JEE MAIN ADVANCED NDA ENGINEERING

CHEMICA POINT

A Challenge in Chemistry

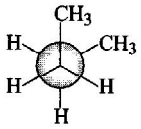
ISOMERISM

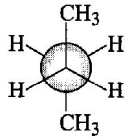
NEET AIIMS JIPMER MEDICAL

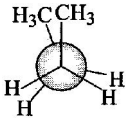
Instructor: ER. S.K. SINGH (B. Tech, M.Tech) M.N.N.I.T. Alld.

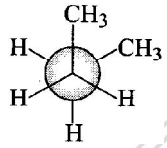
Only One Option is Correct

Q1. Which conformation of the alkane has the highest potential energy?

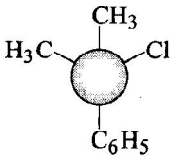
(a) 

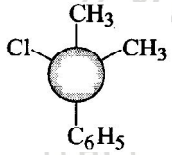
(b) 

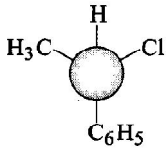
(c) 

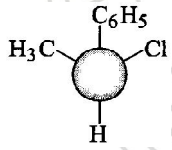
(d) 

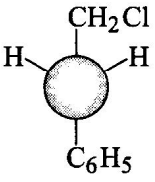
Q2. Chiral molecules are represented by

(I) 

(II) 

(III) 

(IV) 

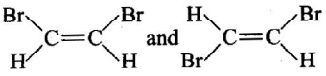
(v) 

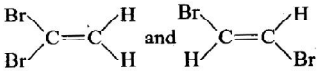
(a) III and IV (b) I, II, IV and V
(c) I, II, III and IV (d) I, II and IV

Q3. Which of the following pairs represent constitutional isomers?

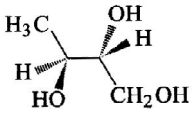
(a) $CH_3CH_2CH_3$ and 

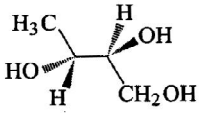
(b) $CH_3CH{=}CH_2$ and $CH_2{=}CHCH_3$

(c) 

(d) 

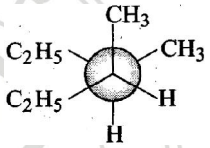
Q4. Determine the relationship between the two molecules

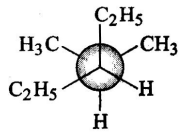


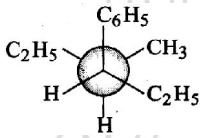


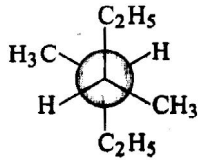
(a) constitutional isomers
(b) enantiomers
(c) diastereomers
(d) identical molecules

Q5. Which is the most stable conformation of 3, 4-dimethylhexane ?

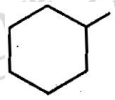
(a) 

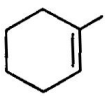
(b) 

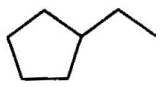
(c) 

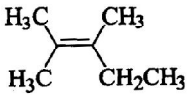
(d) 

Q6. Which is not isomers of C_7H_{14} ?

(a) 

(b) 

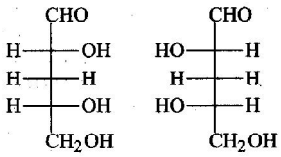
(c) 

(d) 

Q7. A sample of (+)-2-chloropentane has an optical purity of 36% . What % age of this sample is (-)-2-chloropentane ?

(a) 68% (b) 64%
(c) 36% (d) 32%

Q8. What is the relationship between the pair compounds ?



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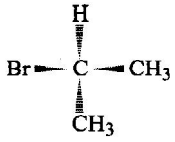
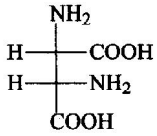
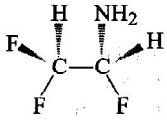
Mobile No. 9839206708 / 9984889076

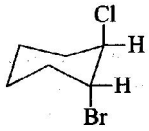
(a) same compound
(b) enantiomers
(c) diastereomers
(d) constitutional isomers

Q9. Which of the following molecule/molecules have a plane of symmetry ?

