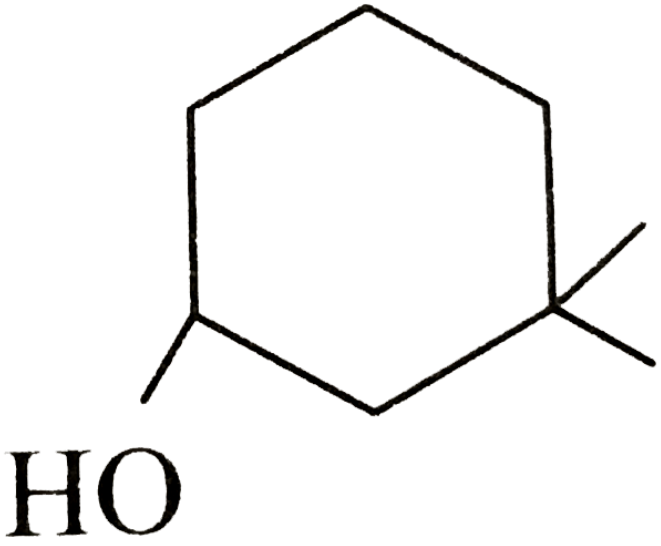
C. $CH_3 - CH_2 - OH$

D. $CH_3 - CH_2 - O - CH_2 - CH_3$

Answer: B

Watch Video Solution

27. The IUPAC name of the compound is



A. 3, 3-dimethyl-1-cyclohexanol

B. 1, 1-dimethyl-3-hydroxy cyclohexane

C. 3, 3-dimethyl-1-hydroxy cyclohexane

D. 1, 1-dimethyl-3-cyclohexanol

Answer: A

Watch Video Solution

28. Among the following compounds which can be dehydrated very easily is:

A. $CH_3-CH_2-\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_2-CH_3$

B. $CH_3-CH_2-CH_2-\underset{\underset{}{|}}{\overset{\overset{OH}{|}}{CH}}-CH_3$

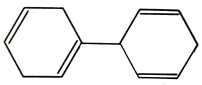
C. $CH_3-CH_2-CH_2-CH_2-CH_2-OH$

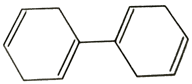
D. $CH_3-CH_2-\underset{\underset{CH_3}{|}}{CH}-CH_2-CH_2-OH$

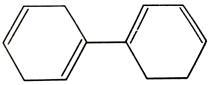
Answer: A

Watch Video Solution

29. Which is most stable compound among the following

A. (a) 

B. (b) 

C. (c) 

D. All the compounds have same stability

Answer: C

View Text Solution

30. The $+I$ effect of alkyl groups is in the order

A. $2^\circ > 3^\circ > 1^\circ$

B. $1^\circ > 2^\circ > 3^\circ$

C. $3^\circ > 2^\circ > 1^\circ$

D. None of these

Answer: C

Watch Video Solution

31. Which of the following compounds are not arranged in order of decreasing reactivity towards electrophilic substitution

A. Fluoro benzene $>$ chloro benzene $>$ bromo benzene

B. Phenol $>$ n propyl benzene $>$ benzoic acid

C. Chloro toluene $>$ para-nitro toluene $>$ 2-chloro-4-nitro toluene

D. Benzoic acid $>$ phenol $>$ n propyl benzene

Answer: D

Watch Video Solution

32. With a change in hybridisation of the carbon bearing the charge, the stability of a carbonion increase in the order

A. $sp < sp^2 < sp^3$

B. $sp < sp^3 < sp^2$

C. $sp^3 < sp^2 < sp$

D. $sp^2 < sp < sp^3$

Answer: C

Watch Video Solution

33. A compound has 3 chiral carbon atoms. The number of possible optical isomers it can have

A. 3

B. 2

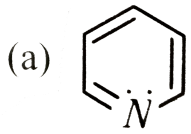
C. 8

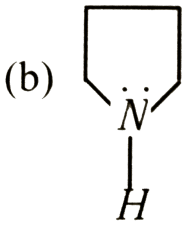
D. 4

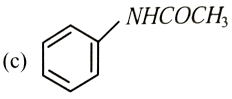
Answer: C

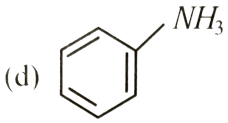
Watch Video Solution

34. The most nucleophilic nitrogen is in:

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

35. An oxygen containing organic compound was found to contain 52% carbon and 13% of hydrogen. Its vapour density is 23. The compound

reacts with sodium metal to liberate hydrogen. A functional isomer of this compound is

A. Ethanol

B. Ethanal

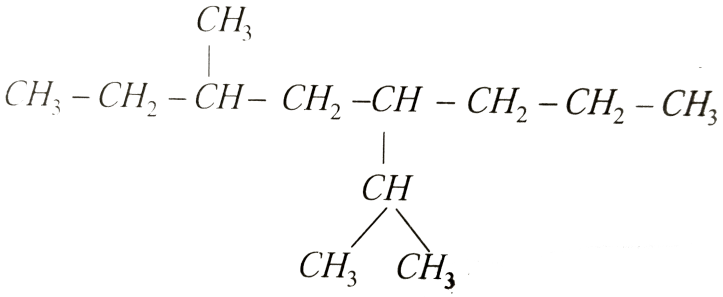
C. Methoxy methane

D. Methoxy ethane

Answer: C

Watch Video Solution

36. IUPAC name of the compound



A. 4-isopropyl-1,6-methyl octane

B. 3-methyl-5-(1'-methylethyl) octane

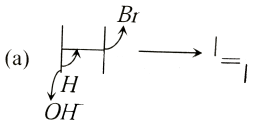
C. 3-methyl-5-isopropyl octane

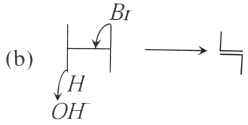
D. 6-methyl-4-(1' methylethyl) octane

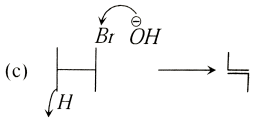
Answer: B

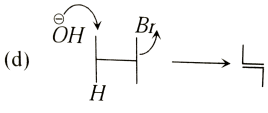
View Text Solution

37. Dehydrohalogenation in presence of OH^- is correctly represented by

A.


B.


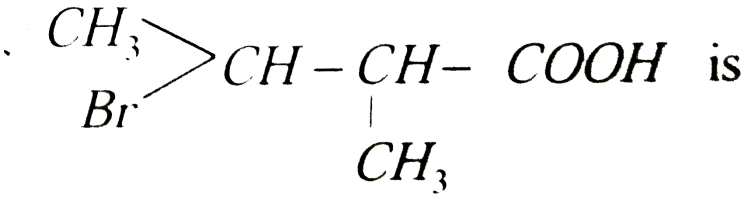
C.


D.


Answer: A

Watch Video Solution

38. The IUPAC name of



is

A. 2-bromo-3-methylbutanoic acid

B. 2-methyl-3-bromobutanoic acid

C. 3-bromo-2-methylbutanoic acid

D. 3-bromo-2,3-dimethylpropanoic acid

Answer: C

View Text Solution

39. Which of the following orders regarding relative stability of free radicals is correct?

A. $3^\circ < 2^\circ < 1^\circ$

B. $3^\circ > 2^\circ > 1^\circ$

C. $1^\circ < 2^\circ > 3^\circ$

D. $3^\circ > 2^\circ < 1^\circ$

Answer: B

Watch Video Solution

40. Which of the following statements is not characteristic of free radical chain reaction

A. It gives major product derived from most stable free radical

B. It is usually sensitive to change in solvent polarity

C. It proceeds in three main steps like initiation, propagation and termination

D. It may be initiated by U.V. light

Answer: B

View Text Solution

41. A hydrocarbon contains $10.5gm$ carbon and $1gm$ hydrogen. Its $2.4gm$ has $1L$ volume at $1atm$ and $127^\circ C$, hydrocarbon is

A. C_6H_7

B. C_6H_8

C. C_5H_6

D. None of these

Answer: A

Watch Video Solution

42. Cyclic hydrocarbon molecules $'A'$ has all the carbon and hydrogen in a single plane. All the carbon-carbon bonds are of same length less than 1.54Å, but more than 1.34Å. The $C-C$ bond angle will be

A. $109^\circ 28'$

B. 100°

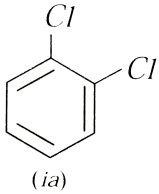
C. 180°

D. 120°

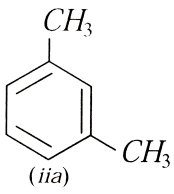
Answer: D

Watch Video Solution

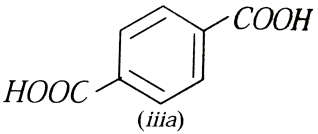
43. Examine the following three pairs of possible isomers



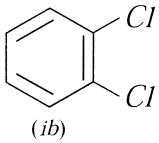
(ia)



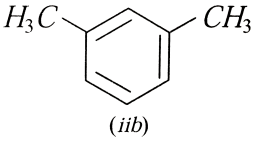
(iia)



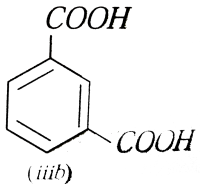
(iiia)



(ib)



(iib)



(iiib)

Now state whether th pairs represent identical compounds or different isomers

A. All three pairs represent different compounds

B. (ia) and (ib) are identical, (iia) and (iib) are identical, and (iiia) and (iiib) are identical

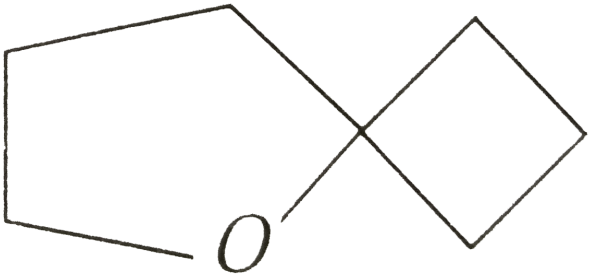
C. (ia) and (ib) are isomers, (iia) and (iib) are identical, and (iiia) and (iiib) are isomers

D. (ia) and (ib) are identical, (iia) and (iib) are identical, and (iiia) and (iiib) are isomers

Answer: D

View Text Solution

44. The correct IUPAC name of spiro compound is



A. 5-oxospiro [3,4] octane

B. 1-oxospiro [4,3] octane

C. 5-oxospiro [3,4] octane

D. 1-oxospiro [3,4] octane

Answer: A

Watch Video Solution

JEE Section (Only one choice correct answer)

1. Name the compound, that is no isomer with diethyl ether

A. n-propylmethyl ether

B. Butane-1-ol

C. 2-methylpropane-2-ol

D. Butanone

Answer: D

View Text Solution

2. Among the given cation,s the most stable carbonium ions is ?

A. Sec-butyl

B. Ter-butyl

C. n-butyl

D. None of these

Answer: B

Watch Video Solution

3. The compound $C_4H_{10}O$ can show

A. Metamerism

B. Functional isomerism

C. Positional isomerism

D. All types

Answer: D

Watch Video Solution

4. Maximum number of isomers of alkene C_4H_8 are

A. 2

B. 3

C. 4

D. 6

Answer: D

View Text Solution

5. Geometrical isomerism is shown by

A. 2-butene

B. 2-butyne

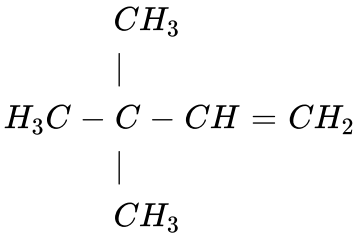
C. 2-butanol

D. Butanal

Answer: A

Watch Video Solution

6. The IUPAC name of the compound having the formula is



A. 3, 3, 3-trimethyl-1-propene

B. 1, 1, 1-trimethyl-2-propene

C. 3, 3-dimethyl-1-butene

D. 2, 2-dimethyl -3-butene

Answer: C

Watch Video Solution

7. Resonance structures of a molecule do not have:

A. Identical arrangement of atoms

B. Nearly the same energy content

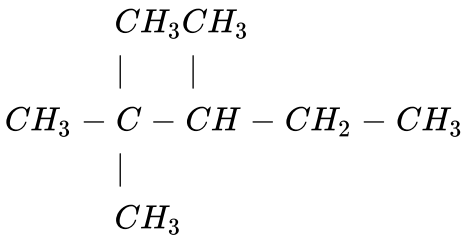
C. The same number of paired electrons

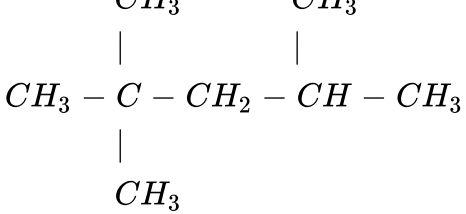
D. Identical bonding

Answer: D

Watch Video Solution

8. Which compound is 2, 2, 3-trimethylhexane

A. 

