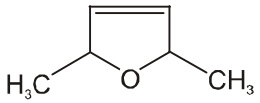
EXERCISE-I

1.  compound is :

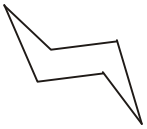
(A) Alicyclic heterocyclic
(B) Aromatic heterocyclic
(C) Saturated heterocyclic
(D) Unsaturated homocyclic

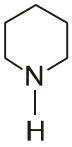
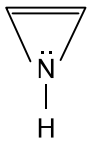
2. Which of the following is not an alicyclic compound ?

(A)  (B) 

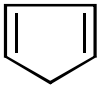
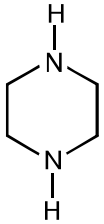
(C)  (D) 

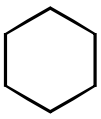
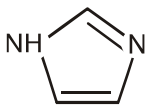
3. The saturated heterocyclic compound is :

(A)  (B) 

(C)  (D) 

4. Which of the following is saturated homocyclic compound.

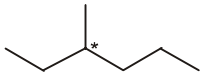
(A)  (B) 

(C)  (D) 

5. Which of the following compound has only one type of hybridization of the carbon atoms ?

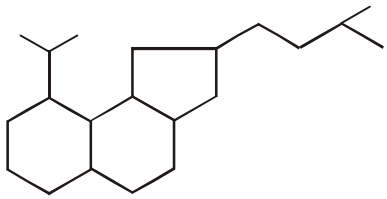
(A) $CH_2=CH-CH_2-CH_3$
(B) $HC\equiv C-C\equiv CH$
(C) $CH_3-C\equiv C-CH_3$
(D) $CH_3-CH=CH-CH_3$

6. The correct hybridization of starred atom in following compound is

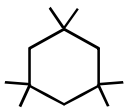


(A) sp (B) sp^2
(C) sp^3 (D) sp^3d

7. Number of 3º and 2º carbon atoms in the following compound are.



(A) 7, 8 (B) 6, 9
(C) 6, 8 (D) 8, 9

8. 

In above compound total number of 2º hydrogen atoms are :

(A) 3 (B) 18
(C) 6 (D) 9

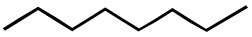
9. Isomers have essentially identical.

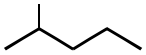
(A) Structural formula (B) Chemical properties
(C) Molecular formula (D) Physical properties

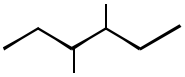
10. Compound with same molecular formula but different structural formula are called.

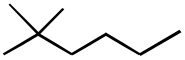
(A) Isomers (B) Isotopes
(C) Isobars (D) Isoelectric

11. Which compound is not the isomer of 3-Ethyl-2-methylpentane ?

(A) 

(B) 

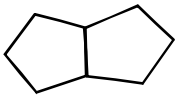
(C) 

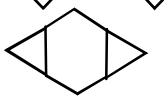
(D) 

12. Which one of the compound is not isomer of others ?

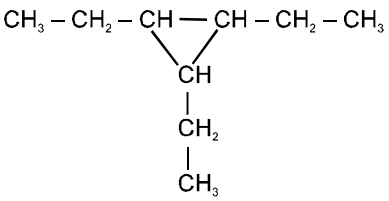
(A) 

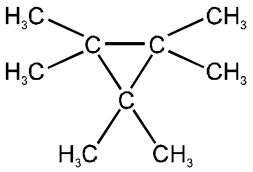
(B) 

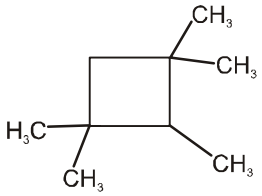
(C) 

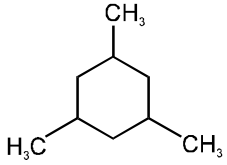
(D) 

13. An organic compound has molecular formula C_9H_{18}. Its all carbon atoms are sp^3 hybridised and its all hydrogen atoms are identical. Its structural formula can be :

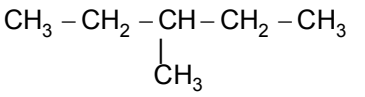
(A) 

(B) 

(C) 

(D) 

14. What is the correct relationship between the following compounds ?



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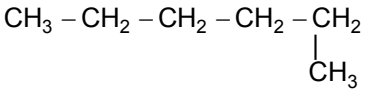
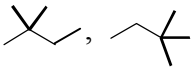
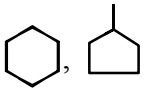
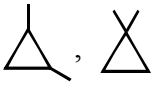
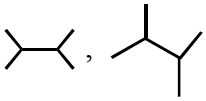


(A) Chain isomers (B) Position isomers
(C) Functional isomers (D) Identical

15. Which of the following pair is the chain isomer ?

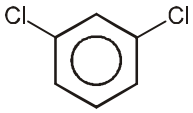
(A)  (B) 

(C)  (D) 

16. What is the relation between 3-Ethylpentane and 3-Methylhexane ?

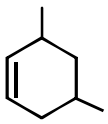
(A) Chain isomers (B) Position isomers
(C) Functional isomers (D) Relation

17. 

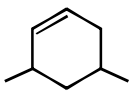


Relation between above compounds is :

(A) Position isomers (B) Chain isomers
(C) Identical (D) Functional isomers

18. 

,



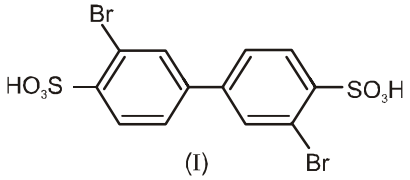
Relation between above compounds is :

(A) Position isomers (B) Chain isomers
(C) Identical (D) Functional isomers

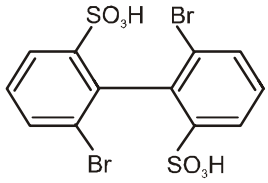
19. Total number of position isomers of dimethyl cyclohexane.

(A) 2 (B) 3
(C) 4 (D) 5

20. Mention the correct relationship between (I) and (II)

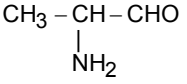


(I)



(II)

(A) Chain isomers (B) Position isomers
(C) Identical (D) Stereoisomers

21. $CH_3 - CH_2 - NH - CHO$; 

I II

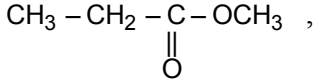
Which type of isomerism is observed between I and II.

(A) Chain isomers (B) Position isomers
(C) Functional isomers (D) Metamers

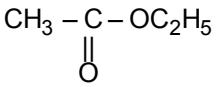
22. Which of the following shows functional isomerism ?

(A) CH_3CH_2Cl and CH_3CH_2Br
(B) CH_3CH_2Br and CH_2BrCH_2Br
(C) $C_2H_5OC_2H_5$ and $CH_3OC_3H_7$
(D) CH_3CH_2CHO and CH_3COCH_3

23. Which type of isomerism is observed between I and II ?



(I)

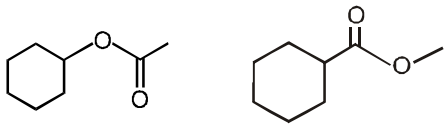


(II)

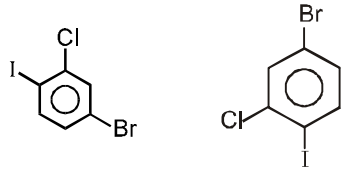
(A) Functional isomerism
(B) Metamerism
(C) Position isomerism
(D) Stereoisomerism

24. Which of the following is a pair of metamers ?

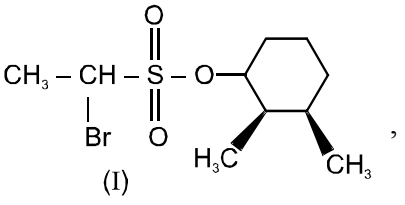
(A) 

(B) 

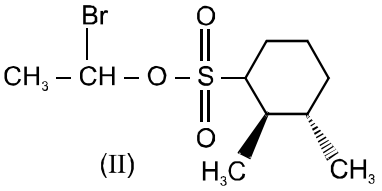
(C) 

(D) 

25. Which type of isomerism is observed between I and II ?



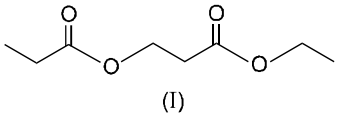
(I)



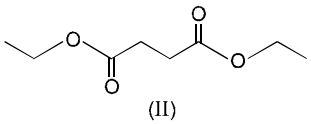
(II)

(A) Functional isomerism
(B) Metamerism
(C) Optical isomerism
(D) Geometrical isomerism

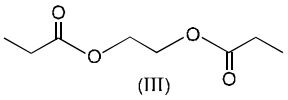
26. The correct relationship among the following pairs of given compounds is



(I)



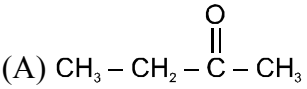
(II)



(III)

	(I, II)	(II, III)
(A)	Functional Isomers	Metamers
(B)	Metamers	Functional isomers
(C)	Metamers	Metamers
(D)	Functional Isomers	Functional isomers

27. Which of the following is not an isomer ofcompound $CH_3 - CH_2CHO$

(A) 

(B) 

(C) 

(D) $CH_2=CH-CH_2-OH$

28. The isomer of diethyl ether is

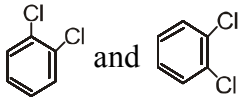
(A) $(CH_3)_2CHOH$

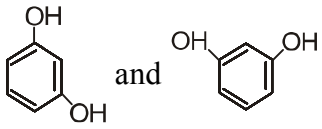
(B) $(CH_3)_3COH$

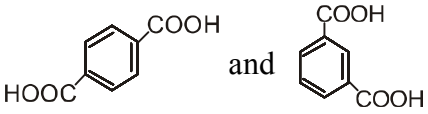
(C) C_3H_7OH

(D) $(C_2H_5)_2CHOH$

29. Examine the relation between the following pairs of compounds.

(I) 

(II) 

(III) 

(A) All I, II, III are identical

(B) All I, II, III are isomers

(C) I, II are identical, III is isomer

(D) I is identical and II, III are isomer

30. The number of aromatic position isomers containing benzene ring with molecular formula $C_6H_6O_3$ are ..... and number of tertiary aromatic amine containing benzene with molecular formula $C_8H_{11}N$ are .....