(1) 

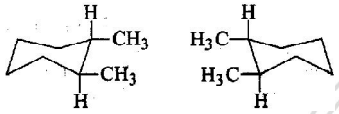
(2) 

(3) 

(4) 

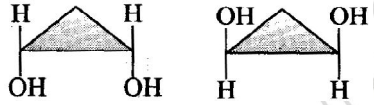
(a) 1, 2 (b) only 1
(c) only 2 (d) 1, 2, 3, 4

Q10. The two compounds whose structures are shown have _____ melting points. Their rotation of plane-polarised light would be



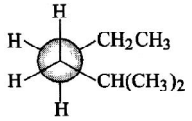
(a) equal, equal in magnitude but in opposite direction
(b) equal, identical
(c) different, both equal to zero
(d) different, different

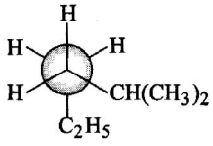
Q11. What is the relationship between the compounds ?

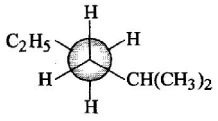


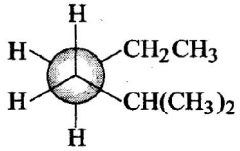
(a) same compound
(b) enantiomers
(c) diastereomers
(d) constitutional isomers

Q12. Which of the following represent the lowest energy conformer of 2-methylhexane considering the rotation about C-3, C-4?

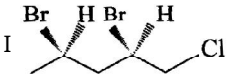
(a) 

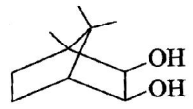
(b) 

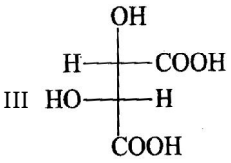
(c) 

(d) 

Q13. Which of the molecules are chiral ?

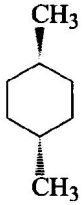
I 

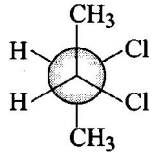
II 

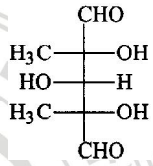
III 

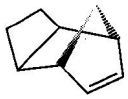
(a) I, II (b) II, III
(c) I, III (d) All of these

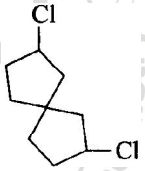
Q14. Which of the molecules are chiral ?

(I) 

(II) 

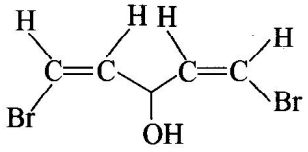
(III) 

(IV) 

(V) 

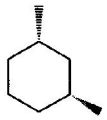
(a) I and II (b) III and IV
(c) III and V (d) II and IV

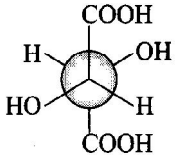
Q15. How many stereoisomers of the molecule are possible ?

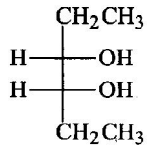


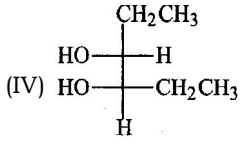
(a) 4 (b) 3
(c) 5 (d) 6

Q16. Which of the following will show optical activity?

(I) 

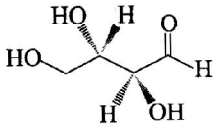
(II) 

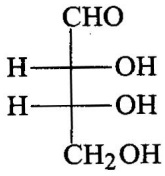
(III) 

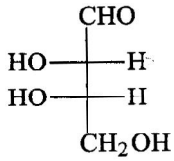
(IV) 

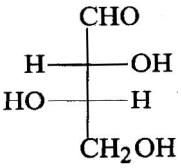
(V) 50 : 50 mixture of III and IV
(a) I, IV, V (b) I and V only
(c) All except III (D) II, III and V

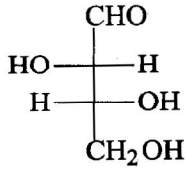
Q17. Which of the Fischer projection formula correspond to the following stereostructure?