B. 

C. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH - CH_2 - CH_2 - CH_3$

D. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH_2 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3$

Answer: C

Watch Video Solution

9. An isomer of ethanol is

A. Methanol

B. Diethyl ether

C. Acetone

D. Dimethyl ether

Answer: D

Watch Video Solution

10. The bond between carbon atom (1) and carbon atom (2) in compound $N \equiv \underset{1}{C} - \underset{2}{CH} = CH_2$, involves the hybridization as

A. sp^2 and sp^2

B. sp^3 and sp

C. sp and sp^2

D. sp and sp

Answer: C

Watch Video Solution

11. The IUPAC name of the compound $CH_2 = CH - CH(CH_3)_2$ is

A. 1,1-dimethyl-2-propene

B. 3=methyl-1-butene

C. 2-vinyl propane

D. None of these

Answer: B

Watch Video Solution

12. Which of the following will have least hindered rotation about carbon-carbon bond ?

A. Ethane

B. Ethylene

C. Acetylene

D. Hexachloroethane

Answer: A

Watch Video Solution

13. If two compounds have the same empirical formula but different molecular formulae they must have

A. Different percentage composition

B. Different molecular weight

C. Same velocity

D. Same vapour density

Answer: B

Watch Video Solution

14. The number of isomers of C_6H_{14} is

A. 4

B. 5

C. 6

D. 7

Answer: B

Watch Video Solution

15. In CH_3CH_2OH, the bond that undergoes heterolytic cleavage most readily is

A. C-C

B. C-O

C. C-H

D. O-H

Answer: D

Watch Video Solution

16. Polarisation of electrons in acrolein may be written as :

A. $\overset{-\delta}{C}H_2 = CH - CH = O$

B. $\overset{-\delta}{C}H_2 = CH - CH = \overset{+\delta}{O}$

C. $\overset{-\delta}{C}H_2 = \overset{+\delta}{C}H - CH = O$

D. $\overset{+\delta}{C}H_2 = CH - CH = \overset{-\delta}{O}$

Answer: D

Watch Video Solution

17. The $CI - C - CI$ angle in $1, 1, 2, 2,$ tetrachloroethone and tetrachloromethane respectively will be about:

A. 120° and 109.5°

B. 90° and 109.5°

C. 109.5° and 90°

D. 109° and 120°

Answer: A

Watch Video Solution

18. The compound which gives the most stable carbonium ion on dehydration is

A. $CH_3 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2OH$

B. $CH_3 - \underset{\displaystyle CH_3}{\underset{|}{\overset{\displaystyle CH_3}{\overset{|}{C}}}} - OH$

C. $CH_3 - CH_2 - CH_2 - CH_2OH$

D. $CH_3 - \underset{\displaystyle CH_2 - CH_3}{\underset{|}{\overset{\displaystyle OH}{\overset{|}{CH}}}}$

Answer: B

Watch Video Solution

19. The number of sigma and pi-bonds in 1-butene 3-yne are:

A. 5 sigma and 5pi

B. 67sigma and 3 pi

C. 8 sigma and 2 pi

D. 6 sigma and 4 pi

Answer: B

Watch Video Solution

20. All bonds in benzene are equal due to

A. Tautomerism

B. Inductive effect

C. Resonance

D. Isomerism

Answer: C

Watch Video Solution

21. Amongst the following the most basic compound is :

A. Benzylamine

B. Aniline

C. Acetanilide

D. p-nitroaniline

Answer: A

Watch Video Solution

22. The formation of cyanohydrin from a ketone is an example of

A. Electrophilic addition

B. Nucleophilic addition

C. Nucleophilic substitution

D. Electrophilic substitution

Answer: B

Watch Video Solution

23. The enolic form of acetone contains

A. 9 sigma bonds, 1 pi bond and 2 lone pairs

B. 8 sigma bonds, 2 pi bond and 2 lone pairs

C. 10 sigma bonds, 1 pi bond and 1 lone pairs

D. 9 sigma bonds, 2 pi bonds and 1 lone pair

Answer: A

Watch Video Solution

24. The $C - C$ bond length of the following molecules is in the order

A. $C_2H_6 > C_2H_4 > C_6H_6 > C_2H_2$

B. $C_2H_2 < C_2H_4 < C_6H_6 < C_2H_4$

C. $C_2H_6 > C_2H_2 > C_6H_6 > C_2H_4$

D. $C_2H_4 > C_2H_6 > C_2H_2 > C_6H_6$

Answer: B

Watch Video Solution

25. Which one of the following behaves both as a nucleophile and an electrophile ?

A. CH_3NH_2

B. CH_3Cl

C. CH_3CN

D. CH_3OH

Answer: C

Watch Video Solution

26. Number of π electrons in cyclobutadienyl anion $(C_4H_4)^{-2}$ is

A. 2

B. 4

C. 6

D. 8

Answer: D

Watch Video Solution

27. Isomers which can be interconverted through rotation around a single bond are

A. Conformers

B. Diastereomers

C. Enantiomers

D. Positional isomers

Answer: A

Watch Video Solution

28. Homolytic fission of C-C bond in ethane gives an intermediate in which carbon is

A. sp^3 hybridised

B. sp^2 hybridised

C. sp hybridised

D. sp^3 d hybridized

Answer: B

Watch Video Solution

29. The maximum number of stereoisomers possible for 2-hydroxy-2-methyl butanoic acid is

A. 1

B. 2

C. 3

D. 4

Answer: B

Watch Video Solution

30. IUPAC name of $\begin{array}{c} CH_3 - CH - CHO \\ | \\ CH_2CH_3 \end{array}$ is

A. Butane-2-aldehyde

B. 2-methylbutanal

C. 3-methyl isobutyraldehyde

D. 2-ethylpropanal

Answer: B

View Text Solution

31. Which is the decreasing order of stability

(i) $CH_3 - \overset{+}{C}H - CH_3$

(ii) $CH_3 - \overset{+}{C}H - O - CH_3$

(iii) $CH_3 - \overset{+}{C}H - CO - CH_3$

A. $(i) < (ii) < (iii)$

B. $(i) > (ii) > (iii)$

C. $(iii) > (ii) > (i)$

D. $(ii) > (iii) > (i)$

Answer: B

Watch Video Solution

32. Which has zero dipole moment

A. Cis-2-butene

B. Trans-2-butene

C. 1-butene

D. 2-methyl-1-propene

Answer: B

Watch Video Solution

33. The IUPAC name of succinic acid is

A. 1, 4-butanedioic acid

B. Dimethyl -2-acid

C. 1, 2-dimethyldioic acid

D. None of these

Answer: A

Watch Video Solution

34. What is the decreasing order of reactivity amongst the following compounds towards aromatic electrophilic substitution

I. Chlorobenzene

II. Benzene

III. Anilinium chloride

IV. Toluene

A. $I > II > III > IV$

B. $IV > II > I > III$

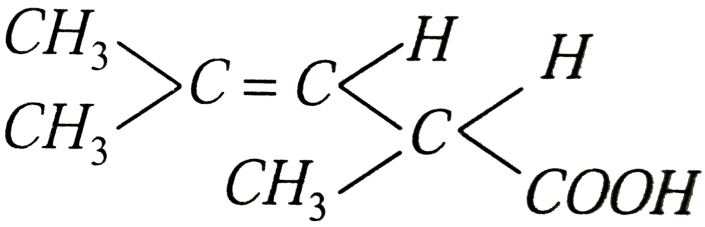
C. $II > I > III > IV$

D. $III > I > II > IV$

Answer: B

Watch Video Solution

35. The following compound can exhibits



A. Tautomerism

B. Optical isomerism

C. Geometrical isomerism

D. Geometrical and optical isomerism

Answer: B

Watch Video Solution

36. निम्न में से कौन-सी स्पिशीज सर्वाधिक स्थायी है?

A. $p - O_2N - C_6H_4 - \overset{+}{C}H_2$

B. $p - CH_3O - C_6H_4 - \overset{+}{C}H_2$

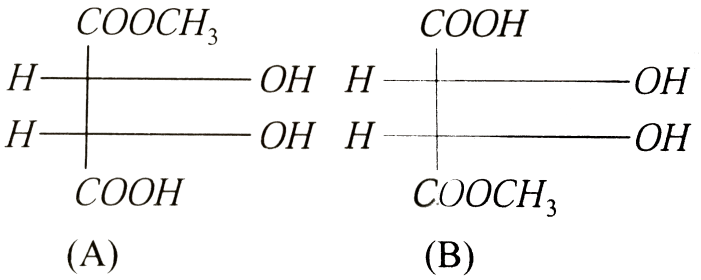
C. $p - Cl - C_6H_4 - \overset{+}{C}H_2$

D. $C_6H_5 - \overset{+}{C}H_2$

Answer: B

Watch Video Solution

37. The correct statement about the compounds A and B is



A. A and B are identical

B. A and B are diastereomers

C. A and B are enantiomers

D. None of these

Answer: C

Watch Video Solution

38. How many optically active stereoisomers are possible for butane-2, 3-diol ?

A. 1

B. 2

C. 3

D. 4

Answer: B

Watch Video Solution

39. The optically active tartaric acid is named as D-(+)-tartaric acid because it has a positive

A. Optical rotation and is derived from D-glucose

B. pH in organic solvent

C. Optical rotation and is derived from D-(+)- glyceraldehyde

D. Optical rotation when substituted by deuterium

Answer: C

Watch Video Solution

40. Carbon atoms in the compound $(CN)_4C_2$ are

A. sp hybridized

B. sp^2 hybridized

C. sp & sp^2 hybridized

D. sp, sp^2 & sp^3 hybridized

Answer: C

Watch Video Solution

41. A solution of $(+)$-2-chloro-2-phenyl ethane in toluene racemises slowly in the presence of small amount of $SbCl_5$, due to the formation of:

A. Carbanion

B. Carbene

C. Free radical

D. Carbocation

Answer: D

Watch Video Solution

42. The correct IUPAC name of

$$H_2C = CH - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2C \equiv CH$$

A. 3-methyl-1-hexen-5-yne

B. 4-methyl-5-hexen-1-yne

C. 4-(ethenyl)-1-pentyne

D. 3-(2-propenyl) butene-1

Answer: A

Watch Video Solution

43. Which of the following has the highest nucleophilicity ?

A. F^-

B. OH^-

C. CH_3^-

D. NH_2^-

Answer: C

Watch Video Solution

44. Which of the following compounds will exhibit geometrical isomerism?

A. 1-phenyl-2-butene

B. 3-phenyl-1-butene

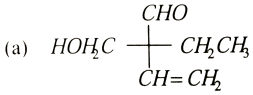
C. 2-phenyl-1-butene

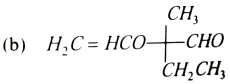
D. 1,1-diphenyl-1-propene

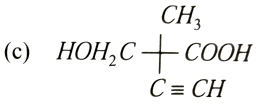
Answer: A

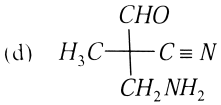
Watch Video Solution

45. Which of the following will not lose asymmetry on reduction with $LiAlH_4$

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

46. As S_{N^2} reaction at an asymmetric carbon of a compound always gives:

A. An enantiomer of the substrate

B. A product with opposite optical ortation

C. A mixture of diastereomers

D. A single stereoisomer

Answer: B

Watch Video Solution

47. The number of isomers for the compound with molecular formula $C_2BrClFI$ is

A. 3

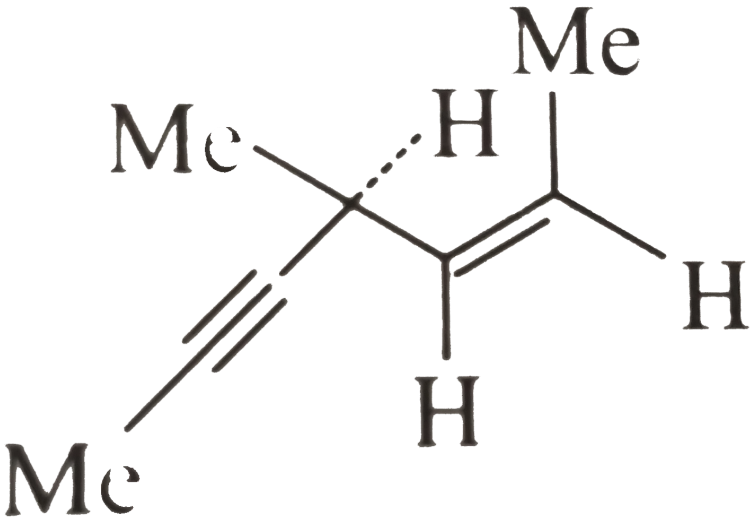
B. 4

C. 5

D. 6

Answer: D

Watch Video Solution



48.