(A) 4 and 8 (B) 3 and 1

(C) 3 and 6 (D) 4 and 10

31. How many total structural isomers are obtained when three hydrogen atoms are replaced by chlorine atom from molecular formula C_3H_8 ?

(A) 5 (B) 4

(C) 6 (D) 3

32. Stereoisomers have different :

(A) Molecular formula (B) Structural formula

(C) Configuration (D) Molecular mass

33. Geometrical isomers differ in :

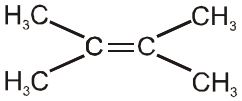
(A) position of functional group

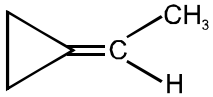
(B) spatial arrangement of atoms

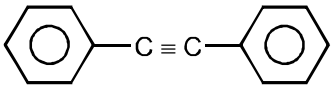
(C) position of atoms

(D) length of carbon chain

34. Which of the following compound has restricted rotation ?

(A) 

(B) 

(C) 

(D) All of these

35. **S_1 :** $H_3C - C \equiv CH$ has restricted rotation.

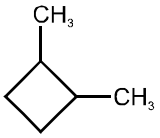
S_2 : Cyclic compounds have also restricted rotation.

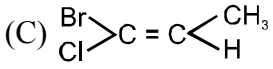
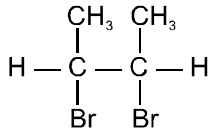
S_3 : $CH_3 - CH_3$ will show geometrical isomerism due to restricted rotation.

S_4 : $H_3C - C \equiv N$: has restricted rotation so it shows geometrical isomerism.

(A) T T T T (B) T T F F
(C) F F F F (D) T F T F

36. Which of the following compound does not have restricted rotation ?

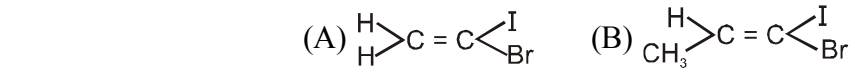
(A)  (B) 

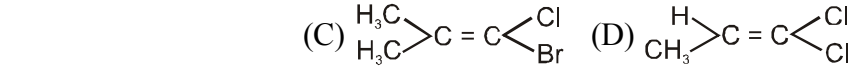
(C)  (D) 

37. Which compound can show geometrical isomerism ?

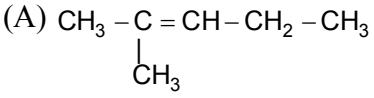
(A) $CH_3CH = C(CH_3)_2$
(B) $CH_3CH = CH_2$
(C) $CH_3CH = CHCH_3$
(D) $(CH_3)_2C = C(CH_3)_2$

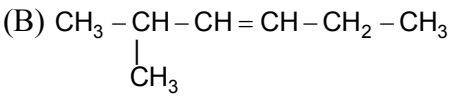
38. Geometrical isomerism is shown by :

(A)  (B) 

(C) (D) 

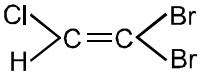
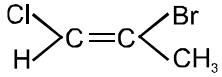
39. Which of the following will not show cis-trans isomerism ?

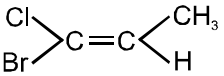
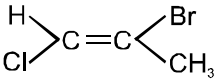
(A) 

(B) 

(C) $CH_3 - CH = CH - CH_3$
(D) $CH_3 - CH_2 - CH = CH - CH_2 - CH_3$

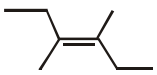
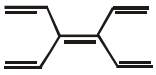
40. Which is a pair of geometrical isomers ?

(I)  (II) 

(III)  (IV) 

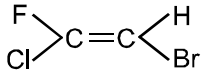
(A) (I) and (II) (B) (I) and (III)
(C) (II) and (IV) (D) (III) and (IV)

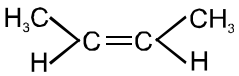
41. Cis-trans isomerism is shown by :

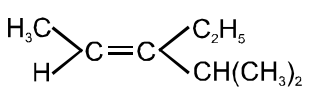
(A)  (B) 

(C)  (D) 

42. The 'E'-isomer is :

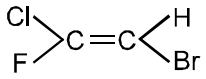
(A) 

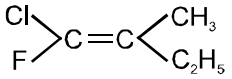
(B) 

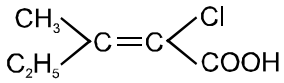
(C) 

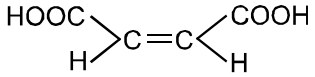
(D) none of the above

43. The 'Z'-isomer is :

(A) 

(B) 

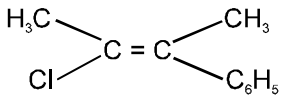
(C) 

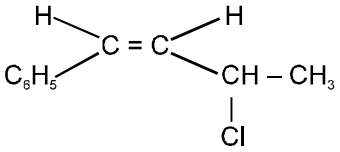
(D) 

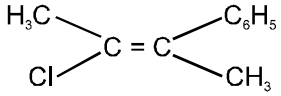
44. Which of the following compounds will exhibit cis-trans isomerism ?

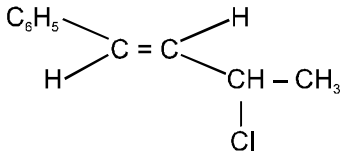
(A) But-2-ene (B) Propene
(C) But-1-ene (D) Benzene

45. The correct stereochemical formula of Trans-3-chloro-1-phenylbut-1-ene is

(A) 

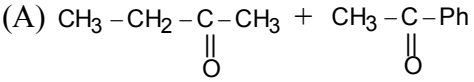
(B) 

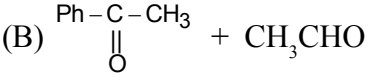
(C) 

(D) 

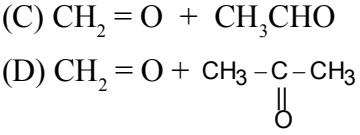
46. The compounds X and Y in below reaction can be

$Ph - NH . NH_2 + (X) + (Y)$ $\xrightarrow{-H_2O}$ P + Q (organic products)

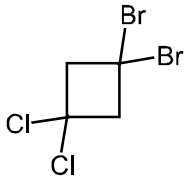
(A) 

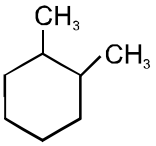
(B) 

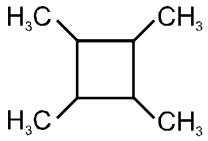
(C) $CH_2 = O + CH_3CHO$

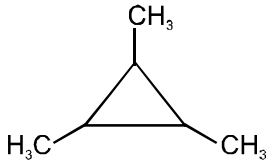
(D) 

47. Which of the following compound can not show geometrical isomerism ?

(A) 

(B) 

(C) 

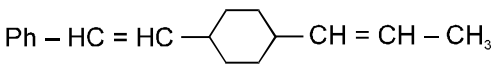
(D) 

48. The number of geometrical isomers for

$CH_3 - CH = CH - CH = CH - CH = CH_2$

(A) 2 (B) 4
(C) 6 (D) 8

49. The total number of geometrical isomers possible in following compound is :



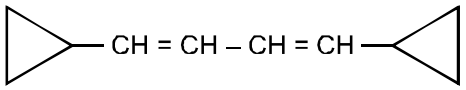
(A) 2 (B) 1
(C) 6 (D) 8

50. The number of geometrical isomers in the following compound is :

$CH_3–CH = CH – CH = CH – C_2H_5$

(A) 4 (B) 3
(C) 2 (D) 5

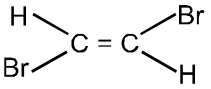
51. The total number of geometrical isomers possible in following compound is :

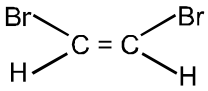


(A) 4 (B) 6
(C) 3 (D) 2

52. Which of the following compounds will have a zero dipole moment ?

(A) 1,1-dichloroethylene
(B) trans-1,2-dichloroethylene
(C) cis-1,2-dichloroethylene
(D) none of the above compound

53. (I) 

(II) 

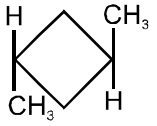
Which of the following physical property is greater for (I) compound.

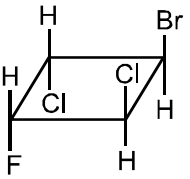
(A) Boiling point
(B) Melting point
(C) Solubility
(D) Dipole moment

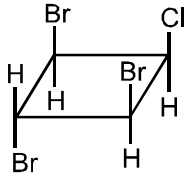
54. The instrument which can be used to measure optical activity, i.e., specific rotation:

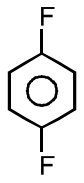
(A) Refractometer
(B) Photometer
(C) Voltmeter
(D) Polarimeter

55. Which of the following compound has plane of symmetry (POS) but not centre of symmetry (COS) ?

(A) 

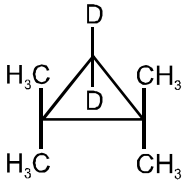
(B) 

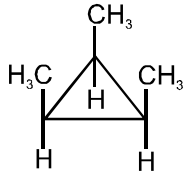
(C) 

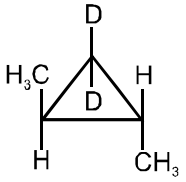
(D) 

56. Which of the following compound does not possess a C_2 axis of symmertry ?

(A) 

(B) 

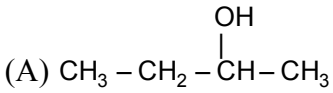
(C) 

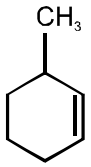
(D) 

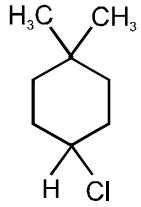
57. The smallest alcohol which exhibit optical activity

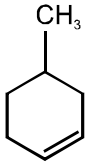
(A) n-Butyl alcohol
(B) Butan-1-ol
(C) Pentan-2-ol
(D) Butan-2-ol