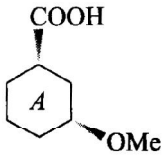
(a) 

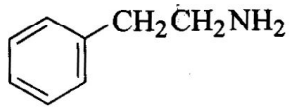
(b) 

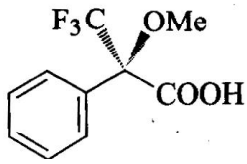
(c) 

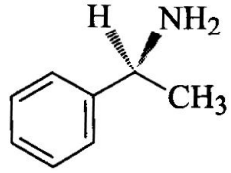
(d) 

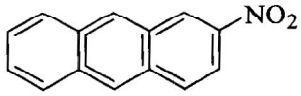
Q18. Which of the following below would be a reasonable reagent to try in the resolution of cis-3-methoxycyclohexanecarboxylic acid (A) into its enantiomeric forms?



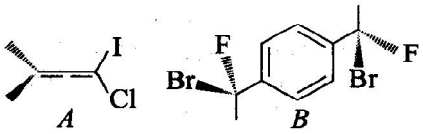
(a) 

(b) 

(c) 

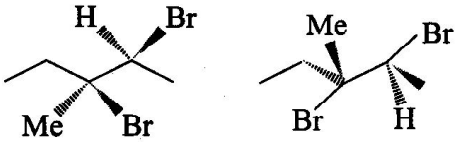
(d) 

Q19. Which of the following molecule is (are) chiral?



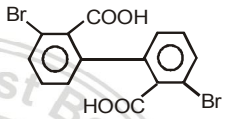
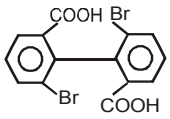
(a) A (b) B
(c) both (a) and (b) (d) none of these

Q20. The following compounds are related as



(a) diastereomers (b) enantiomers
(c) meso (d) identical

Q21. The number of primary secondary and tertiary amines possible with the molecular formula C_3H_9N respectively.
(a) 1, 2, 2 (b) 1, 2, 1
(c) 2, 1, 1 (d) 3, 0, 1

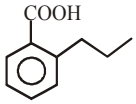
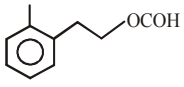
Q22.  and  are
(a) Positional (b) Chain
(c) Goemetrical (d) Functional

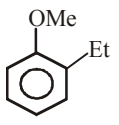
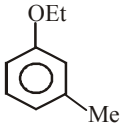
Q23. Only two isomeric monochloro derivatives are possible for (excluding stereo)
(a) n-butane
(b) 2, 2-dimethylpentane
(c) Benzene
(d) Neopentane

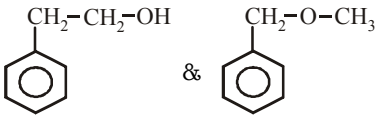
Q24. Molecular formula $C_5H_{10}O$ can have :
(a) 6-Aldehyde, 4-ketone
(b) 5-Aldehyde, 3-ketone
(c) 4-Aldehyde, 3-ketone
(d) 5-Aldehyde, 2-ketone

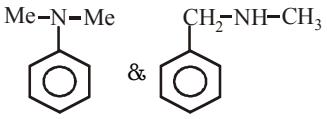
Q25. How many primary amines are possible for the formula $C_4H_{11}N$?
(a) 2 (b) 3
(c) 4 (d) 5

Q26. The compounds $C_2H_5OC_2H_5$ and $CH_3OCH_2CH_2CH_3$ are
(a) Chain isomers
(b) Geometrical isomers
(c) Metamers
(d) Conformational isomers