Hydrogenation of the above compound in the presence of poisoned Pd catalyst gives:

A. An optically active compound

B. An optically inactive compound

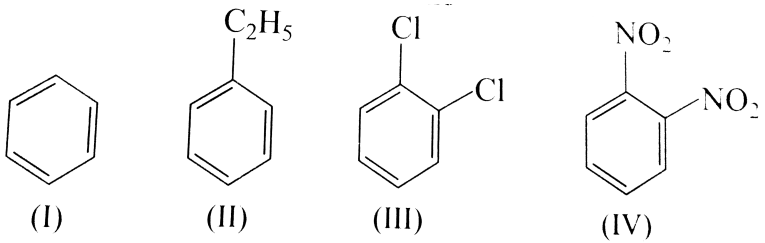
C. A racemic mixture

D. A diastereomeric mixture

Answer: B

Watch Video Solution

49. Identify the correct order of reactivity in electrophilic substitution reactions of the following compounds:



(I) (II) (III) (IV)

A. $1 > 2 > 3 > 4$

B. $4 > 3 > 2 > 1$

C. $2 > 1 > 3 > 4$

D. $2 > 3 > 1 > 4$

Answer: C

Watch Video Solution

50. Which of the following compounds exhibits stereoisomerism?

A. 2-methyl butene-1

B. 3-methyl butyne -1

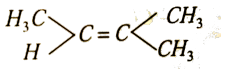
C. 3-methyl butanoic acid

D. 2-methyl butanoic acid

Answer: D

Watch Video Solution

51. Which of the following hydrocarbons has the lowest dipole moment

A. (a) 

B. $CH_3 - HC = HC - CH_3$

C. $CH_3 - CH_2CH = CH_2$

D. $CH_2 = CH - CH = CH_2$

Answer: B

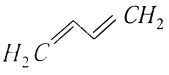
Watch Video Solution

52. Which of the following represent the given mode of hybridisation $sp^2 - sp^2 - sp - sp$ from left to right?

A. $H_2C = CH - C \equiv N$

B. $HC \equiv C - C - C \equiv CH$

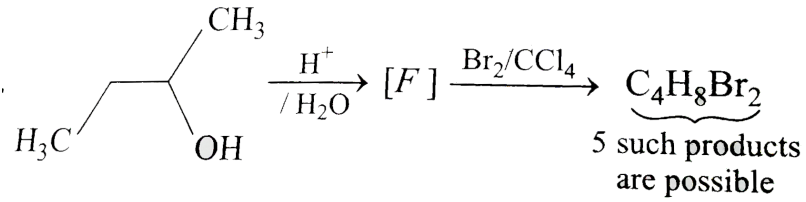
C. $H_2C = C = C = CH_2$

D. (d) 

Answer: A

Watch Video Solution

53.



How many structures of F is possible?

A. 2

B. 5

C. 6

D. 3

Answer: D

Watch Video Solution

54. An enantiomerically pure acid is treated with racemic mixture of an alcohol having one chiral carbon. The ester formed will be :

A. Optically active mixture

B. Pure enantiomer

C. Meso compound

D. Racemic mixture

Answer: A

Watch Video Solution

55. Among the following, the molecule with the highest dipole moment is :

A. CH_3Cl

B. CH_2Cl_2

C. $CHCl_3$

D. CCl_4

Answer: A

Watch Video Solution

56. On monochlorination of 2-methylbutane, the total number of chiral compound formed is :

A. 2

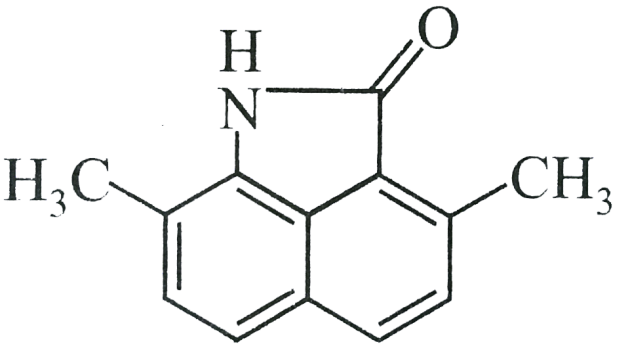
B. 4

C. 6

D. 8

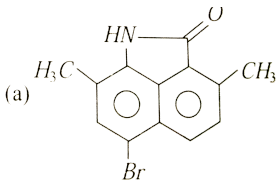
Answer: B

Watch Video Solution

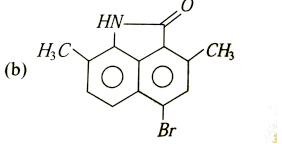


57.

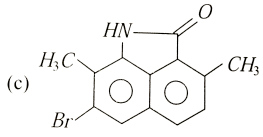
The major product obtained when $\frac{Br_2}{Fe}$ is treated with

A. 

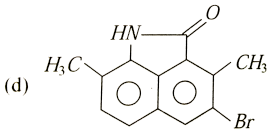
B.



C.

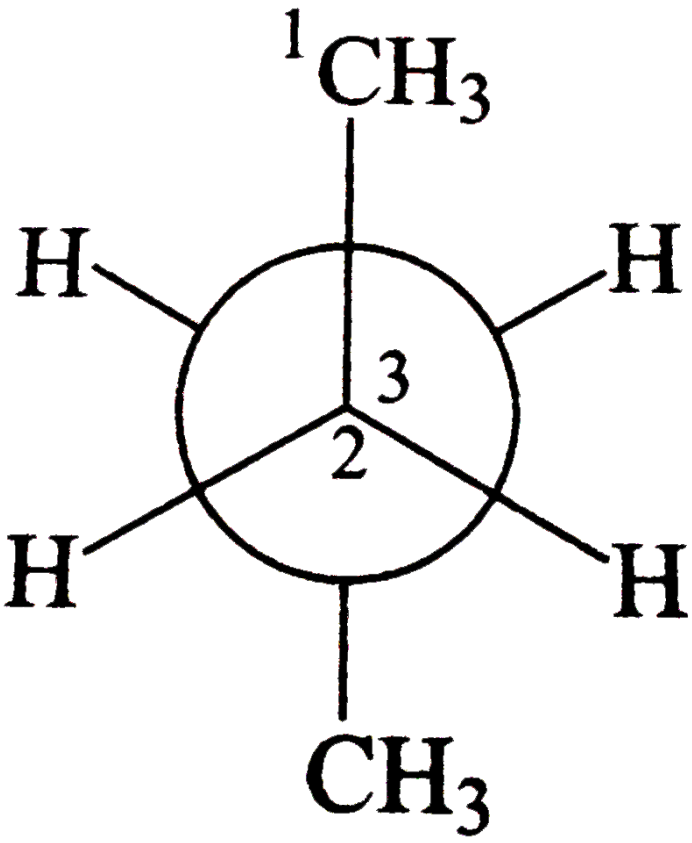


D.



Answer: A

Watch Video Solution



58.

C_2 is rotated anti-clockwise 120° about $C_2 - C_3$ bond. The resulting conformer is

A. Partially eclipsed

B. Eclipsed

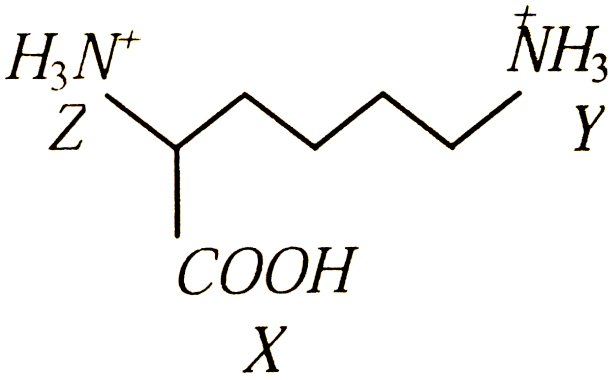
C. Gauche

D. Staggered

Answer: C

Watch Video Solution

59. Arrange in order of increasing acidic strength



A. $X > Z > Y$

B. $Z > X > Y$

C. $X > Y > Z$

D. $Z > X > Y$

Answer: A

Watch Video Solution

60. Which of the following resonating structures of 1-methoxy-1,3-butadiene is least stable ?

A. $\overset{\Theta}{C}H_2 - CH = CH - CH = \overset{\Theta}{O} - CH_3$

B. $CH_2 = CH_2 - \overset{\Theta}{C}H - CH = \overset{\Theta}{O} - CH_3$

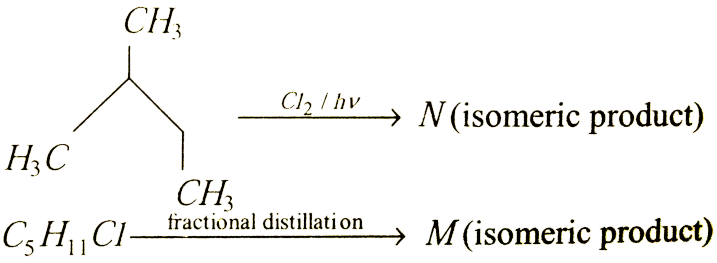
C. $\overset{\Theta}{C}H_2 - \overset{\Theta}{C}H - CH = CH - O - CH_3$

D. $CH_2 = CH - \overset{\Theta}{C}H - \overset{\Theta}{C}H - O - CH_3$

Answer: C

Watch Video Solution

61.