58. Which of the following compound is optically inactive ?

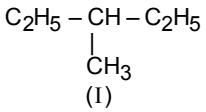
(A) 

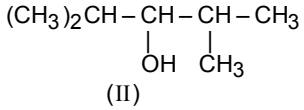
(B) 

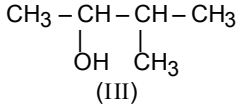
(C) 

(D) 

59. Observe the following structures I to III


(I)


(II)


(III)

Correct statement is :

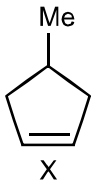
(A) All three are chiral compounds

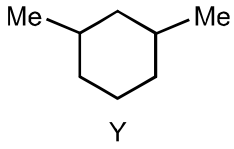
(B) I & II are chiral

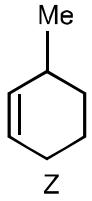
(C) Only II is chiral

(D) Only III is chiral

60. Number of chiral carbon atoms in the compound x, y and z respectively would be :


X

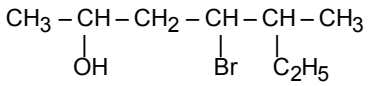

Y


Z

(A) 0, 2, 1 (B) 1, 0, 1

(C) 1, 2, 1 (D) 1, 2, 0

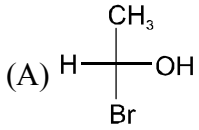
61. Number of chiral carbon persent in the following compound :

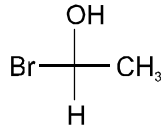


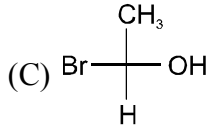
(A) 2 (B) 3

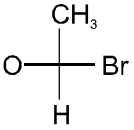
(C) 4 (D) 5

62. Which of the following compound has 'S' configuration ?

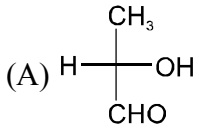
(A) 

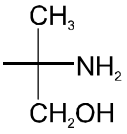
(B) 

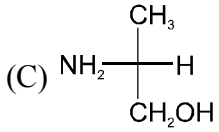
(C) 

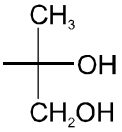
(D) 

63. Which of the following compound has 'D' configuration ?

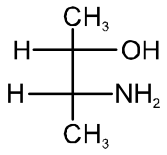
(A) 

(B) 

(C) 

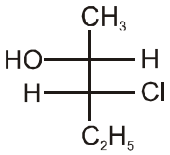
(D) 

64. The correct configuration assigned for given compound :



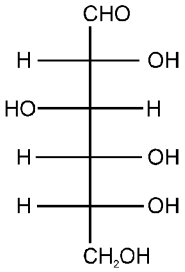
(A) 2R, 3R (B) 2S, 3S
(C) 2R, 3S (D) 2S, 3R

65. The IUPAC name of the compound is :



(A) (2R, 3R) -3-chloropentan-2-ol
(B) (2R, 3S) -3-chloropentan-2-ol
(C) (2S, 3R) -3-chloropentan-2-ol
(D) (2S, 3S) -3-chloropentan-2-ol

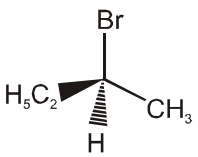
66. The correct IUPAC name of D-Glucose is :

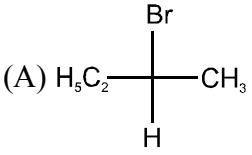


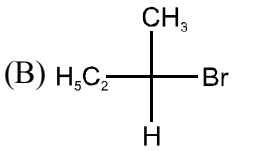
(D-Glucose)

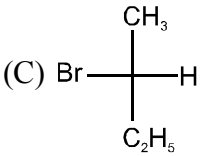
(A) (2D, 3D, 4L, 5D) 2, 3, 4, 5, 6-pentahydroxyhexanal
(B) D-2, 3, 4, 5, 6-pentahydroxyhexanal
(C) 6-oxo-(2D, 3L, 4D, 5D) - 2, 3, 4, 5, 6-pentahydroxohexane
(D) (2D, 3L, 4D, 5D) - 2, 3, 4, 5, 6-pentahydroxyhexanal

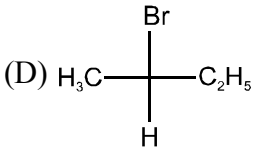
67. The Fisher projection of the molecule as represented in the wedge dash is.



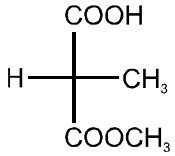




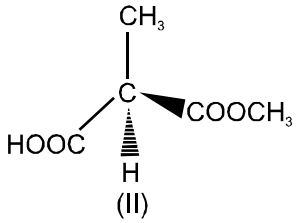




68. The correct configuration assigned for compound (I) & (II) respectively are :



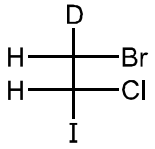
(I)

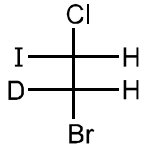


(II)

(A) R, R (B) S, S
(C) S, R (D) R, S

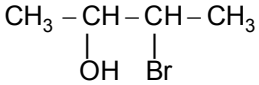
69. The two compounds given below are :





(A) Enantiomer (B) Identical
(C) Meso compound (D) Diastereomers

70. Total number of stereoisomers of compound is :



(A) 2 (B) 4
(C) 6 (D) 8

71. $CH_3-\underset{Br}{CH}-\underset{Br}{CH}-\underset{Br}{CH}-CH_3$

Total number of stereoisomers in above compound :

(A) 6 (B) 4
(C) 8 (D) 16

72. $CH_3-\underset{Cl}{CH}-\underset{Br}{CH}-\underset{OH}{CH}-CH_3$

Total number of stereoisomers in above compound :

(A) 6 (B) 4
(C) 8 (D) 16

73. Total number of stereoisomer of compound is :

$CH_3-CH=CH-\underset{Cl}{CH}-CH=CH-C_2H_5$

(A) 2 (B) 4
(C) 6 (D) 8

74. Which of the following pair of isomers can not be separated by fractional crystallisation or fractional distillation:

(A) Maleic acid and Fumaric acid
(B) (+)-Tartaric acid and meso - tartaric acid
(C) $CH_3-\underset{NH_2}{CH}-COOH$ and

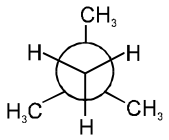
$H_2N-CH_2-CH_2-COOH$

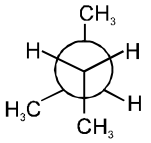
(D) (+)-lactic acid and (–)-lactic acid

75. The enantiomeric excess and observed specific rotation of a mixture containing 6 gm of (+)-2-butanol and 4 (gm) of (–)-2-butanol are respectively (If the specific rotation of enantiomerically pure (+)-2-butanol is + 13.5 unit).

(A) 80%, + 2.7 unit (B) 20%, – 27 unit
(C) 20%, + 2.7 unit (D) 80%, – 27unit

76. The two structures I & II represents :

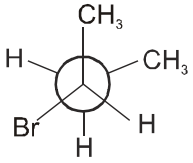

(I)

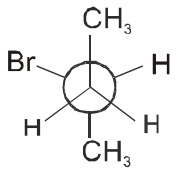

(II)

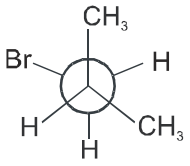
(A) Conformational isomers
(B) Stereoisomers
(C) Constitutional isomers
(D) Identical

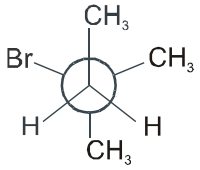
77. Which of the Newman projections shown below represents the conformation about the C_1–C_2 bond of

1 Bromo –2–methylpropane?

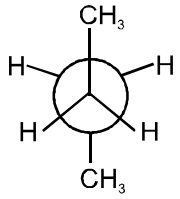
(A) 

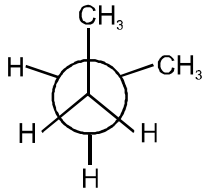
(B) 

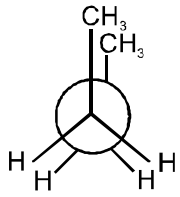
(C) 

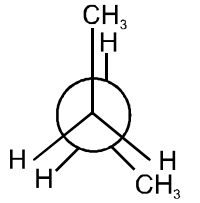
(D) 

78. Which of the following is represent the staggered conformation with dihedral angle $\phi = 60$?

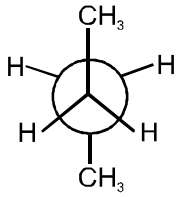
(A) 

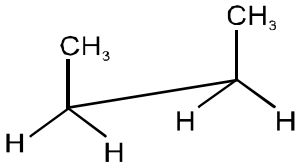
(B) 

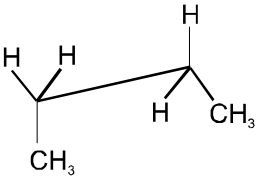
(C) 

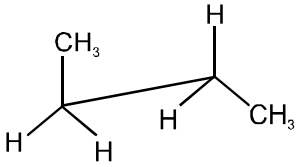
(D) 

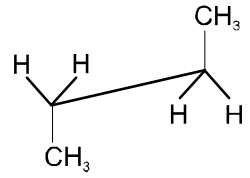
79. Which of the following sawhorse representation is correct for the given newman projection.



(A) 

(B) 

(C) 

(D) 

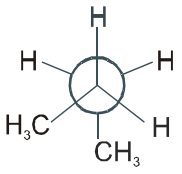
70. In the Newman projection formula of the least stable staggered form of n–butane, Which of the following reasons is the causes of its unstability ?

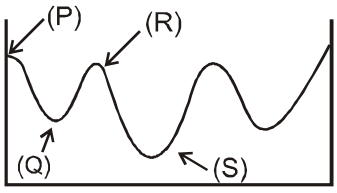
(A) Vander–Waal's strain
(B) Torsional strain
(C) Combination of both.
(D) None of these

71. The dihedral angle between two methyl groups in partially eclipsed conformation of n-butane is

(A) 180° (B) 120°
(C) 90° (D) 109° 28'

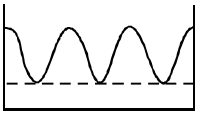
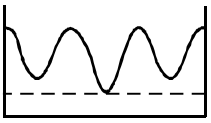
72. Which point on the potential energy diagram is represented by Newman projection shown here ?