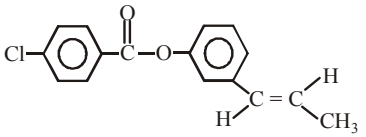
Q27.  &  functional isomer

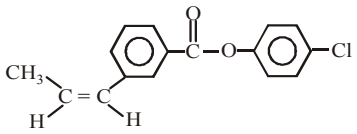
 &  metamers


metamers


functional isomers

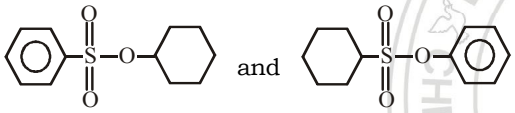
(a) TFTF (b) FTTF
(c) TTFT (d) TFFT

Q28.  and



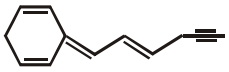
Shows which type of isomerism
(a) Functional group isomerism
(b) Geometrical isomerism
(c) Metamerism
(d) Position isomerism

Q29. Given compound shows which type of isomerism



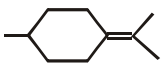
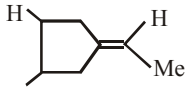
(a) Chain isomerism (b) Positional isomerism
(c) Metamerism
(d) Functional group isomerism

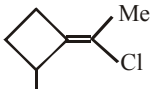
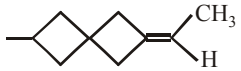
Q30. The number of cis-trans isomer possible for the following compound



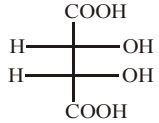
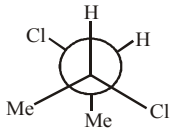
(a) 2 (b) 4
(c) 6 (d) 8

Q31. Which of the following will not show geometrical isomerism

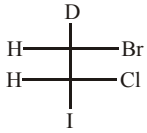
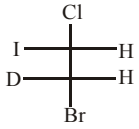
(a)  (b) 

(c)  (d) 

Q32. Which of the following will not show optical isomerism.
(a) Cl – CH = C = C = CH – Cl
(b) Cl – CH = C = C = C =CH – Cl

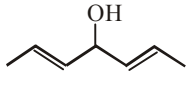
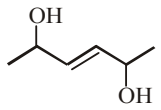
(c)  (d) 

Q33. The two compounds given below are

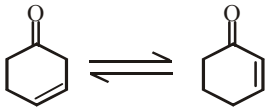



(a) Enantiomers (b) Identical
(c) Optically inactive (d) Diastereomers

Q34. Total number of stereoisomer of following compounds are respectively.

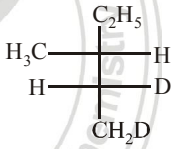
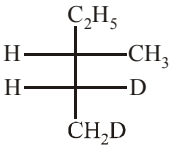
(a) 4, 6 (b) 4, 4
(c) 6, 6 (d) 8, 8

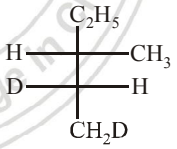
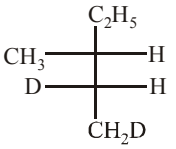
Q35. 

Above interconversion takes place in
(a) Acidic medium (b) Enantiomers
(c) Diastereomers (d) Racemic mixture

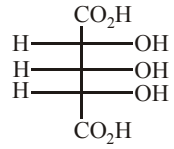
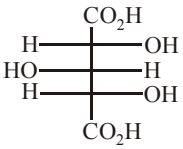
Q36. Meso-tartaric acid and d-tartaric acid are
(a) Positional isomers (b) Enantiomers
(c) Diastereomers (d) Racemic mixture

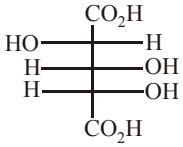
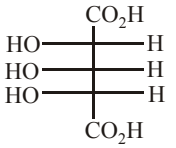
Q37. The structure of (2R, 3S)$C_2H_5CH(CH_3)CH(D)\ CH_2D$ is

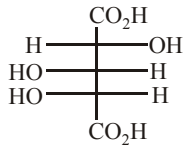
(a)  (b) 

(c)  (d) 

Q38. Observe the given compounds and answer the following questions.