$C_5H_{11}Cl \xrightarrow{\text{frictional distillation}} M$ (isomeric product)

What are N and M

A. 6,6

B. 6,4

C. 4,4

D. 3,3

Answer: B

Watch Video Solution

62. The $IUPAC$ name of C_6H_5COCl is

A. Benzoyl chloride

B. Benzene chloro ketone

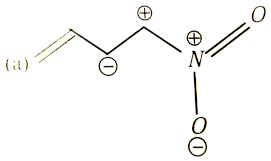
C. Benzene carbonyl chloride

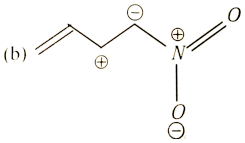
D. Chloro phenyl ketone

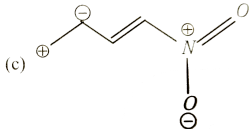
Answer: C

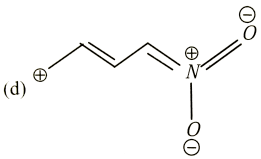
Watch Video Solution

63. Among the following, the least stable resonance structure is :

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

64. The number of stereoisomers obtained by bromination of trans-2-butene is :

A. 1

B. 2

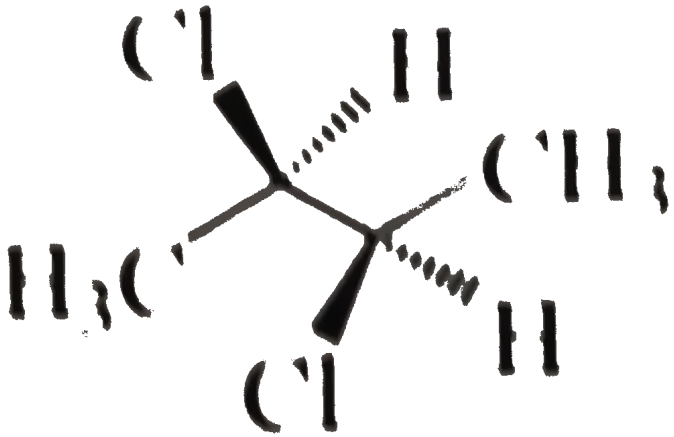
C. 3

D. 4

Answer: A

Watch Video Solution

65. The correct statements (s) about the compound given below is/are:



A. The compound is optically active

B. The compound possesses centre of symmetry

C. The compound possesses plane of symmetry

D. The compound possesses axid of symmetry

Answer: A

Watch Video Solution

66. Hyperconjugation involves overlap of the following orbitals :

A. $\sigma - \sigma$

B. $\sigma - p$

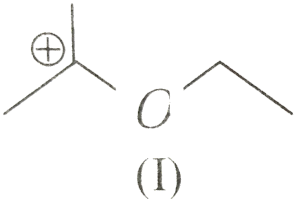
C. p-p

D. $\pi - \pi$

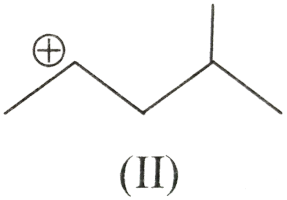
Answer: B

Watch Video Solution

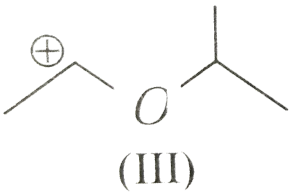
67. The correct stability order for the following species is



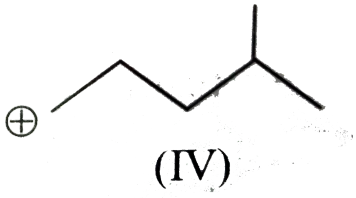
(I)



(II)



(III)



(IV)

A. $(II) > (IV) > (I) > (III)$

B. $(I) > (II) > (III) > (IV)$

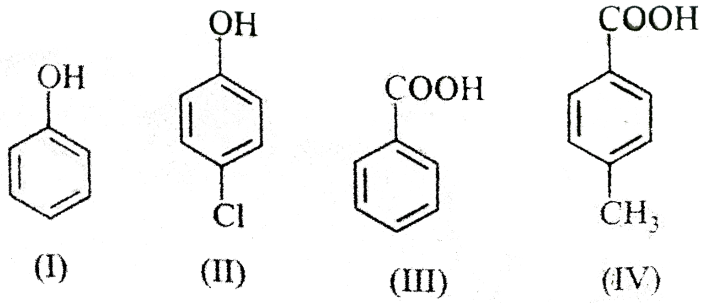
C. $(II) > (I) > (IV) > (III)$

D. $(I) > (III) > (II) > (IV)$

Answer: D

Watch Video Solution

68. The correct acidity order of the following is



A. $(III) > (IV) > (II) > (I)$

B. $(IV) > (III) > (I) > (II)$

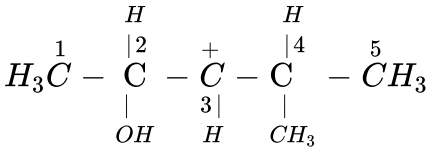
C. $(III) > (II) > (I) > (IV)$

D. $(II) > (III) > (IV) > (I)$

Answer: A

Watch Video Solution

69. In the following carbocation, H / CH_3 that is most likely to migrate to the positve charged carbon is :



A. CH_3 at C-4

B. H at C-4

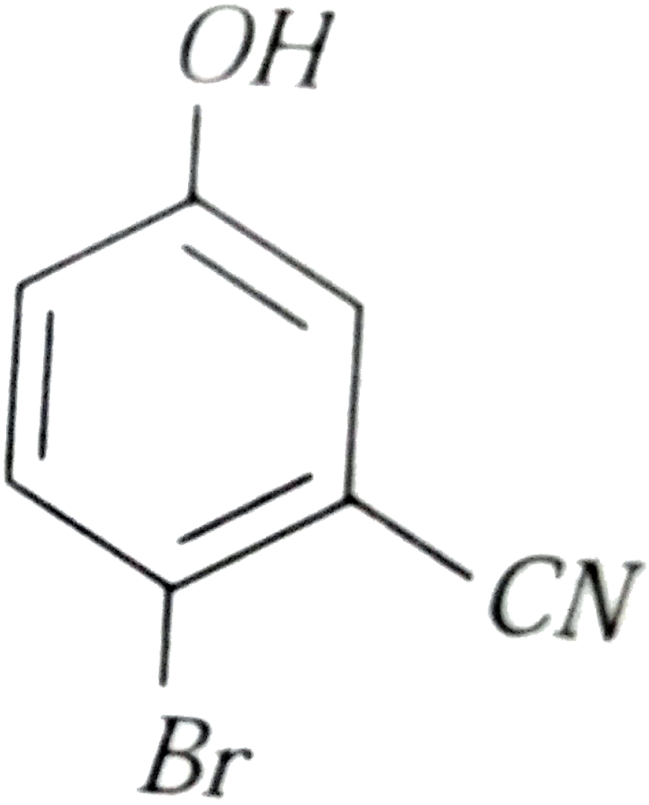
C. CH_3 at C-2

D. H at C-2

Answer: D

Watch Video Solution

70. The IUPAC name of the following compound is



A. 4-bromo-3-cyanophenol

B. 2-bromo-5-hydroxybenzonitrile

C. 2-cyano-4-hydroxybromobenzene

D. 6-bromo-3-hydroxybenzonitrile

Answer: B

Watch Video Solution

71. In allene (C_3H_4) the type(s) of hybridisation of the carbon atoms is (are):

A. sp and sp^3

B. sp and sp^2

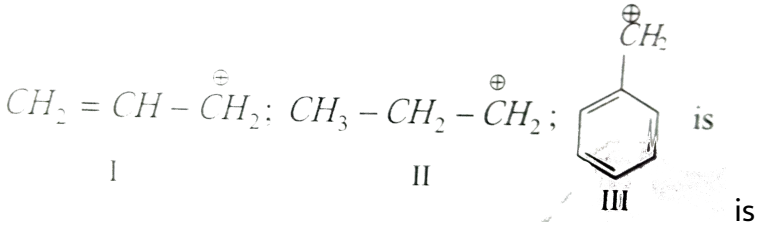
C. Only sp^2

D. sp^2 and sp^3

Answer: B

Watch Video Solution

72. The order of stability of the following carbocations



A. $III > II > I$

B. $II > III > I$

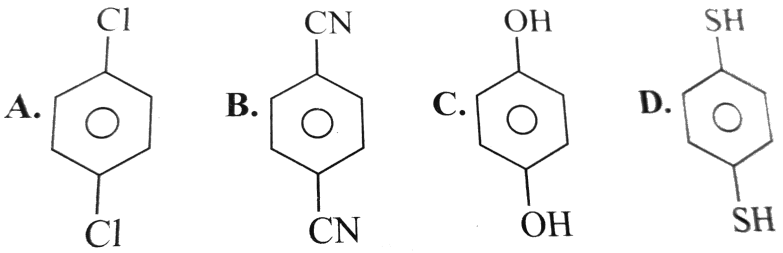
C. $I > II > III$

D. $III > I > II$

Answer: D

Watch Video Solution

73. For which of the following molecule significant $\mu \neq 0$?



A. Only (1)

B. (1) and (2)

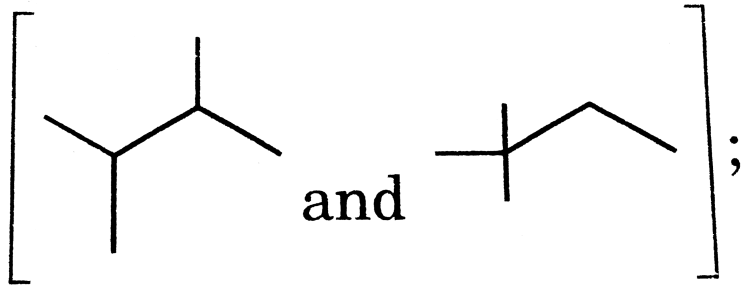
C. Only (3)

D. (3) and (4)

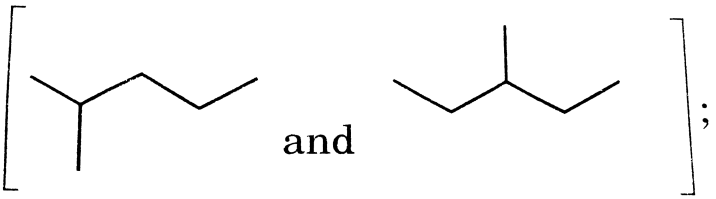
Answer: D

Watch Video Solution

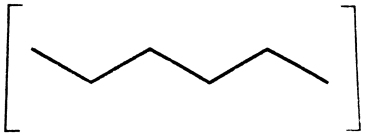
74. Isomers of hexane , based on their branching can be divided into three distinct classes as shown in the figure.



(I)



(II)



(III)

The correct order of their boiling points is :

A. $I > II > III$

B. $III > II > I$

C. $II > III > I$

D. $III > I > II$

Answer: B

Watch Video Solution

75. In S_N2 reaction, the correct order of reactivity for following compounds

$CH_3Cl, CH_3CH_2Cl, (CH_3)_2CHCl, (CH_3)_3C-Cl$ is

A. $CH_3Cl > (CH_3)_2CHCl > CH_3CH_2Cl > (CH_3)_3CCl$

B. $CH_3Cl > CH_3CH_2Cl > (CH_3)_2CHCl > (CH_3)_3CCl$

C. $CH_3CH_2Cl > CH_3Cl > (CH_3)_2CHCl > (CH_3)_3CCl$

D. $(CH_3)_2CHCl > CH_3CH_2Cl > CH_3Cl > (CH_3)_3CCl$

Answer: B

Watch Video Solution

76. Which of the following compounds will exhibit geometrical isomerism?

A. 1-Phenyl-2-butene

B. 3-Phenyl-1-butene

C. 2-Phenyl-1-butene

D. 1, 1-Diphenyl-1-propane

Answer: A

Watch Video Solution

77. In Carius method of estimation of halogens $250mg$ of an organic compound gave $141mg$ of $AgBr$. The percentage of bromine in the compound is (atomic mass $Ag = 108$, $Br = 80$)

A. 24

B. 36

C. 48

D. 60

Answer: A

Watch Video Solution

78. The distillation technique most sited for separating glycerol from spent lye in the soap industry is

A. Fractional distillation

B. Steam distillation

C. Distillation under reduced pressure

D. Simple distillation

Answer: C

Watch Video Solution

79. At $300K$ and $1atm$, $15mL$ of a gaseous hydrocarbon requires $375mL$ air containing $20\%\ O_2$ by volume for complete combustion. After combustion, the gases occupy $330mL$. Assuming that the water formed is in liquid form and the volumes were measured at the same temperature and pressure, the formula of the hydrocarbon is