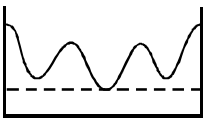
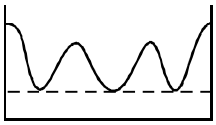




(A) P (B) Q
(C) R (D) S

73. Which of the following is correct P.E. diagram for propane ?

(A)  (B) 

(C)  (D) 

74. Which statement is correct about anti conformation of 1-Chloropropane ?

(A) It is the most polar form
(B) It has maximum torsional strain
(C) It has minimum steric strain
(D) A and C both

75. The most stable conformation of 3-fluorobutan-2-ol is :

(A) Fully eclipsed form
(B) Partially eclipsed form
(C) Gauche form
(D) Anti form .

76. Consider Newman projection formula of most stable conformation of 3-hydroxypropanal. It is stable due to :

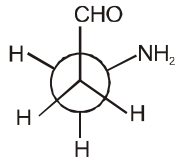
(A) Minimum torsional strain

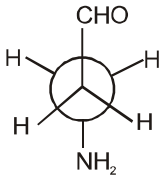
(B) Intramolecular hydrogen bonding

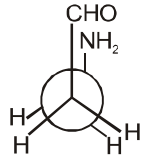
(C) Minimum torsional strain & Intramolecular hydrogen bonding

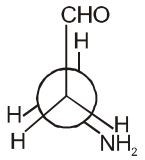
(D) Minimum steric strain

77. Which of the following is most stable ?

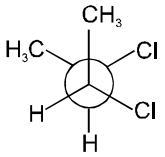
(A) 

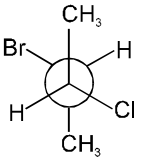
(B) 

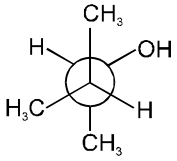
(C) 

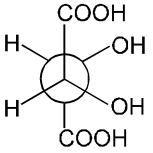
(D) 

78. Which of the following is an achiral molecule?

(A) 

(B) 

(C) 

(D) 

79. In the structures of 4-Isopropyl-2,4,5-trimethylheptane, number of 1^0, 2^0 & 3^0 H's are respectively.

(A) 18, 5, 4 (B) 21, 4, 3

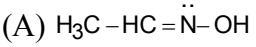
(C) 18, 4, 3 (D) 21, 5, 4

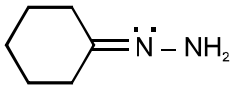
80. How many structural isomers of tertiary amines corresponding to molecular formula $C_6H_{15}N$ are possible ?

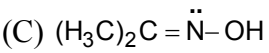
(A) 4 (B) 5

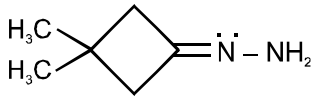
(C) 6 (D) 7

81. Which of the following compound will show geometrical isomerism ?

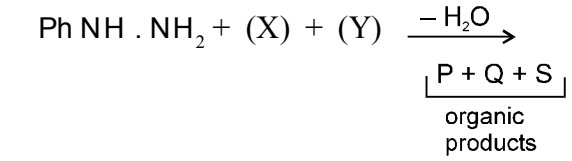
(A) 

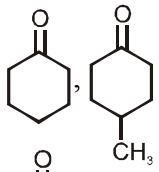
(B) 

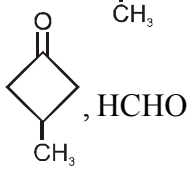
(C) 

(D) 

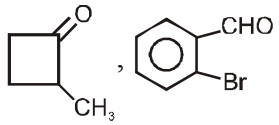
82. The compounds X and Y in below reaction can be :



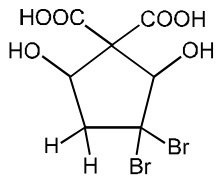
(A) 

(B) 

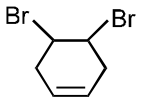
(C) HCHO, CH_3–CO–CH_3

(D) 

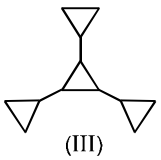
83. Which will show geometrical isomerism ?



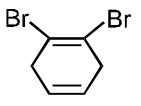
(I)



(II)



(III)

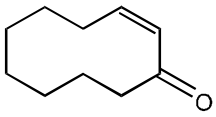


(IV)

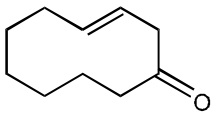
(A) I, II, III, IV (B) I, II, III

(C) I, III, IV (D) II, III, IV

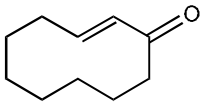
84. Which of the following statement is not true about the following compounds ?



(I)



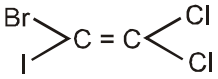
(II)

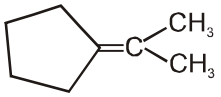


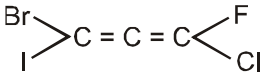
(III)

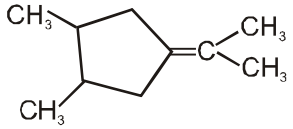
(A) (I) and (III) are identical
(B) (I) and (III) are geometrical diastereomers
(C) (I) and (II) are structural isomers.
(D) (II) and (III) are structural isomers.

85. Which of the following compound can show geometrical isomerism ?

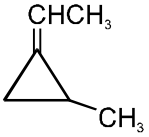
(A) 

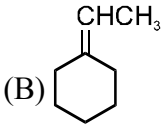
(B) 

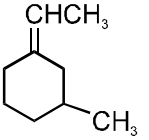
(C) 

(D) 

86. Which will show geometrical isomerism ?

(A) 

(B) 

(C) 

(D) A & C both

87. How many position isomers of n-Decene will show geometrical isomerism ?

(A) 2 (B) 3
(C) 4 (D) 5

88. **S_1 :** Trans-But-2-ene has higher boiling point than cis-But-2-ene.

S_2 : 1, 4-Dichlorobenzene has zero dipole moment.

S_3 : Trans cyclodecene is more stable as compare to cis-cyclodecene.

S_4 : Trans 1, 2-Dibromoethene is more soluble in water than cis-1, 2-Dibromoethene.

(A) T T T T (B) F T F T
(C) F F F F (D) F T F F

89. Which statement is wrong about symmetry ?

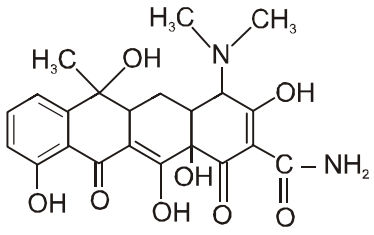
(A) Plane of symmetry is an imaginary plane which bisects the molecule in two equal halves in such a way that each half of the molecule is the mirror image of the other half.

(B) Centre of symmetry is the point in a molecule through which if a straight line is drawn from any part of the molecule this line encounters identical groups at equal distances in opposite direction.

(C) A molecule which does not possess any element of symmetry is called asymmetric molecule.

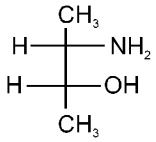
(D) A molecule which does not possess any element of symmetry is called symmetric molecule.

90. Chiral centres present in the given structure (Tetracycline) will be :



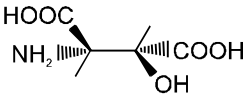
(A) 4 (B) 5
(C) 6 (D) 7

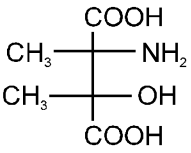
91. The correct D/L configurational nomenclature for the following compound is :

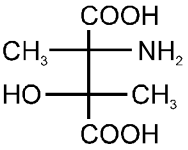


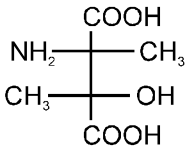
(A) 2D, 3D-2-Aminobutan-3-ol
(B) 2D, 3D-3-Aminobutan-2-ol
(C) 2L, 3L-3-Aminobutan-2-ol (D) 2L, 3L-2-Aminobutan-3-ol

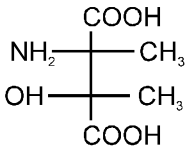
92. Which of the following is the Fischer projection formula for ?



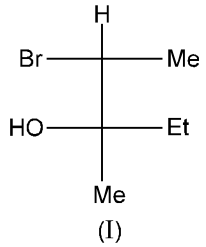
(A) 

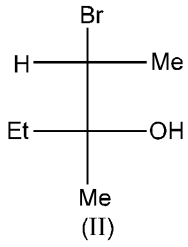
(B) 

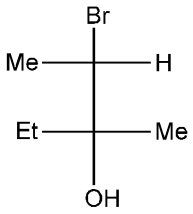
(C) 

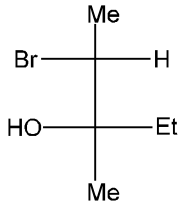
(D) 

93. Which of the following structures are superimposable (identical) ?


(I)


(II)

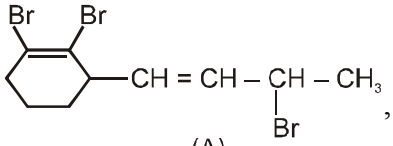

(III)


(IV)

(A) I and II (B) II and III
(C) I and IV (D) I and III

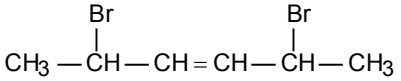
94. Which of the following compound does not have meso form ?