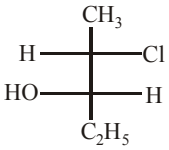
(I)  (II) 

(III)  (IV) 

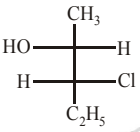
(V) 

(i) Which of the above formulae represent identical compounds ?
(a) I and II (b) I and IV
(c) II and IV (d) III and IV

(ii) Which of the above compounds are enantiomers ?
(a) II and III (b) III and IV
(c) III and V (d) I and V

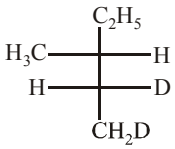
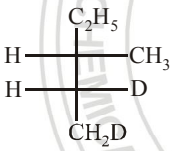
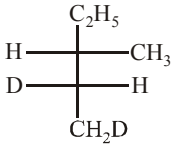
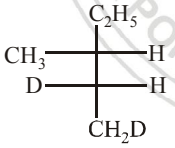
Q39. 

The compound with the above configuration is called :
(a) (2S, 3S)-2-chloro-3-pentanol
(b) (2S, 3R)-2-chloro-3-pentanol
(c) (2R, 3R)-2-chloro-3-pentanol
(d) (2R, 3S)-2-chloro-3-pentanol

Q40. The full name of the compound  is

(a) (2R, 3R)-3-chloro-2-pentanol
(b) (2R, 3S)-3-chloro-2-pentanol
(c) (2S, 3R)-3-chloro-2-pentanol
(d) (2S, 3S)-2-chloro-3-pentanol

Q41. The structure of (2R, 3R)$C_2H_5CH(CH_3)CH(D)\ CH_2D$ is

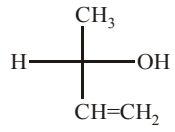
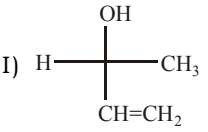
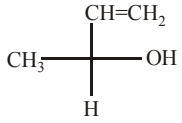
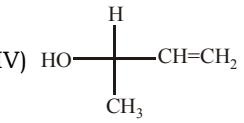
(a) 
(b) 
(c) 
(d) 

Q42. What observed rotation is expected when a 1.5M solution of (R)-2-butanol is mixed with an equal volume of a 0.75 M solution of racemic-2-butanol and the resulting solution is analysed in a sample container that is 1dm long? The specific rotation of (R)-2-butanol is–13.9°ml gm^{-1} dm^{-1}.
(a) + 0.77° (b) – 0.77°
(c) + 0.35° (d) – 0.35°

Q43. A pure sample of 2-chlorobutane shows rotation of PPL by 30° in standard conditions. When above sample is made impure by mixture its opposite form, so that the composition of the mixture becomes 87.5% d-form and 12.5% l-form, then what will be the observed rotation for the mixture.
(a) – 22.5° (b) + 22.5°
(c) + 7.5° (d) – 7.5°

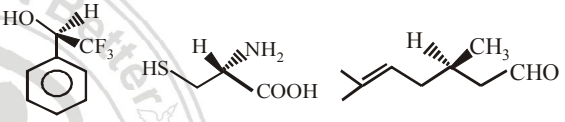
Q44. When an optically active compound is placed in a 10 dm tube is present 20 gm in a 200 ml solution rotates the PPL by 30°. Calculate the angle of rotation & specific angle of rotation if above solution is diluted to 1 litre.
(a) 16° & 36° (b) 6° & 30°
(c) 3° & 30° (d) 6° & 36°

Q45. Which of the following combinations amongst the four Fischer projections represents the same absolute configurations ?