A. C_2H_{12}

B. C_4H_8

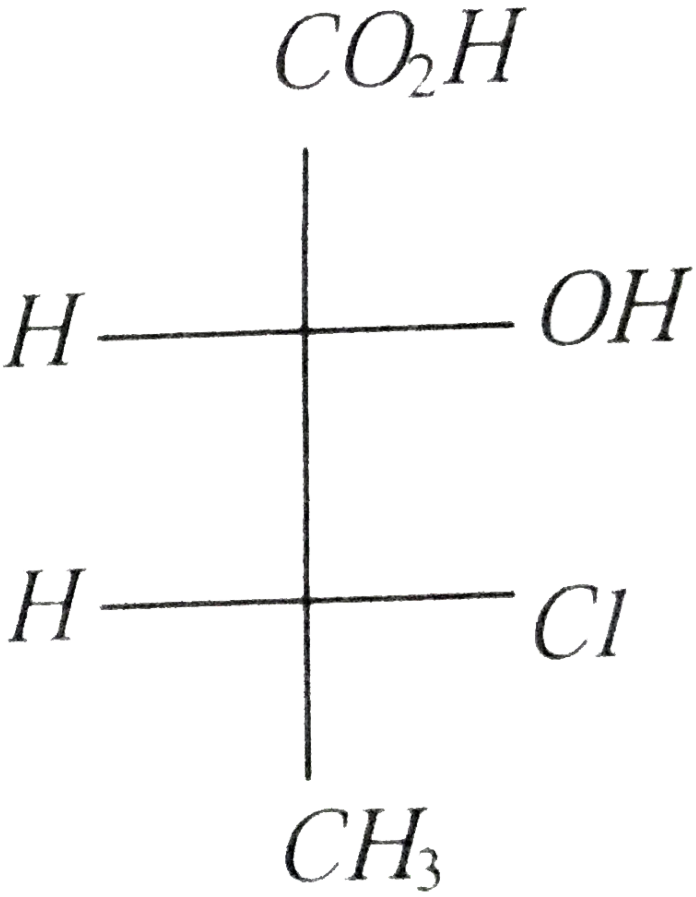
C. C_4H_{10}

D. C_3H_6

Answer: A

Watch Video Solution

80. The absolute configuration of



A. (2S, 3R)

B. (2S, 3S)

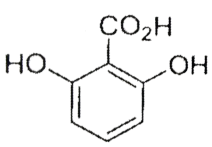
C. (2R, 3R)

D. (2R, 3S)

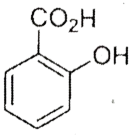
Answer: A

Watch Video Solution

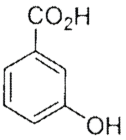
81. The correct order of acidity for the following compounds is



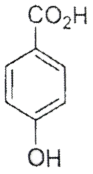
I



II



III



IV

A. $I > II > III > IV$

B. $III > I > II > IV$

C. $III > IV > II > I$

D. $I > III > IV > II$

Answer: A

Watch Video Solution

82. 3-menthyl-pent-2-ene on reaction with HBr in presence of peroxide forms an addition product. The number of possible stereoisomers for the product is

A. Zero

B. Two

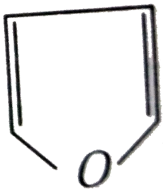
C. Four

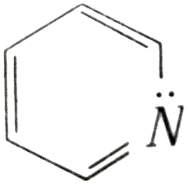
D. Six

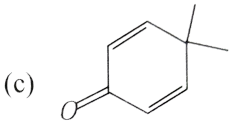
Answer: C

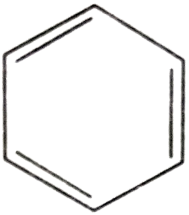
Watch Video Solution

83. Which of the following molecules is least resonance stabilised?

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

84. Which of the following salts is the most basic in aqueous solution?

A. CH_3COOK

B. $FeCl_3$

C. $Pb(CH_3COO)_2$

D. $Al(CN)_3$

Answer: A

Watch Video Solution

85. The ration of mass per cent of C and H of an organic compound $(C_xH_yO_z)$ is $6:1$. If one molecule of the above compound $(C_xH_YO_z)$ contains half as much oxygen as required to burn one molecule of compound C_xH_Y compleltely to CO_2 and H_2O. The empirial formula of compound $C_xH_yO_z$ is:

A. C_2H_4O

B. $C_3H_4O_2$

C. $C_2H_4O_3$

D. $C_3H_6O_3$

Answer: C

Watch Video Solution

JEE Section (More than one choice correct answer)

1. Only two isomeric monochloro derivatives are possible for

A. n-butane

B. 2, 4-dimethyl pentane

C. Benzene

D. 2-methyl propane

Answer: A::D

Watch Video Solution

2. Dipole moment is shown by :

A. 1, 4-dichloro benzene

B. Cis-1, 2-dichloro ethene

C. Trans-1, dichloro-2-pentene

D. Trans-1, 2-dichloro ethane

Answer: B::C

Watch Video Solution

3. Keto-enol tautomerism is observed in :

A. $H_5C_6 - \overset{\overset{O}{||}}{C} - H$

B. $H_5C_6 - \overset{\overset{O}{||}}{O} - C_6H_5$

C. $H_5C_6 - \overset{\overset{O}{||}}{C} - CH_3$

D. $H_5C_6 - \overset{\overset{O}{||}}{C} - CH_2 - \overset{\overset{O}{||}}{C} - CH_3$

Answer: C::D

Watch Video Solution

4. The compounds in which C uses its sp^3- hybrid orbitals for bond formation are:

A. HCOOH

B. $(H_2N)_2CO$

C. $(CH_3)_3COH$

D. CH_3CHO

Answer: C::D

Watch Video Solution

5. Which of the following have asymmetric carbon atom?

A. $$\begin{array}{cccc} & Cl & Br & \\ & | & | & \\ H-C-C- & & & -H \\ & | & | & \\ & H & H & \end{array}$$

B. $$\begin{array}{cccc} & H & Cl & \\ & | & | & \\ H-C-C-Cl & & & \\ & | & | & \\ & H & H & \end{array}$$

C. $$\begin{array}{cccc} & H & Cl & \\ & | & | & \\ H-C-C-D & & & \\ & | & | & \\ & H & H & \end{array}$$

D. $$\begin{array}{cccc} & H & H & \\ & | & | & \\ H-C-C-CH_3 & & & \\ & | & | & \\ & Br & OH & \end{array}$$

Answer: C::D

Watch Video Solution

6. The molecule (s) that will have dipole moment is/are:

A. 2, 2-dimethyl propane

B. trans-2-pentene

C. cis 3-hexene

D. 2, 2, 3, 3-tetramethyl butane

Answer: B::C

Watch Video Solution

7. Which of the following has the smallest heat of hydrogenation per mole ?

A. 1-butene

B. Trans-2-butene

C. Cis-2-butene

D. 1, 3 butadiene

Answer: D

Watch Video Solution

8. Which one has asymmetric C-atom

A. $\begin{array}{l} CH_3 - CH_2 - CH_2 \\ \qquad\qquad\quad\;\; | \\ \qquad\qquad\quad\; Br \end{array}$

B. $\begin{array}{l} CH_3 - CH - CH - CH_3 \\ \qquad\quad | \qquad\; | \\ \qquad\; Br \quad CH_3 \end{array}$

C. $\begin{array}{l} CH_3 - CH_2 - CH - CH_3 \\ \qquad\qquad\quad\;\; | \\ \qquad\qquad\quad\; Br \end{array}$

D. $\begin{array}{l} \qquad\; CH_3 \\ \qquad\quad | \\ CH_3 - C - CH_2 - CH_2 - CH_2 \\ \qquad\quad | \\ \qquad\; Br \end{array}$

Answer: B::C

Watch Video Solution

9. Which of the following compounds will show geometrical isomerism?

A. 2-butene

B. Propene

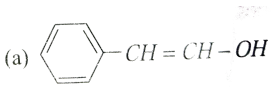
C. 1-phenyl propene

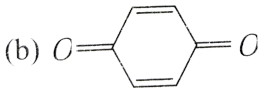
D. 2-methyl butene

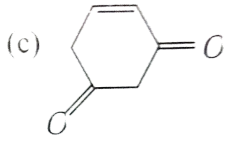
Answer: A::C

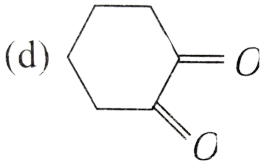
Watch Video Solution

10. Tautomerism is exhibited by

A. 

B. 

C. 

D. 

Answer: A::C::D

Watch Video Solution

11. Toluene when treated with $Br_2 / Fe,$ give p-bromotoluene as the major product because of the $-CH_3$ group:

A. Is para-directing

B. Is meta-directing

C. Activates the ring by hyperconjugation

D. Deactivates the ring

Answer: A::C

Watch Video Solution

12. Which of the following act as nucleophiles

A. CH_3NH_2

B. RO^-

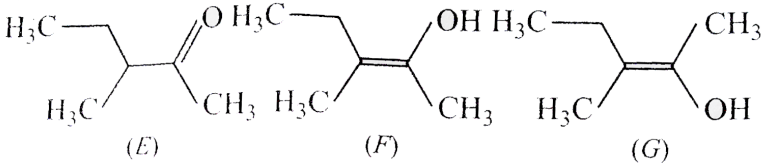
C. $AlCl_3$

D. CH_3MgBr

Answer: A::B::D

Watch Video Solution

13. The correct statement(s) concerning the structures E, F and G is/are



A. E, F and G are resonance structure

B. E, F and E, F are tautomers

C. F and G are geometrical isomers

D. F and G are diastereomers

Answer: B::C::D

Watch Video Solution

14. The correct statement(s) about the compound

$H_3C(HO)HC - CH = CH - CH(OH)CH_3(X)$ is/are

A. The total number of stereoisomers possible for X is 6

B. The total number of diastereomers possible for X is 3

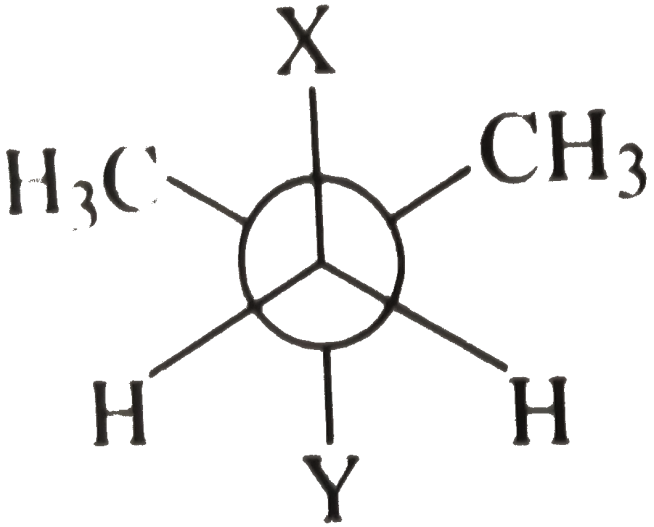
C. If the stereochemistry about the double bond in X is trans, the number of enantiomers possible for X is 4

D. If the stereochemistry about the double bond in X is cis, the number of enantiomers possible for X is 2

Answer: A::D

Watch Video Solution

15. In the Newman projection for $2,\ 2$- dimethylbutane



X and Y can, respectively, be

A. H and H

B. H and C_2H_5

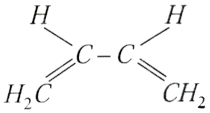
C. C_2H_5 and H

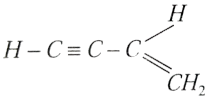
D. CH_3 and CH_3

Answer: B::D

Watch Video Solution

16. Amongst the given option, the compound(s) in which all the atoms are in one plane in all the possible conformations (if any), is/are