(A) 2, 3-Dibromobutane
(B) 2, 3-Dibromopentane
(C) 2, 4-Dibromopentane
(D) 2, 4, 6-Tribromoheptane

95. 
(A)
, total number of stereoisomers in above compound A is :

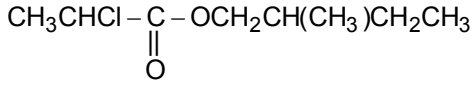
(A) 4 (B) 6
(C) 8 (D) 16

96. Total number of stereoisomer of compound is :



(A) 2 (B) 4
(C) 6 (D) 8

97. A racemic acid $CH_3CHClCOOH$ is allowed to react with (S)-2-methylbutan-1-ol to form ester



and the reaction mixture is carefully distilled. The correct statement about the mixture distillate is:

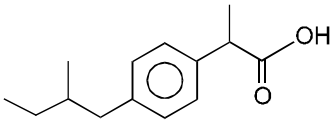
(A) two fractions each optically active are found

(B) two fractions each optically inactive are found

(C) three fractions all optically active are found

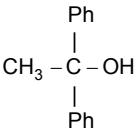
(D) three fractions all optically inactive are found

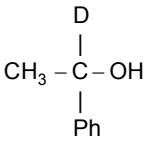
98. Well known pain killer Nurofen is an ibuprofen how many stereoisomers it would have ?



If we have a racemic mixture of ibuprofen which one of the following can be used to resolve the isomers.

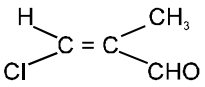
(A) 4, $CH_3 - CH_2 - OH$

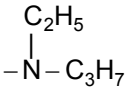
(B) 8, 

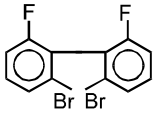
(C) 4, 

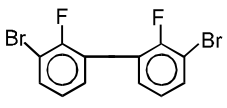
(D) 8, $CH_3 - CH_2 - OH$

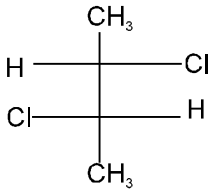
99. Which of the following species will be optically active ?

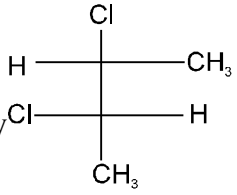
(A) 

(B) 

(C) 

(D) 

100. If optical rotation produced by 

is + 36° then that produced by 

is

(A) –36° (B) 0°

(C) +36° (D) unpredictable

101. Which of the following statement is not true ?

(A) The different arrangements formed by rotations about a single bond are called conformations.

(B) The repulsion felt by the bonding electrons of one substituent as they pass close to the bonding electrons of another substituent is called steric strain.

(C) The strain arises due to repulsion between electron clouds of the interacting atoms or groups is called steric strain.

(D) The investigation of the various conformations of the compound and their relative stabilities is called conformational analysis.

102. **S_1 :** When value of dihedral angle is 180° then this conformation is called anti conformation ?

S_2 : When $\phi = 60°$ then this conformation is called gauche.

S_3 : When $\phi = 0°$ then this conformation is called eclipsed conformation.

S_4 : Other than staggered and eclipsed are called skew conformation.

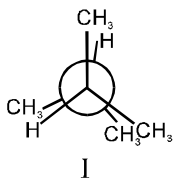
(A) T T T T

(B) F F F F

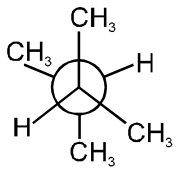
(C) T F T F

(D) F F T T

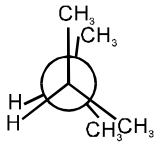
103. In the given four conformational isomers which of the following has minimum torsional strain and minimum vander waal strain.



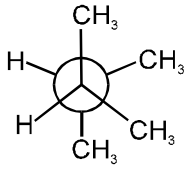
I



II



III



IV

(A) I (B) II
(C) III (D) IV

104. Select the correct statement/s :

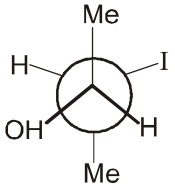
(A) Eclipsed and staggered ethanes give different products on reaction with chlorine in presence of light.

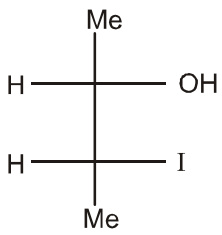
(B) The conformational isomers can be isolated at room temperature.

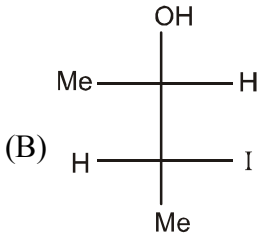
(C) Torsional strain in ethane is minimum at dihedral angles 60°, 180° and 300°.

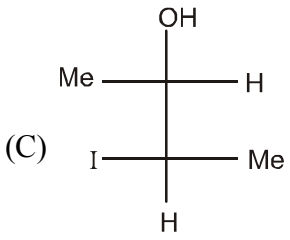
(D) Steric strain is minimum in staggered gauche form of n-butane.

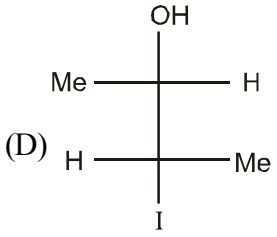
105. Which of the following is the diastereomer of the compound ?



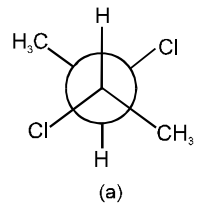




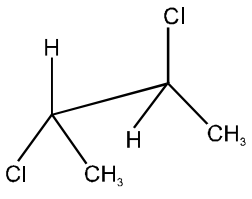




106. Which of the following statements regarding the projections shown below is true ?



(a)



(b)

(A) 'a' and 'b' both represent the same configuration

(B) Both 'a' and 'b' are optically active

(C) 'b' alone is optically active

(D) 'a' alone is optically active

107. Which of the following compound has zero dipole moment in one of the stable conformations

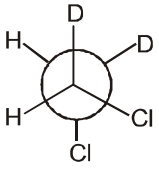
(A) $HO - CH_2 - CH_2 - OH$

(B) $CH_3 - CHCl - CHBr - CH_3$

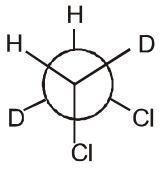
(C) (d or ℓ) $CH_3 - CHCl - CHCl - CH_3$

(D) meso-$CH_3 - CHCl - CHCl - CH_3$

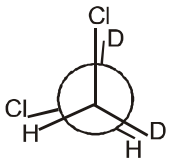
108. The identical compounds are :



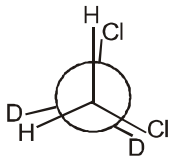
(x)



(y)



(z)



(w)

(A) x,y (B) y,z

(C) y,w (D) x,z

109. Inductive effect involves :

(A) Delocalisation of σ - electrons

(B) Partial displacement of σ - electrons

(C) Delocalisation of π - electron

(D) Displacement of lone pair electrons.

110. Select correct statement about I effect.

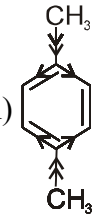
(A) I effect transfers e^- from one carbon atom to another.

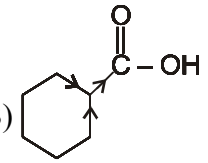
(B) I effect is polarisation in σ bond.

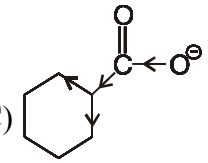
(C) I effect creates net charge in molecule.

(D) I effect is distance independent.

111. Which of the following has incorrect direction of Inductive effect.

(A) 

(B) 

(C) 

(D) $CH_3 \leftarrow \underset{\underset{O}{\|}}{C} \rightarrow CH_2 \rightarrow CH_3$

112. In which of the following delocalisation of π-electron is possible.

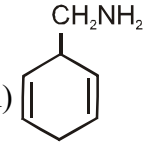
(A) $CH_2 = CH - CH_2 - CHO$

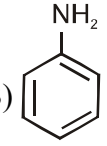
(B) $CH_2 = CH - CH = O$

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

(D) $CH_2 = CH - CH_2 - CH = CH_2$

113. Which of the following compounds have delocalisation of π-electrons ?

(A) 

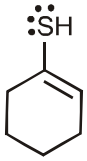
(B) 

(C) $CH_3CH_2NH\ CH_2\ CH = CH_2$

(D) $CH_2 = CH - CH_2 - CH = CH_2$

114. Which of the following species have conjugated?

(A) 

(B) 

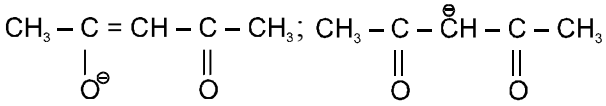
(C) $CH_2 = C = CH - \dot{N}H_2$ (D) All of these

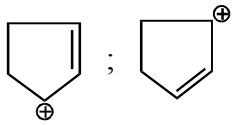
115. Which of the following is not a pair of resonating structures ?

(A) $H - C \equiv \overset{\oplus}{N}H$; $H - \overset{\oplus}{C} = \ddot{N}H$

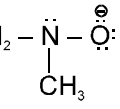
(B) $CH_3CH = CHCH_3$; $CH_3CH_2CH = CH_2$

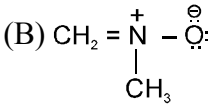
(C)

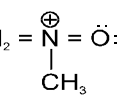


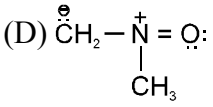
(D) 

116. Which of the following is not a permissible resonating structure :

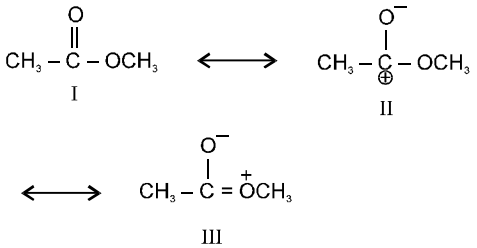
(A) 

(B) 

(C) 

(D) 

117. Which of the following resonating structure will contribute minimum to resonance hybrid.



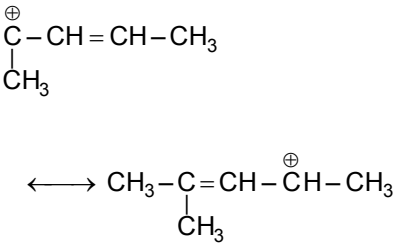
(A) I

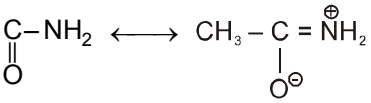
(B) II

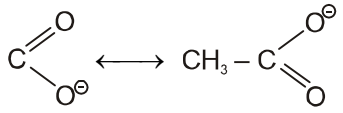
(C) III

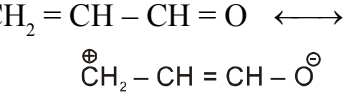
(D) All structure are equally stable

118. Which of the following resonating structure contributes equally to the resonance hybrid.

(A) 

(B) 

(C) 

(D) 

119. In hyperconjugation there is overlap between :

(A) p- and π-orbitals (B) 2 π - orbitals

(C) d-and-π-orbtial (D) σ -and π- orbitals

120. Hyperconjugation involves.

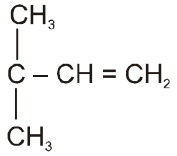
(A) Delocalisation of σ-electrons with an adjacent π-bond.