(I) 
(II) 
(III) 
(IV) 

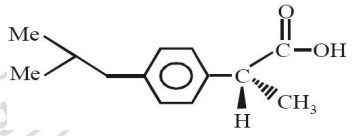
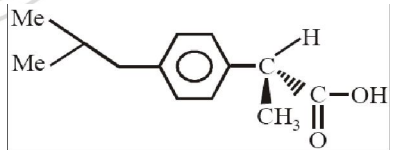
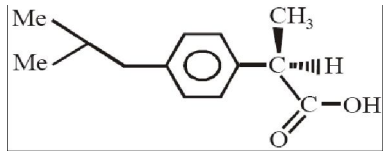
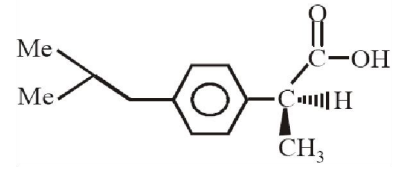
(a) II and III (b) I and IV
(c) II and IV (d) III and IV

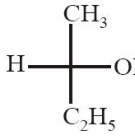
Q46. The R/S configuration of these compounds are respectively.



(a) R, R, R (b) R, S, R
(c) R, S, S (d) S, S, S

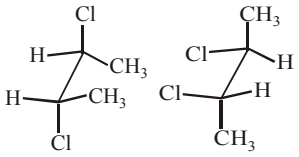
Q47. The S-ibuprofen is responsible for its pain relaveing property. Which one of the structure shown is S-ibuprofen.

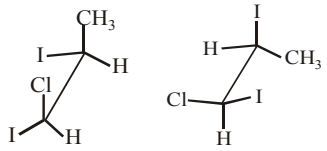
(a) 
(b) 
(c) 
(d) 

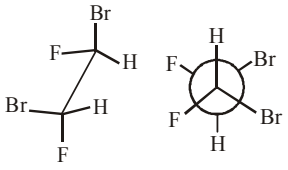
Q48. Which of the following operations on the Fischer formula  does not change its absolute configuration ?

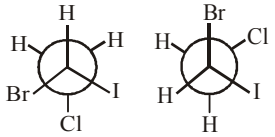
(a) Exchanging groups across the horizontal bond
(b) Exchanging groups across the vertical bond
(c) Exchanging groups across the horizontal bond and also across the vertical bond
(d) Exchanging a vertical and horizontal group

Q49. Which of the following pairs of compound is/are identical ?

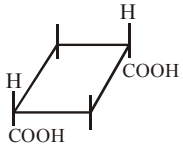
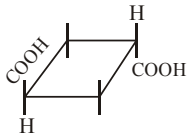
(a) 

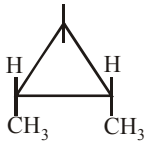
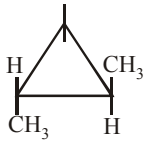
(b) 

(c) 

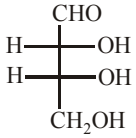
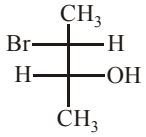
(c) 

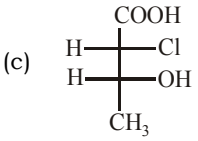
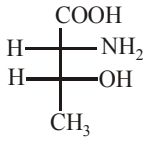
Q50. Which out of the following are resolvable.

(a)  (b) 

(c)  (d) 

Q51. Which of the following is a 'threo' isomer ?

(a)  (b) 

(c)  (d) 

Q52. If 33.8 g of (+) MSG was put in 338 ml solution and was mixed with 16.9 g of (–) MSG put in 169 ml solution and the final solution was passed through 400 mm tube. Find out observed rotation of the final solution.

(a) + 1.6° (b) + 4.8°
(c) + 3.2° (d) None of these

Q53. The number of enantiomers of the compound $CH_3CHBrCHBrCOOH$ is **(AIIMS 1997)**

(a) 0 (b) 1
(c) 3 (d) 4

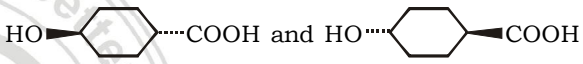
Q54. The most stable conformation of n-butane is **(CBSE PMT 1997)**