A. (a) 

B. (b) 

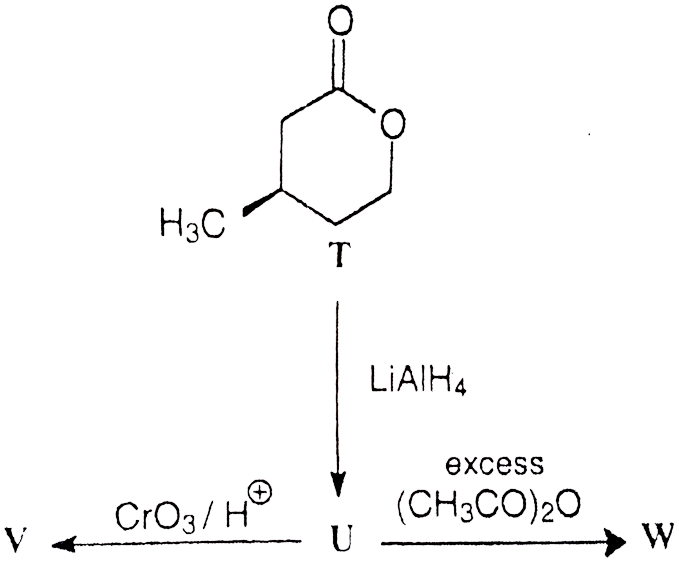
C. $H_2C = C = O$

D. $H_2C = C = CH_2$

Answer: B::C

Watch Video Solution

17. With reference to the scheme given, which of the given statement(s) about T, U, V and W is (are) correct ?



A. T is soluble in hot aqueous NaOH

B. U is optically active

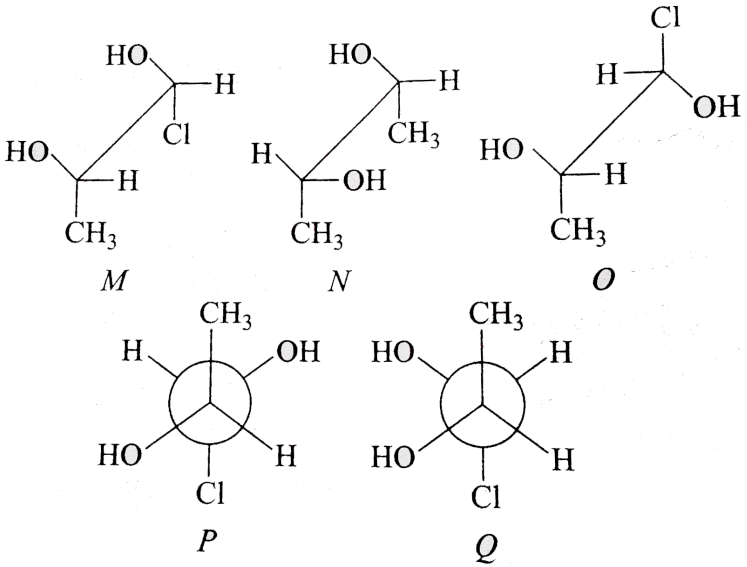
C. Molecular formula of W is $C_{10}H_{18}O_4$

D. V gives effervescence on treatment with aqueous $NaHCO_3$

Answer: A::C::D

Watch Video Solution

18. Which of the given statement(s) about N, O, P and Q with respect to M is/are correct?



A. M and N are non-mirror image stereoisomers

B. M and O are identical

C. M and P are enantiomers

D. M and Q are identical

Answer: A::B::C

Watch Video Solution

19. The hyperconjugative stabilities of tert-butyl cation and 2-butene, respectively, are due to

A. $\sigma \rightarrow p$ (empty) and $\sigma \rightarrow \pi^*$ electron delocalisations

B. $\sigma \rightarrow \sigma^*$ and $\sigma - \rightarrow$ electron delocalisations

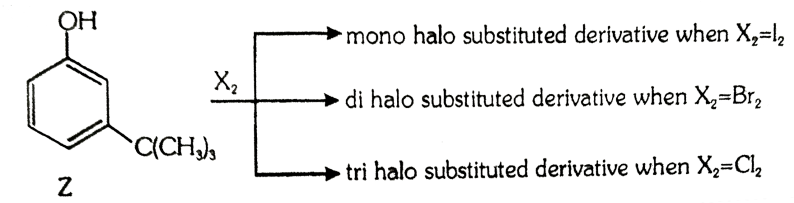
C. $\sigma \rightarrow p$ (filled) and $\sigma \rightarrow \pi$ electron delocalisations

D. p (filled) $\rightarrow \sigma^*$ and $\sigma \rightarrow \pi^*$ electron delocalisations

Answer: A

Watch Video Solution

20. The reactivity of compound Z with different halogens under appropriate conditions is gives below-



The observed pattern of electrophilic substitution can be explained by-

A. The steric effect of the halogen

B. The steric effect of the tert-butyl group

C. The electronic effect of the phenolic group

D. The electronic effect of the tert-butyl group

Answer: A::B::C

Watch Video Solution

21. The correct combination of names for isomeric alcohols with molecular formula $C_4H_{10}O$ is/are

A. tert-butanol and 2-methylpropan-2-ol

B. tert-butanol and 1,1-dimethylethan-1-ol

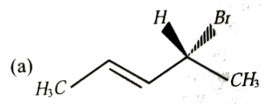
C. n-butanol and butan-1-ol

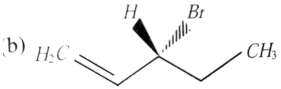
D. Isobutyl alcohol and 2-methylpropan-1-ol

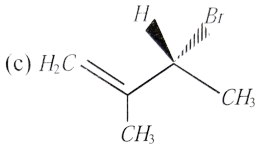
Answer: A::C::D

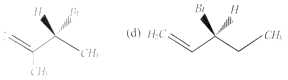
Watch Video Solution

22. Compound (S) that on hydrogenation product (S) optically inactive compound (s) is/are

A. 

B. 

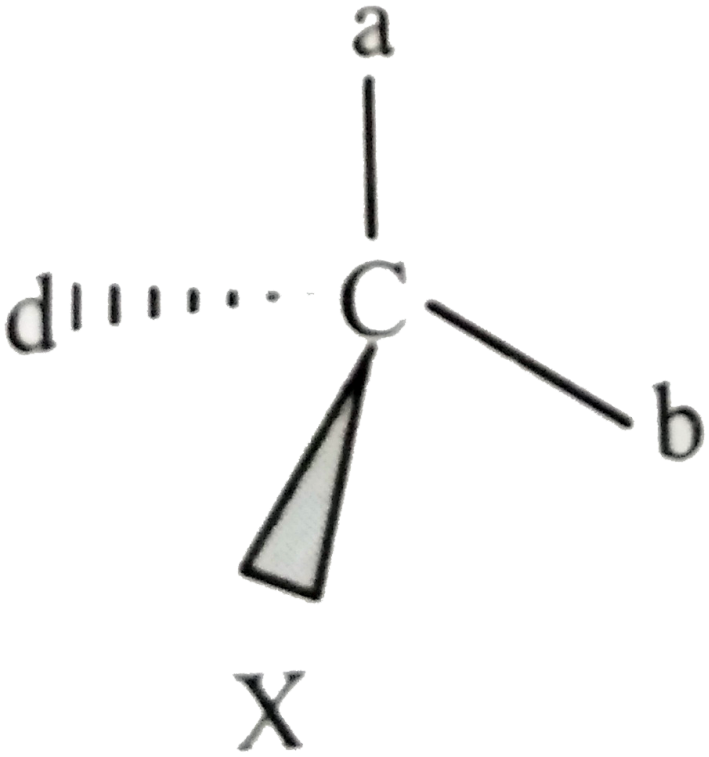
C. 

D. 

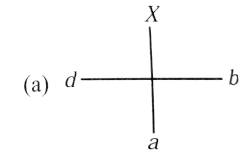
Answer: B::D

Watch Video Solution

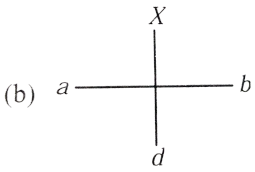
23. Which of the following is not the fischer projection of the molecule as represented in the wedge edge.



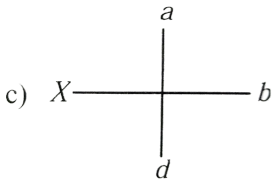
A.



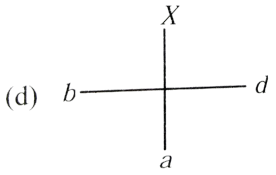
B.



C.



D.



Answer: A::B::D

View Text Solution

24. The number of optical isomers for the compound, $CH_3 - CH(Br) - CH(Br)C_2H_5$ is

A. 1

B. 2

C. 4

D. 3

Answer: C

Watch Video Solution

25. The order of K_{eq} values for the following keto-enol equilibrium constants is

$$CH_3 - CHO \overset{K_1}{\Longleftrightarrow} CH_2 = CH - OH,$$

$$CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - \overset{\overset{O}{||}}{C} - CH_3 \overset{K_2}{\Longleftrightarrow} CH_3 - \overset{\overset{OH}{|}}{C} = CH - \overset{\overset{O}{||}}{C} - CH_3$$

$$CH_3 - \overset{\overset{O}{||}}{C} - CH_3 \overset{K_3}{\Longleftrightarrow} CH_2 = \overset{\overset{OH}{|}}{C} - CH_3$$

A. $K_1 > K_2 > K_3$

B. $K_2 > K_3 > K_1$

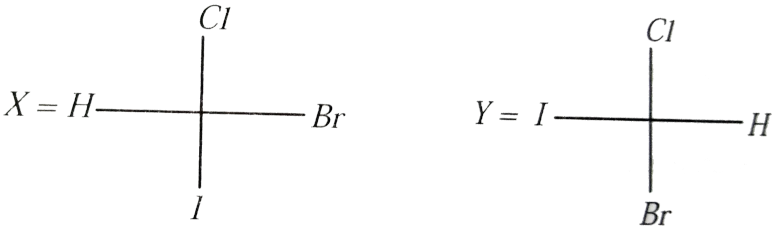
C. $K_2 > K_1 > K_3$

D. $K_1 > K_3 > K_2$

Answer: B

Watch Video Solution

26. The two compounds given below are not related to each other as.



A. Enantiomers

B. Identical

C. Optically inactive

D. Diastereomers

Answer: A::C::D

Watch Video Solution

27. The 2nd most basic among the following in aqueous medium is

A. $C_2H_5NH_2$

B. $(C_2H_5)NH$

C. $(C_2H_5)_3N$

D. NH_3

Answer: C

Watch Video Solution

28. Which of the following are the resonating structure of

$$CH_2 = CH - \underset{\underset{H}{|}}{C} = O$$

A. $CH_2 = CH - \overset{\oplus}{\underset{\underset{H}{|}}{C}} - \overset{\Theta}{O}$

B. $CH_2 = CH - \overset{\Theta}{\underset{\underset{H}{|}}{C}} - \overset{\oplus}{\underset{\cdot\cdot}{O}}:$

C. $\overset{\oplus}{C}H_2 - CH = \underset{\underset{H}{|}}{C} - \overset{\Theta}{O}$

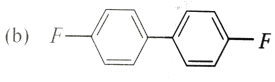
D. $\overset{\delta+}{C}H_2 \overset{\cdots}{-} CH \overset{\cdots}{-} \underset{\underset{H}{|}}{C} \overset{\cdots}{-} \overset{\delta-}{O}$

Answer: A::C::D

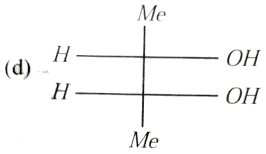
Watch Video Solution

29. Which of the following would not be optically active

A. $CH_2 = C = CH_2$

B. 

C. $CH_3 - CH = C = CH - CH_3$

D. 

Answer: A::B::D

View Text Solution

30. The migratory capacity is

A. $H^- > CH_3^- > Ph^-$

B. $Ph^- > CH_3^- > H^-$

C. $H^- > Ph^- > CH_3^-$

D. $CH_3^- > Ph^- > H^-$

Answer: B

Watch Video Solution

31. Which of the following will give haloform reaction

A. Acetophenone

B. Ethanol

C. Acetaldehyde

D. Pentan-3-one

Answer: A::B::C

Watch Video Solution

32. Propyne reacts with HOCl, which of the following cannot be formed

A. $CH_3CH_2CHCl_2$

B. $CH_3 - \overset{\overset{O}{||}}{C} - CHCl_2$

C. $CH_3 - \underset{\underset{O}{||}}{\overset{\overset{Cl}{|}}{CH}} - CHO$

D. $ClCH_2 - \underset{\underset{O}{||}}{C} - CH_2Cl$

Answer: A::C::D

Watch Video Solution

Reasoning type questions

1. Statement I: Molecules that are non-superimposable on their mirror images are chiral.

Statement II: All chiral molecules have chiral centres.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: C

Watch Video Solution

2. Assertion (A): Pentane and 3 methyl pentane are chain isomers.

Reason (R): Pentane is a straight-chain alkane while 3-methyl pentane is branched-chain alkane.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 2

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 2

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: D

Watch Video Solution

3. Assertion (A): Pent -1-ene and 2-methyl but 1- ene are position isomers Reason (R): Position isomers have the same molecular formula but differ in the position of functional group.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 3

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 3

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: D

Watch Video Solution

4. p-methyl benzyl carbocation (I) is more stable than benzyl carbocation (II).