(B) Delocalisation of π-electrons with an adjacent triple bond.

(C) Delocalisation of π-electrons with an adjacent double bond.

(D) All are true

121. Hyperconjugation phenomenon is possible in :

(A) 

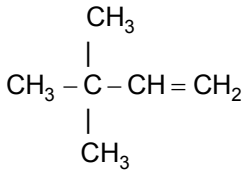
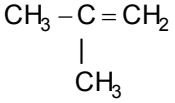
(B) $CH_2 = CH_2$

(C) $C_6H_5 - CH = CH_2$

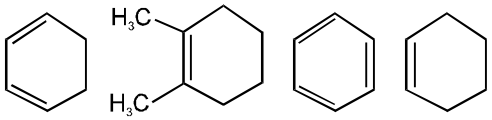
(D) $CH_3 - CH_2 - CH = CH_2$

122. Which of the following molecule has longest C=C bond length ?

(A) $CH_2 = C = CH_2$ (B) $CH_3 — CH = CH_2$

(C)  (D) 

123. The decreasing order of bond length of C = C bond in the following compounds is:



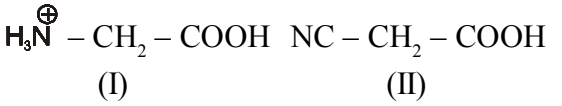
I II III IV

(A) II > I > IV > III (B) III > I > II > IV
(C) IV > II > I > III (D) IV > I > II > III

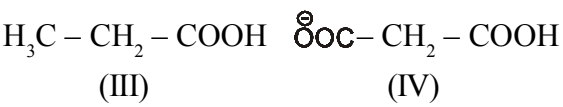
124. Among the following compounds, the strongest acid is :

(A) HC ≡ CH (B) C_6H_6
(C) C_2H_6 (D) CH_3OH

125. Order of K_a of following acids.



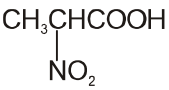
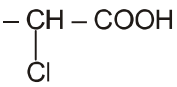
(I) (II)

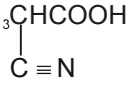


(III) (IV)

(A) I > II > III > IV (B) II > I > III > IV
(C) I > III > II > IV (D) IV > III > II > I

126. Find the strongest acid among the following compounds.

(A)  (B) 

(C) CH_3CH_2COOH (D) 

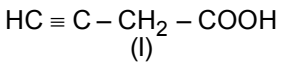
127. Find the strongest acid among the following compounds.

(A) $HOOC – (CH_2)_2 – COOH$

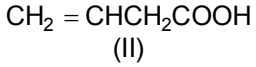
(B) $H_3N^{\oplus} – (CH_2)_2 – COOH$

(C) $F – (CH_2)_2 – COOH$

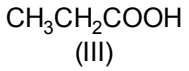
(D) $CH_3 – (CH_2)_2 – COOH$

128. 

(I)



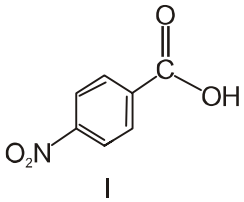
(II)



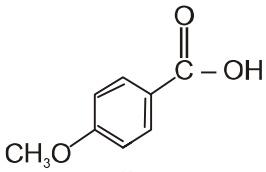
(III)

Order of K_a will be :

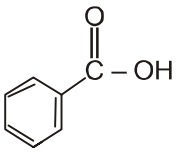
(A) I > II > III (B) II > I > III
(C) III > II > I (D) I > III > II

129. 

I



II

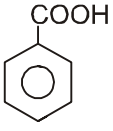
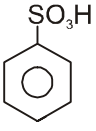


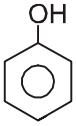
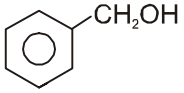
III

Order of K_a will be :

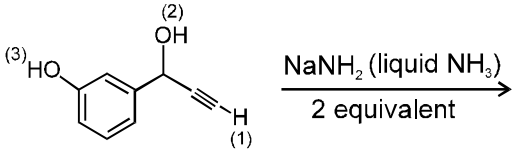
(A) I > II > III (B) II > I > III
(C) I > III > II (D) III > I > II

130. Amongst the following compounds the strongest acid is :

(A)  (B) 

(C)  (D) 

131. Find the order of reactivity of labelled hydrogen with $NaNH_2$.



(A) 1 > 2 > 3 (B) 3 > 2 > 1
(C) 3 > 1 > 2 (D) 2 > 3 > 1

132. Select the order of basic strength.

(I) $R_4N^+OH^-$ (II) R_3N
(III) R_2NH (IV) RNH_2 (if R = Me)

(A) (I) > (III) > (IV) > (II)
(B) (IV) > (III) > (I) > (II)
(C) (II) > (IV) > (III) > (I)
(D) (II) > (IV) > (I) > (III)

133. The basic strength order of following anion :

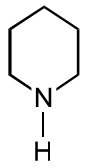
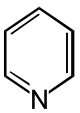
(A) $CH_3-\overset{\ominus}{C}H_2 > \overset{\ominus}{N}H_2 > CH_2=\overset{\ominus}{C}H > CH\equiv\overset{\ominus}{C} > HO^{\ominus} > F^{\ominus}$

(B) $\overset{\ominus}{N}H_2 > CH_3-\overset{\ominus}{C}H_2 > CH_2=\overset{\ominus}{C}H > CH\equiv\overset{\ominus}{C} > F^{\ominus} > HO^{\ominus}$

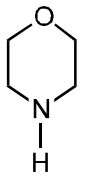
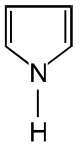
(C) $CH_3-\overset{\ominus}{C}H_2 > CH_2=\overset{\ominus}{C}H > \overset{\ominus}{N}H_2 > CH\equiv\overset{\ominus}{C} > HO^{\ominus} > F^{\ominus}$

(D) $F^{\ominus} > HO^{\ominus} > CH\equiv\overset{\ominus}{C} > CH_2=\overset{\ominus}{C}H > \overset{\ominus}{N}H_2 > CH_3-\overset{\ominus}{C}H_2$

134. Write the order of basic strength.

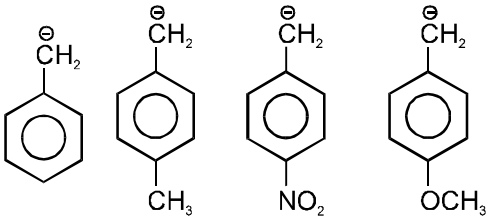
(I) Piperidine (II) Pyridine

(III) Morpholine (IV) Pyrrole

(A) (IV) > (I) > (III) > (IV)
(B) (III) > (I) > (IV) > (II)
(C) (II) > (I) > (III) > (IV)
(D) (I) > (III) > (II) > (IV)

135. Arrange the following carbanions in decreasing order of stability :



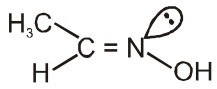
I II III IV

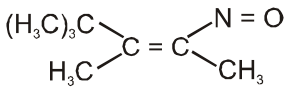
(A) III > I > IV > I (B) III > II > I > IV
(C) I > III > II > IV (D) III > I > II > IV

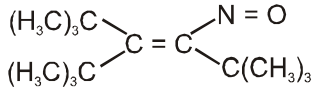
136 Tautomerism will be exhibited by :

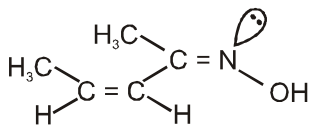
(A) $(CH_3)_2NH$ (B) $(CH_3)_3CNO$
(C) R_3CNO_2 (D) RCH_2NO_2

137. Which of the following will not show tautomerism ?

(A) 

(B) 

(C) 

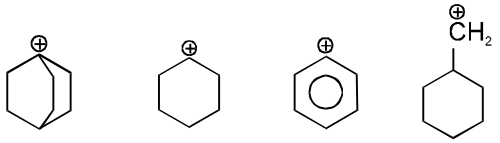
(D) 

138. The most unstable carbocation is

(A) $CH_3\overset{\oplus}{C}H_2$ (B) $Cl-CH_2-\overset{\oplus}{C}H_2$

(C) $\overset{\oplus}{C}H_2-CHO$ (D) $\overset{\oplus}{C}H_2-O-CH_3$

139. The stability order of following carbocation is :

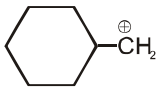


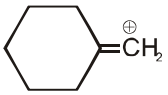
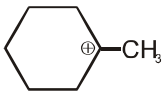
I II III IV

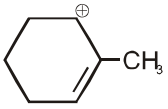
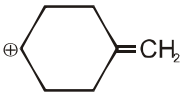
(A) I > II > IV > III (B) III > I > II > IV

(C) IV > II > III > I (D) II > IV > III > I

140. Following carbocation will rearrange to more stable carbocation ?

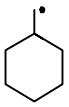


(A)  (B) 

(C)  (D) 

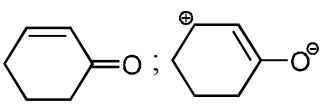
141. Most stable radical among following.