(a) Skew-boat (b) Eclipsed
(c) Gauche (d) Staggered-antil

Q55. Tautomerism will be exhibited by **(CBSE PMT 1997)**

(a) $(CH_3)_3CNO$ (b) $(CH_3)_2NH$
(c) R_3CNO_2 (d) RCH_2NO_2

Q56. The compound given below are **(GATE 1997)**



(a) Enantiomers (b) Identical
(c) Regiomers (d) Diastereomers

Q57. The least number of carbon atoms in alkane forming isomers is **(Pb. CET 1997)**

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

Q58. Which are isomers ? **(Pb. CET 1997)**

(a) Ethyl alcohol and dimethyl ether
(b) Acetone and acetaldehyde
(c) Propionic acid and propanone
(d) Methyl alcohol and dimethyl ether

Q59. The total number of isomeric alcohols with the molecular formula C_4H_9OH is **(KCET 1997)**

(a) 2 (b) 3 (c) 4 (d) 5

Q60. The number of possible open chain (acyclic) isomeric compounds for molecular formula C_5H_{10} would be **(AMU 1997)**

(a) 8 (b) 7
(c) 6 (d) 5

Q61. Which of the following compounds is isomeric with 2, 2, 4, 4-tetramethylhexane **(AMU 1997)**

(a) 3-Ethyl-2, 2-dimethylpentane
(b) 4-Isopropylheptane
(c) 4-Ethyl-3-methyl-4-n-propyloctane
(d) 4, 4-Diethyl-3-methylheptane.

Q62. In the boat conformation of cyclohexane, the most destabilizing intereaction is **(GATE 1997)**

(a) Eclipsing (b) 1, 3-Diaxial
(c) 1, 3-Diequatorial (d) Flagpole-Flagpole

Q63. The total number of isomeric trimethylbenzene is **(MP CET 1998)**

(a) 2 (b) 3
(c) 4 (d) 6

Q64. The number of possible acyclic structural isomers of $C_4H_{10}O$ is **(MP PET 1998)**

(a) 5 (b) 6
(c) 7 (d) 8

Q65. $C_6H_5CHO + HCN \longrightarrow C_6H_5-\underset{\underset{OH}{|}}{\overset{\overset{H}{|}}{C}}-CN$

The product would be **(Pb. PMT 1998)**

(a) A racemate
(b) Optically active
(c) A meso compound
(d) A mixture of diastereomers

Q66. Which of the following compound is not chiral **(CBSE PMT 1998)**

(a) $DCH_2CH_2CH_2Cl$ (b) CH_3CHDCH_2Cl
(c) $CH_3CHClCH_2D$ (d) CH_3CH_2CHDCl

Q67. A functional isomer of 1-butyne is

(a) 2-Butyne (b) 1-Butene
(c) 2-Butene (d) 1, 3-Butadiene

Q68. Which of the following has zero dipole moment? **(Haryana CEET 1998)**

(a) 1, 1-Dichloromethane
(b) cis-1, 2-Dichloroethene
(c) trans-1, 2-Dichloroethene
(d) 1-Chloroethane

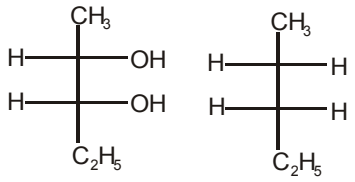
Q69. The Baeyer's angle strain is expected to be maximum in **(GATE 1998)**

(a) Cyclodecane (b) Cyclopentane
(c) Cyclohexane (d) Cyclooctane

Q70 The optically active tartaric acid is named as D-(+)-tartaric acid because it has a positive **(IIT 1999)**

(a) Optical rotation and is derived from D-glucose
(b) pH in organic solvent
(c) Optical rotation and is derived from D-(+)-glyceraldehyde
(d) Optical rotation only when substituted by deuterium

Q71 The following two compounds are **(GATE 1999)**



are

(a) Enantiomers (b) Diastereomers
(c) Identical (d) Epimers

Q72. (+)-Mandelic acid has a specific rotation of +158°. What would be the observed specific rotation of a mixture of 25% (–)-mandelic acid and 75% (+)-mandelic acid ? **(SCRAE 1999)**