Heterovalent or no bond resonance.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 4

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 4

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: A

Watch Video Solution

5. Statement 1: The pK_a value of  (I) is lower than the pK_a value of 

Statement Non-aromatic compounds are more stable than anti-aromatic compounds.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 5

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 5

C. Statement 1 is true, statement 2 is false

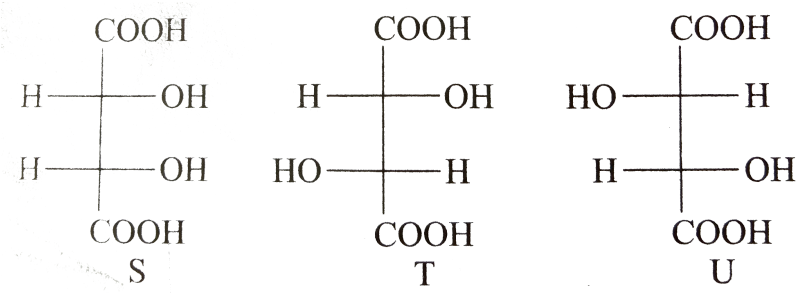
D. Statement 1 is false, statement 2 is true

Answer: A

View Text Solution

Comprehension type questions

1. P and Q are isomers of dicarboxylic acid $C_4H_4O_4$. Bothdecolorize Br_2/H_2O. On heating, P forms the cyclic anhydride. Upon treatment with dilute alkaline $KMnO_4$, P as well as Q could produce one or more than one forms S, T and U.



Compounds formed from P and Q are, respectively

A. Optically active S and optically active pair (T, U)

B. Optically inactive S and optically inactive pair (T, U)

C. Optically active pair (T, U) and optically active S

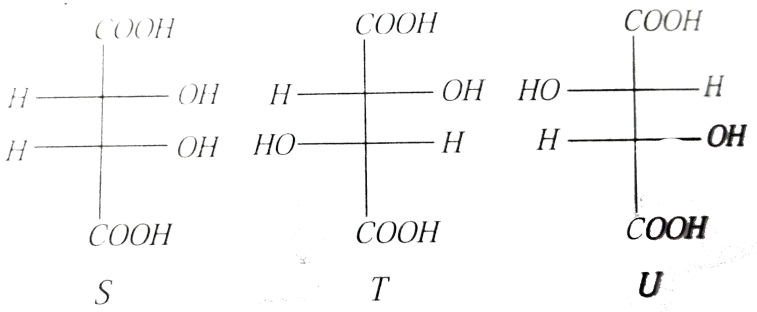
D. Optically inactive pair (T, U) and optically inactive S

Answer: A

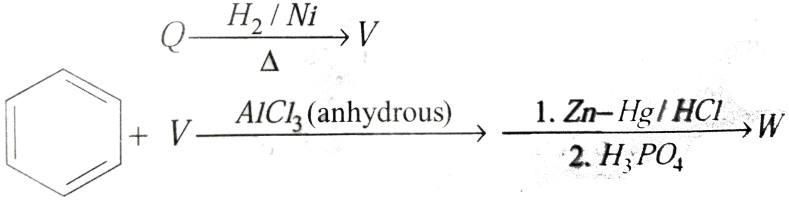
Watch Video Solution

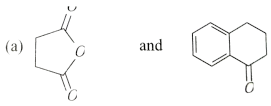
2. P and Q are isomers of dicarboxylic acid $C_4H_4O_4$. Both decolorize Br_2/H_2O. On heating, P forms the cyclic anhydride.

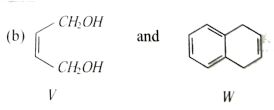
Upon treatment with dilute alkaline $KMnO_4$, P as well as Q could produce one or more than one from S, T and U.

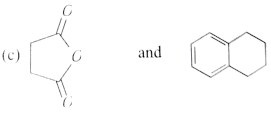


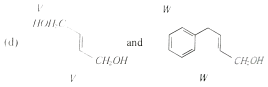
In the following reaction sequences V and W are respectively



A. 

B. 

C. 

D. 

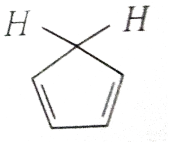
Answer: A

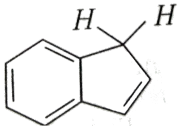
View Text Solution

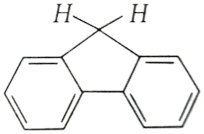
3. The word "aromatic" through started with benzene and its derivatives only, now it signifies a large variety of organic compounds. To examine the presence of aromaticity, the following tips are useful. Ensure that your compound is cyclic. Each corner of the ring is either a double bonded atom, or must carry a negative charge or a positive charge or a hetero atom planar. You may get deceived while examining this. On the plane of the paper everything appears planar unless specially specified. Your compound should have a closed shell of (4n+2) electrons. When the closed loop contains 4n electrons, the system is rather less stable or

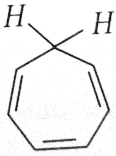
antiaromatic. In fused ring system some of the rings give up their aromatic nature to adjacent rings in a property knwon as "annellation".

Which of the following is most acidic

A. (a) 

B. (b) 

C. (c) 

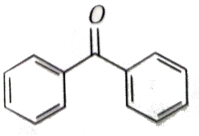
D. (d) 

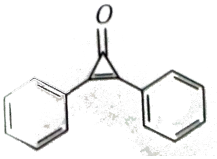
Answer: A

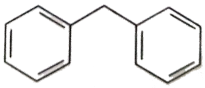
View Text Solution

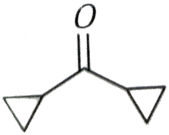
4. The word "aromatic" through started with benzene and its derivatives only, now it signifies a large variety of organic compounds. To examine the presence of aromaticity, the following tips are useful. Ensure that your compound is cyclic. Each corner of the ring is either a double bonded atom, or must carry a negative charge or a positive charge or a hetero atom planar. You may get deceived while examining this. On the plane of the paper everything appears planar unless specially specified. Your compound should have a closed shell of (4n+2) electrons. When the closed loop contains 4n electrons, the system is rather less stable or antiaromatic. In fused ring system some of the rings give up their aromatic nature to adjacent rings in a property knwon as "annellation".

Which of the following has the highest value of dipole moment

A. (a) 

B. (b) 

C. (c) 

D. (d) 

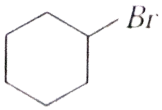
Answer: B

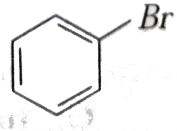
View Text Solution

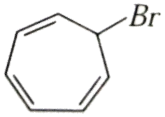
5. The word "aromatic" through started with benzene and its derivatives only, now it signifies a large variety of organic compounds. To examine the presence of aromaticity, the following tips are useful. Ensure that your compound is cyclic. Each corner of the ring is either a double bonded atom, or must carry a negative charge or a positive charge or a hetero atom planar. You may get deceived while examining this. On the plane of the paper everything appears planar unless specially specified. Your compound should have a closed shell of (4n+2) electrons. When the closed loop contains 4n electrons, the system is rather less stable or

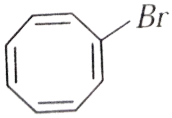
antiaromatic. In fused ring system some of the rings give up their aromatic nature to adjacent rings in a property knwon as "annellation".

Which of the following is likely to be a solid

A. (a) 

B. (b) 

C. (c) 

D. (d) 

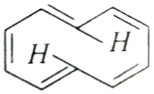
Answer: C

View Text Solution

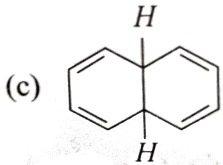
6. The word "aromatic" through started with benzene and its derivatives only, now it signifies a large variety of organic compounds. To examine the presence of aromaticity, the following tips are useful. Ensure that your compound is cyclic. Each corner of the ring is either a double bonded atom, or must carry a negative charge or a positive charge or a hetero atom planar. You may get deceived while examining this. On the plane of the paper everything appears planar unless specially specified. Your compound should have a closed shell of (4n+2) electrons. When the closed loop contains 4n electrons, the system is rather less stable or antiaromatic. In fused ring system some of the rings give up their aromatic nature to adjacent rings in a property knwon as "annellation".

Which of the following is the most stable isomer of the hydrocarbon $C_{10}H_{10}$

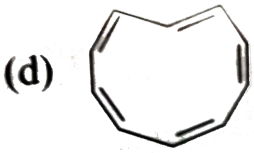
A. (a) 

B. (b) 

C.



D.



Answer: C

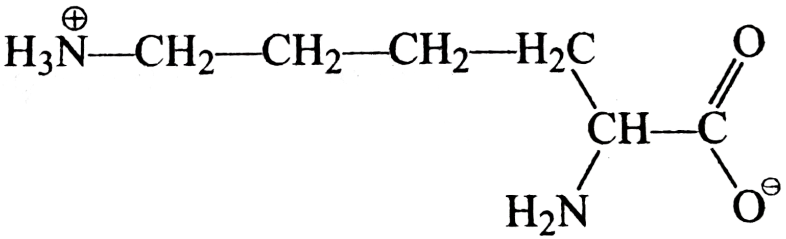
View Text Solution

Integer type questions

1. The total number of cyclic structure as well as stereoisomers possible for a compound with the molecular formula C_5H_{10} is:

Watch Video Solution

2. The total number of basic groups in the following form of lysine is



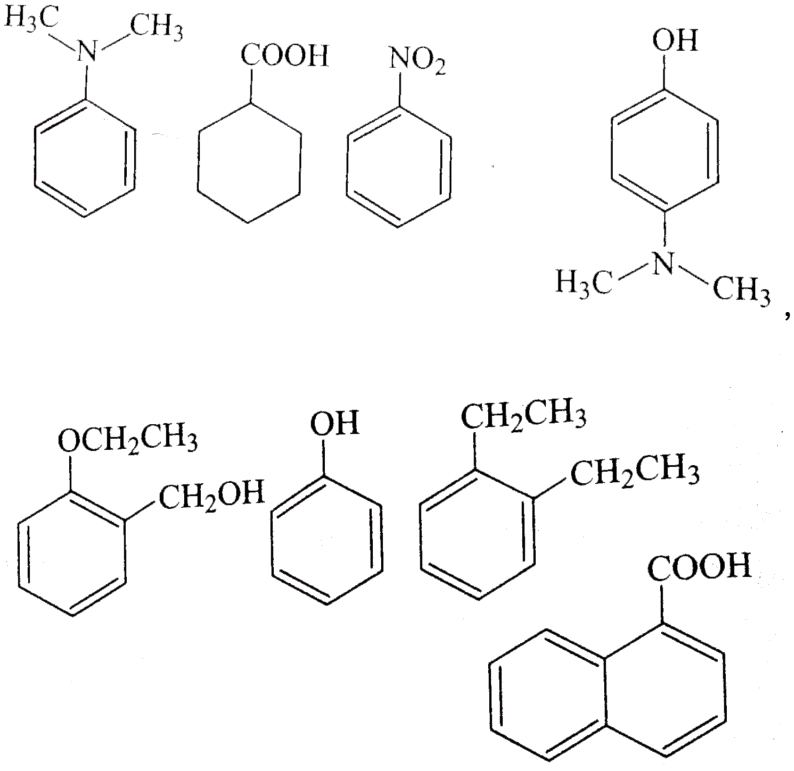
Watch Video Solution

3. The total number of cyclic isomers possible for a hydrocarbon with the molecular formula C_4H_6 is .....

Watch Video Solution

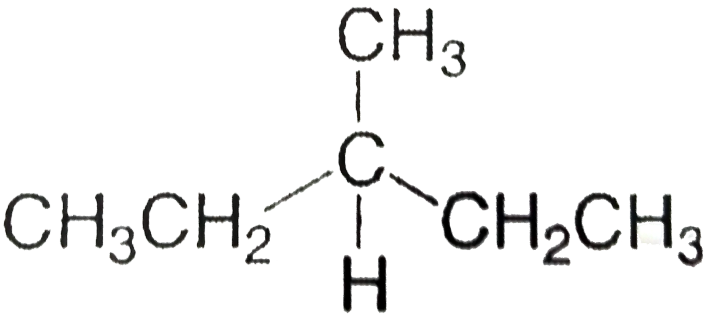
4. Amongst the following, the number of compounds soluble in aqueous $NaOH$ is

`?