(A)  (B) 

(C)  (D) 

142. Which of the following are not resonating structures of each other ?

(A) $CH_3-\overset{\overset{O}{\|}}{C}-CH_3$; $CH_3-\overset{\overset{OH}{|}}{C}=CH_2$ (B)



(C) $CH_3-\overset{\overset{\oplus OH}{\|}}{C}-CH_3$; $CH_3-\overset{\overset{OH}{|}}{\underset{\oplus}{C}}-CH_3$

(D) $CH_2=C=O$ $\overset{\ominus}{C}H_2-C\equiv\overset{\oplus}{O}$

143. HNCO (isocyanic acid) has following resonating structures

$$\underset{\text{I}}{H-N=C=O} \longleftrightarrow \underset{\text{II}}{H-\overset{\ominus}{N}-C\equiv\overset{\oplus}{O}} \longleftrightarrow \underset{\text{III}}{H-\overset{\oplus}{N}\equiv C-\overset{\ominus}{O}}$$

The order of stablity is :

(A) I > III > II (B) I > II > III

(C) II > III > I (D) II > I > III

144. Which of the following is the least stable resonating structure :

(A) $CH_2=CH-\overset{\oplus}{C}H-\overset{\ominus}{C}H-NH_2$

(B) $\overset{\ominus}{C}H_2-\overset{\oplus}{C}H-CH=CH-NH_2$

(C) $\overset{\ominus}{C}H_2-CH=CH-CH=\overset{\oplus}{N}H_2$

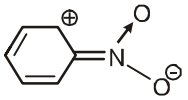
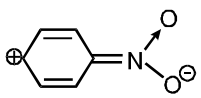
(D) $CH_2=CH-\overset{\ominus}{C}H-CH=\overset{\oplus}{N}H_2$

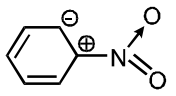
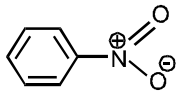
145. Least contributing resonating structure of nitroethene is :

(A) $CH_2=CH-\overset{+}{N}\begin{matrix}O\\O^-\end{matrix}$ (B) $\overset{+}{C}H_2-\overset{-}{C}H-\overset{+}{N}\begin{matrix}O\\O^-\end{matrix}$

(C) $\overset{-}{C}H_2-\overset{+}{C}H-\overset{+}{N}\begin{matrix}O\\O^-\end{matrix}$ (D) $\overset{+}{C}H_2-CH=\overset{+}{N}\begin{matrix}O^-\\O^-\end{matrix}$

146. Which will be the least stable resonating structure of nitrobenzene.

(A)  (B) 

(C)  (D) 

147. Which of the following resonating structures of 1-Methoxy-1,3-butadiene is least stable.

(A) $\overset{\ominus}{C}H_2-CH=CH-CH=\overset{\oplus}{O}-CH_3$

(B) $CH_2=CH-\overset{\ominus}{C}H-CH=\overset{\oplus}{O}-CH_3$

(C) $\overset{\ominus}{C}H_2-\overset{\oplus}{C}H-CH=CH-O-CH_3$

(D) $CH_2=CH-\overset{\oplus}{C}H-\overset{\ominus}{C}H-OCH_3$

148. Which of the pair of groups have overall electron withdrawing effect when are attached to a phenyl ring.

(A) –Cl, $–NO_2$ (B) $–NO_2$, OH

(C) –Cl, –OH (D) $–CN$, $–NH_2$

149. Stability of following alkenes in the increasing order is

$CH_3CH = CH – CH_3$ $CH_3 – C(CH_3) = C(CH_3) – CH_3$

(I) (II)

$CH_3 – C(CH_3) = CH_2$ $CH_3 – C(CH_3) = CH – CH_3$

(III) (IV)

(A) I < III < IV < II (B) I < II < III < IV

(C) IV < III < II < I (D) II < III < IV < I

150. The C–C bond length in propene is 149 pm which is little shorter than the C–C bond length in ethane which is 154 pm. This is due two :

(A) + I effect of CH_3 group

(B) Mesomeric effect

(C) Electromeric effect

(D) Hyper conjugation

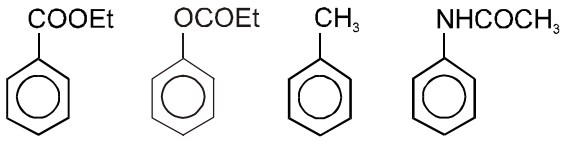
151. Which one of the following has inductive, mesomeric and hyperconjugation effect ?

(A) CH_3Cl (B) $CH_3 – CH = CH_2$

(C) $CH_3CH = CH–C(=O)–CH_3$

(D) $CH_2 = CH – CH = CH_2$

152. Write order of electron density in aromatic ring of following compounds.

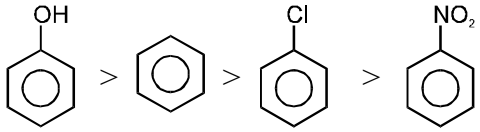


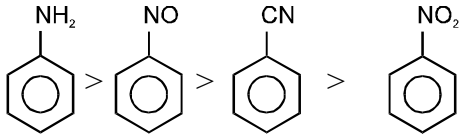
I II III IV

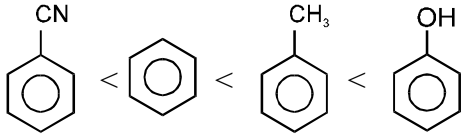
(A) IV > III > II > I (B) I > II > III > IV

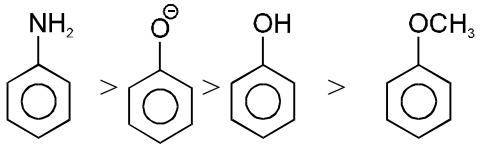
(C) IV > II > I > III (D) IV > II > III > I

153. Which is the incorrect order of electron density in aromatic ring.

(A) 

(B) 

(C) 

(D) 

154. The correct order of increasing C–O bond length in CO, CO_3^{2-}, CO_2 is

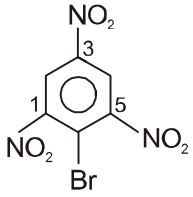
(A) $CO_3^{2-} < CO_2 < CO$

(B) $CO_2 < CO_3^{2-} < CO$

(C) $CO < CO_3^{2-} < CO_2$

(D) $CO < CO_2 < CO_3^{2-}$

155. Select the correct statement about this compound.



(A) All three C–N bond length are same.

(B) C_1–N and C_3–N bonds length are same but shorter than C_5–N bond length.

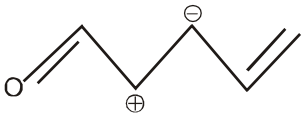
(C) C_1–N and C_5–N bonds length are same but longer than C_3–N bond length.

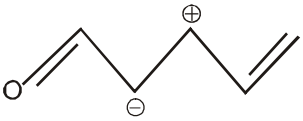
(D) C_1–N and C_3–N bonds length are different but both are longer than C_5–N bond length.

156. The least stable resonating strucutre is :

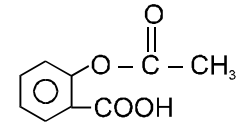
(A) 

(B) 

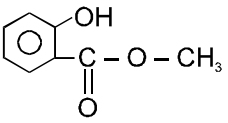
(C) 

(D) 

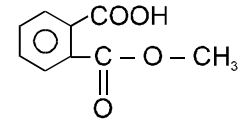
157. Find the strongest acid among the following compounds.

(A) 

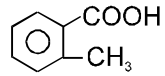
(Aspirin)

(B) 

(Oil of winter green)

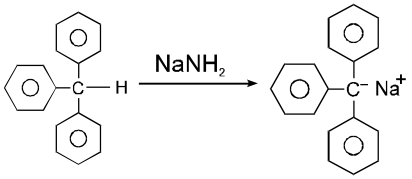
(C) 

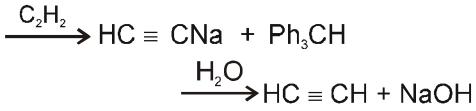
(o-Methoxycarbonyl benzoic acid)

(D) 

(o-Toluic acid)

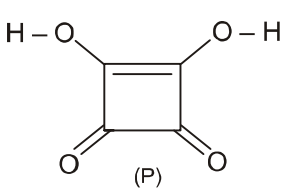
158. Order of K_a which can be predicted by following reaction is :



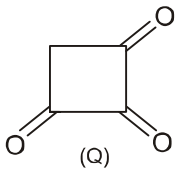


(A) $NH_3 > Ph_3CH > C_2H_2 > H_2O$
(B) $H_2O > HC \equiv CH > Ph_3CH > NH_3$
(C) $HC \equiv CH > H_2O > Ph_3CH > NH_3$
(D) $Ph_3CH > HC \equiv CH > H_2O > NH_3$

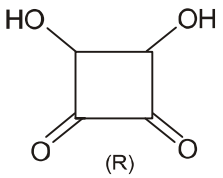
159. The correct pK_a order of the following acids is



(P)



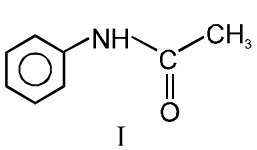
(Q)



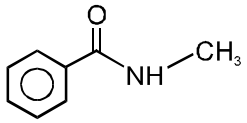
(R)

(A) P > Q > R (B) P > R > Q
(C) R > Q > P (D) R > P > Q

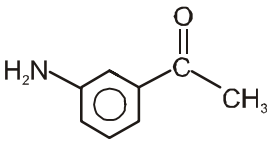
160. Write the basic strength order.