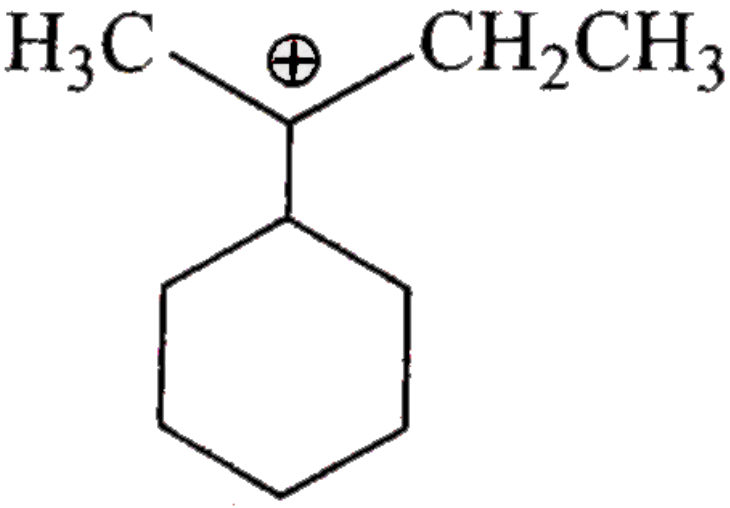
Watch Video Solution

5. The maximum number of isomers (including stereoisomers) that are possible on monochlorination of the following compound, is



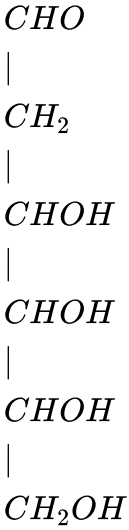
Watch Video Solution

6. The total number of contributing structures showing hyperconjugation (involving $C-H$ bonds) for the following carbocation is



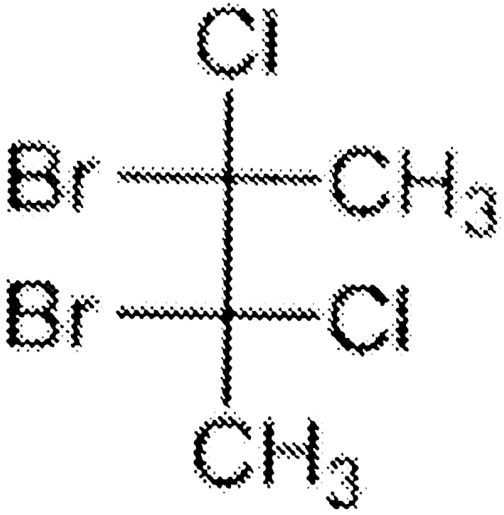
Watch Video Solution

7. When the following aldohexose exists in its D-configuration, the total number of stereoisomers in its pyranose form, is



Watch Video Solution

8. The total number(s) of stable conformers with non-zero dipole moment for the following compound is (are) .

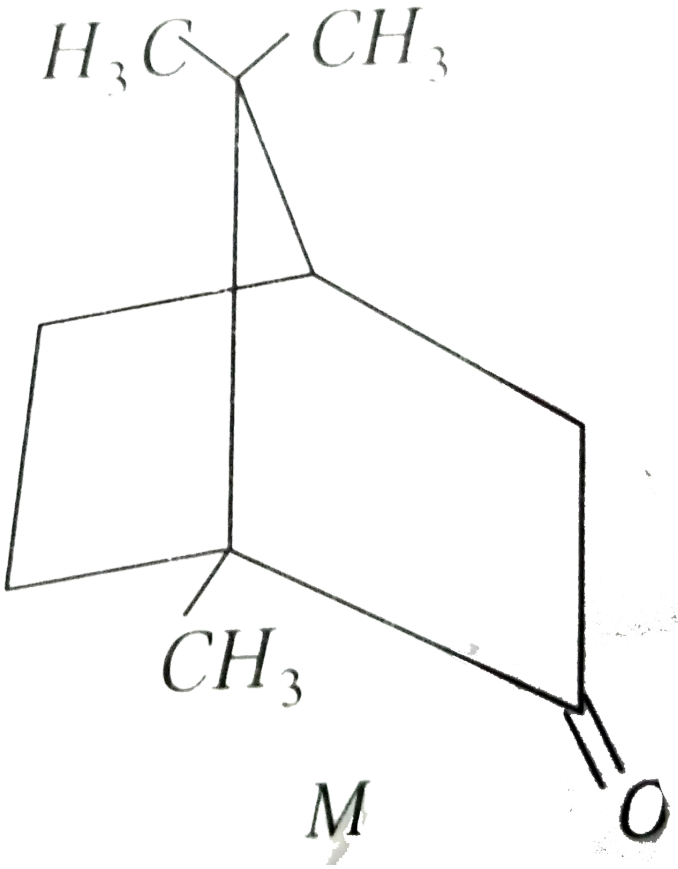


Watch Video Solution

9. Consider all possible isomeric ketones, including stereoisomers, of MW = 100. All these isomers are independently reacted with $NaBH_4$ (NOTE: stereoisomers are also reacted separately). The total number of ketones that give a racemic product(s) is/are

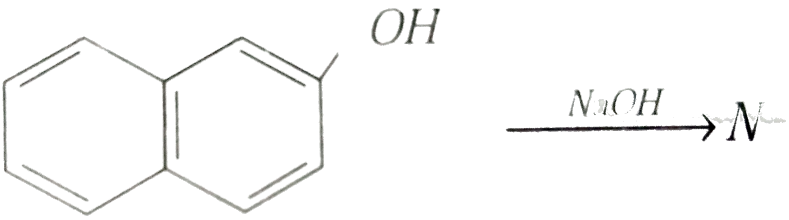
Watch Video Solution

10. The total number of stereoisomers that can exist for M is



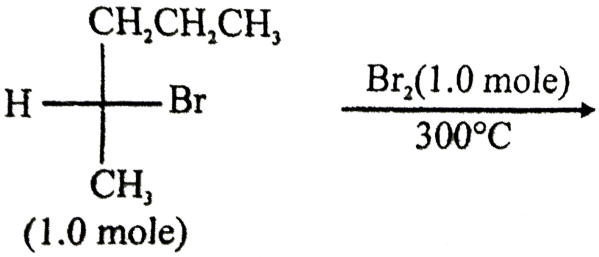
Watch Video Solution

11. The number of resonance structures for N is



Watch Video Solution

12. In the following monobromination reaction, the number of possible chiral products is



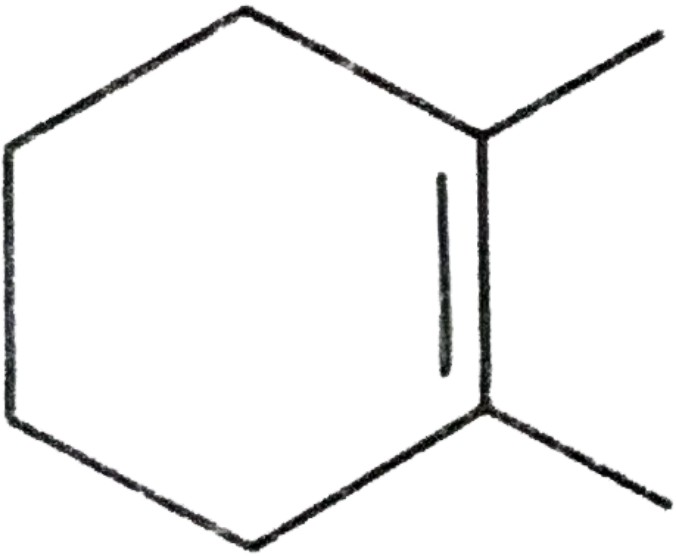
Watch Video Solution

13. For the compound

Give the number 1 for presence of resonance only, 2 for presence of resonance and hyperconjugation only, 3 for presence of resonance, hyperconjugation and inductive effect and 4 for presence of resonance hyperconjugation, inductive effect and electronic effect

Watch Video Solution

14. The number of hyperconjugable hydrogens atoms of compound is



Watch Video Solution

15. How many of following cannot show tautomerism acetophenone, acetaldehyde, cyclohexanone, acetylacetone, benzoquinone, acetone, benzaldehyde, butanone, ethyl acetoacetate

Watch Video Solution

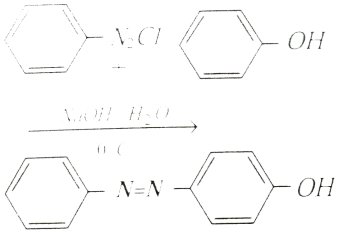
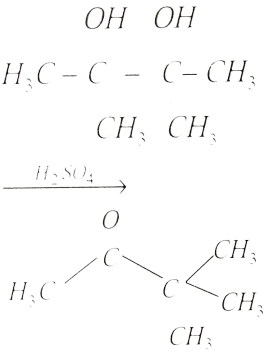
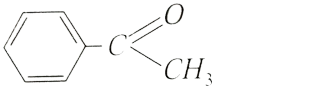
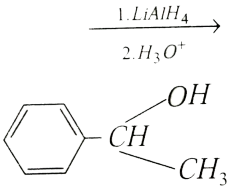
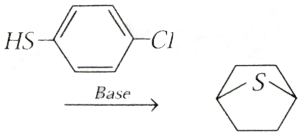
Matrix Match type questions

1. Match the compounds/ions in Column I with their properties/reactions in Column II.

Column I		Column II	
(A)	$CH_3-CHBr-CD_3$ on treatment with alc. KOH gives $CH_2=CH-CD_3$ as a major product	(p)	E_1 reaction
(B)	$Ph-CHBr-CH_3$ reacts faster than $Ph-CHBr-CD_3$	(q)	E_2 reaction
(C)	$Ph-CH_2-CH_2Br$ on treatment with C_2H_5OD $C_2H_5O^-$ gives $Ph-CD=CH_2$ as the major product	(r)	E_{1cb} reaction
(D)	$PhCH_2CH_2Br$ and $PhCD_2CH_2Br$ react with same rate	(s)	First order reaction

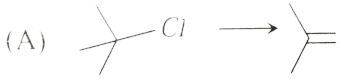
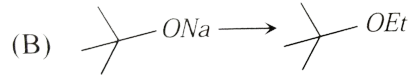
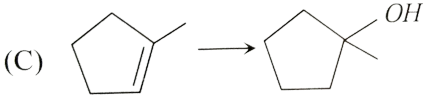
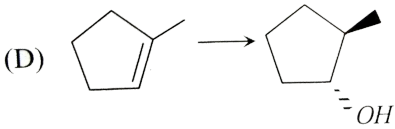
View Text Solution

2. Match the reactions in Column I with appropriate options in Column II.

Column I	Column II
(A) 	(p) Racemic mixture
(B) 	(q) Addition reaction
(C) 	(r) Substitution reaction
	
(D) 	(s) Coupling reaction
	(t) Carbocation intermediate

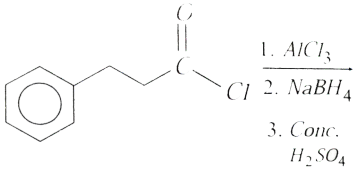
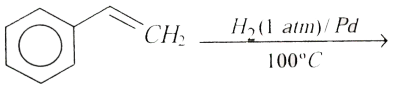
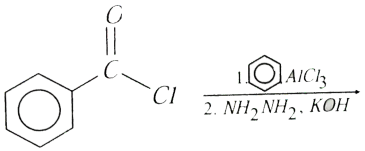
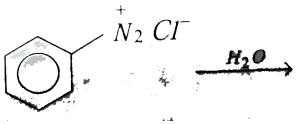
View Text Solution

3. Match the chemical conversions in Column I with the appropriate reagents in Column II.

Column I	Column II
(A) 	(p) (i) $Hg(OAc)_2$ (ii) $NaBH_4$
(B) 	(q) $NaOEt$
(C) 	(r) $Et-Br$
(D) 	(s) (i) BH_3 (ii) $H_2O_2 / NaOH$

Watch Video Solution

4. Match the entries listed in Column I with appropriate entries listed in Column II.

Column I	Column II
(A) 	(p) Electrophilic substitution
(B) 	(q) A hydrocarbon is the final product
(C) 	(r) Aromaticity is destroyed
(D) 	(s) Nucleophilic substitution

View Text Solution