I



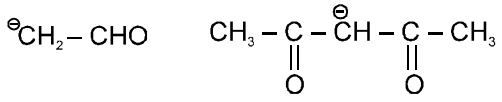
II



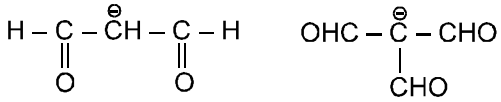
III

(A) III > II > I (B) II > III > I
(C) I > III > II (D) III > I > II

161. Arrange the following carbanions in decreasing order of stability :



I II

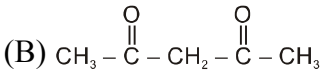


III IV

(A) IV > III > I > II (B) IV > II > III > I
(C) IV > III > II > I (D) III > IV > II > I

162. Which among the following compounds will give maximum enol content in solution :

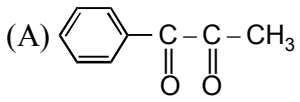
(A) 

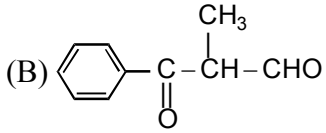
(B) 

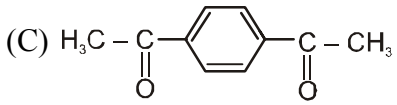
(C) 

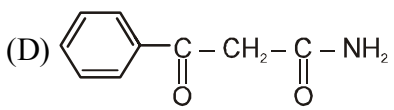
(D) 

163. Which of the following has highest % enol content in the liquid ?

(A) 

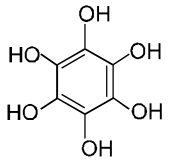
(B) 

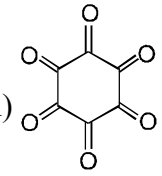
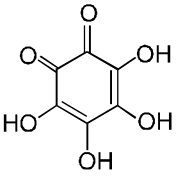
(C) 

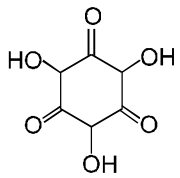
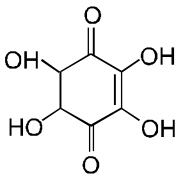
(D) 

164. Which among the following compounds will give maximum enol content in solution :

(A) 3-hexanone (B) 2, 4-hexanedione
(C) 2, 5-hexanedione (D) 2, 3-hexanedione

165. The most stable keto isomer of the following compound  is :

(A)  (B) 

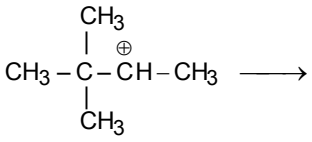
(C)  (D) 

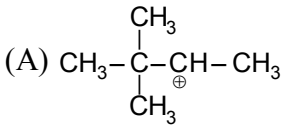
166. Nonplanar cation is :(non planar)

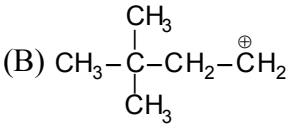
(A) $NH_4^{\oplus}$ (B) $\overset{\oplus}{C}H_3$

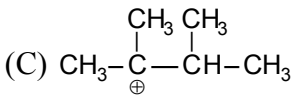
(C) $CH_3\overset{\oplus}{C}O$ (D) $(CH_3)_3C^+SbF_6^-$

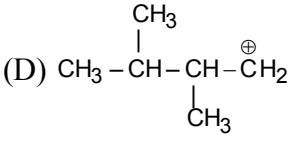
167. Following carbocation will rearrange to :



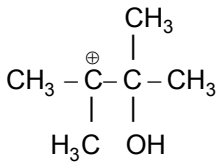
(A) 

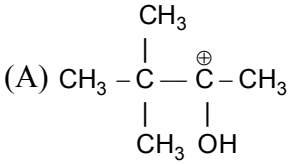
(B) 

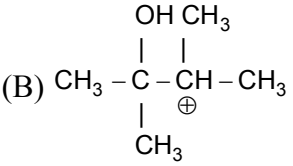
(C) 

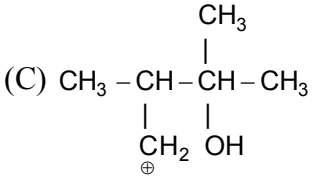
(D) 

168. The following carbocation rearranges to



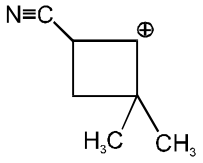
(A) 

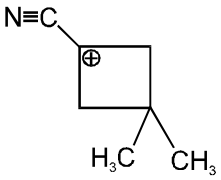
(B) 

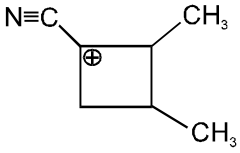
(C) 

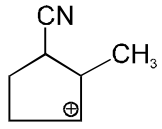
(D) none of above

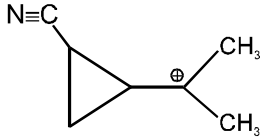
169. The following carbocation rearranges to



(A) 

(B) 

(C) 

(D) 

170. In which of the following species is the underlined carbon having sp^3 hybridisation ?

(A) $CH_3\underline{C}OOH$

(B) $CH_3\underline{C}H_2OH$

(C) $CH_3\underline{C}OCH_3$

(D) $CH_2=\underline{C}H–CH_3$.

171. Racemic mixture is formed by mixing two

(A) Isomeric compounds

(B) Chiral compounds

(C) Meso compounds

(D) Optical isomers

172. Which of the following does not show geometrical isomerism ?

(A) 1,2-Dichloro-1-pentene

(B) 1,3-Dichloro-2-pentene

(C) 1,1-Dichloro-1-pentene

(D) 1,4-Dichloro-2-pentene

173. Which of the following compounds has wrong IUPAC name ?

(A) $CH_3CH_2CH_2COOCH_2CH_3 \rightarrow$ Ethylbutanoate

(B) $CH_3–\underset{\underset{CH_3}{|}}{CH}–CH_2–CHO \rightarrow$ 3–Methylbutanal

(C) $CH_3–\underset{\underset{OH}{|}}{CH}–\underset{\underset{CH_3}{|}}{CH}–CH_3 \rightarrow$ 2–Methyl-3-butanol

(D) $CH_3–\underset{\underset{CH_3}{|}}{CH}–\overset{\overset{O}{||}}{C}–CH_2–CH_3 \rightarrow$ 2–Methyl-3-pentanone

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

(A) Isopropylmethyl ketone

(B) 2-Methyl-3-butanone

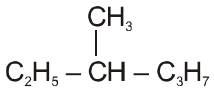
(C) 4-Methylisopropyl ketone

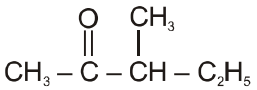
(D) 3-Methyl-2-butanone.

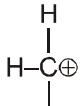
175. The general formula $C_nH_{2n}O_2$ could be for open chain

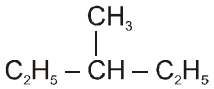
(A) Diketones (B) Carboxylic acids
(C) Diols (D) Dialdehydes

176. Among the following four structures I to IV.


(I)


(II)

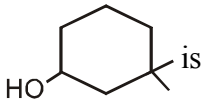

(III)


(IV)

it is true that

(A) All four are chiral compounds
(B) Only I and II are chiral compounds
(C) Only III is a chiral compound
(D) Only II and IV are chiral compounds

177. The IUPAC name of the compounds


is

(A) 3,3-Dimethyl -1-hydroxycyclohexane
(B) 1,1 -Dimethyl-3-hydroxycyclohexane
(C) 3,3-Dimethyl-1-cyclohexanol
(D) 1,1-Dimethyl-3-cyclohexanol

178. Which one of the following does not have sp^2 hybridized carbon ?

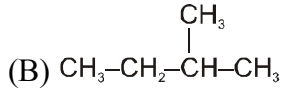
(A) Acetone
(B) Acetic acid
(C) Acetonitrile
(D) Acetamide

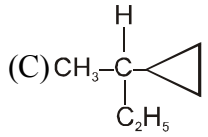
179. Which of the following will have a meso-isomer also ?

(A) 2-Chlorobutane
(B) 2,3-Dichlorobutane
(C) 2,3-Dichloropentane
(D) 2-Hydroxypropanoic acid

180. Amongst the following compounds, the optically acitve alkane having lowest molecular mass is

(A) $CH_3–CH_2–CH_2–CH_3$


(B)


(C)

(D) $CH_3–CH_2–C\equiv CH$

181. Which of the following compounds is not chiral ?

(A) 1–Chloropentane
(B) 2-Chloropentane
(C) 1-Chloro-2-methylpentane
(D) 3-Chloro-2-methylpentane

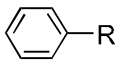
182. Of the five isomeric hexanes,the isomer which can give two monochlorinated compounds is –

(A) n–Hexane
(B) 2,3-Dimethylbutane
(C) 2,2-Dimethylbutane
(D) 2-Methylpentane

183. Which type of isomerism is shown by 2,3-dichlorobutane ?

(A) diastereomerism
(B) optical-isomerism
(C) geometric-isomerism
(D) structural-isomerism

184. In the following benzyl/allyl system

$R – CH = CH_2$ and 

(R is alkyl group)

decreasing order of inductive effect is :

(A) $(CH_3)_3C— > (CH_3)_2CH— > CH_3CH_2—$
(B) $CH_3CH_2— > (CH_3)_2CH— > (CH_3)_3C—$
(C) $(CH_3)_2CH— > CH_3CH_2— > (CH_3)_3C—$
(D) $(CH_3)_2C— > CH_3CH_2— > (CH_3)_3CH—$

185. The correct order of increasing basic nature for he bases NH_3, CH_3NH_2 and $(CH_3)_2NH$ is :

(A) $CH_3NH_2 < NH_3 < (CH_3)_2NH$

(B) $(CH_3)_2NH < NH_3 < CH_3NH_2$

(C) $NH_3 < CH_3NH_2 < (CH_3)_2NH$

(D) $CH_3NH_2 < (CH_3)_2NH < NH_3$

186. Consider the acidity of the carboxylic acids :

(i) PhCOOH

(ii) o-$NO_2C_6H_4COOH$

(iii) p-$NO_2C_6H_4COOH$

(iv) m-$NO_2C_6H_4COOH$

Which of the following order is correct

(A) i > ii > iii > iv (B) ii > iv > iii > i

(C) ii > iv > i > iii (D) ii > iii > iv > i

187 Among the following acid which has the lowest pK_a value ?

(A) CH_3CH_2COOH

(B) $(CH_3)_2CH - COOH$

(C) HCOOH

(D) CH_3COOH

188. Amongst the following the most basic compound is

(A) p-Nitroaniline

(B) Acetanilide

(C) Aniline

(D) Benzylamine