(a) + 118.5° (b) –118.5°
(c) –79° (d) + 79°

Q73. The molecule having dipole moment is **(Pb. CET 1999)**

(a) 2, 2-Dimethylpropane
(b) trans-2-Pentene
(c) Hexane
(d) 2, 2, 3, 3-Tetramethylbutane

Q74. The number of isomers possible for C_7H_8O is **(CPMT 1999)**

(a) 2 (b) 3
(c) 4 (d) 5

Q75. The number of geometrical isomers of $CH_3CH = CH - CH = CH - CH = CHCl$ is **(Manipal PMT 1999)**

(a) 2 (b) 4
(c) 6 (d) 8

Q76. Optically active isomers but not mirror images are called **(MP PET 1999)**

(a) Enantiomers (b) Mesomers
(c) Tautomers (d) Diastereomers

Q77. An organic compound will show optical isomerism if **(MP PET 1999)**

(a) Four groups attached to C atom are different
(b) Three groups attached to C atom are different
(c) Two groups attached to C atom are different
(d) All the groups attached to C atom are same.

Q78. C_3H_9N cannot represent **(BHU 2000)**

(a) 1° Amines (b) 2° Amines
(c) 3° Amines (d) Quaternary salt

Q79. Which of the following compounds will exhibit geometrical isomerism ? **(IIT Screening Test 2000)**

(a) 1-Phenyl-2-butene (b) 3-Phenyl-1-butene
(c) 2-Phenyl-1-butene
(d) 1, 1-Diphenyl-1-propene

Q80. Which of the following is optically active ? **(Haryana CEET 2000)**

(a) Butane (b) 4-Methylheptane
(c) 3-Methylheptane (d) 2-Methylpentane

Q81. Number of stereoisomers of the compound, 2-chloro-4-methylhex-2-ene is/are **(Haryana CEET 2000)**

(a) 1 (b) 2 (c) 4 (d) 16

Q82. The number of stereoisomers for pent-3-en-2-ol is **(Haryanan CEET 2000)**

(a) 2 (b) 4 (c) 3 (d) 5

Q83. $HO-C_6H_4-CH = CH - \underset{\underset{OH}{|}}{CH} - COOH$ will show **(DCE 2000)**

(a) Geometrical isomerism
(b) Optical isomerism
(c) Geometrical and optical isomerism
(d) Neither geometrical nor optical isomerism

Q84. The compound $C_4H_{10}O$ can show **(MP PET 2000)**

(a) Metamerism
(b) Functional isomerism
(c) Position isomerism
(d) All types

Q85. The number of primary amines of formula $C_4H_{11}N$ is **(MP PET 2000)**
(a) 1 (b) 2 (c) 3 (d) 4

Q86. Which of the following is the most stable form of cyclohexane ? **(Kerala MEE 2000)**
(a) Boat (b) Planar
(c) Twist boat (d) Chair

Q87. How many isomers can C_5H_{12} have ? **(Kerala MEE 2000)**
(a) 3 (b) 2 (c) 4 (d) 5

Q88. An isomer of propanal is **(Kerala CEE 2000)**
(a) Acetone (b) Propane
(c) Ethanol (d) Propanol

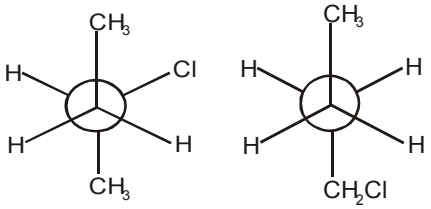
Q89. The number of possible alkynes with molecular formula C_5H_8 is **(MP PMT 2000)**
(a) 2 (b) 3 (c) 4 (d) 5

Q90. The (R)-and (S)-enantiomers of an optically active compound differ in **(CBSE PMT 2000)**
(a) Their reactivity with achiral reagents
(b) Their optical rotation of plane polarized light
(c) Their melting points
(d) Their solubility in achiral reagents.

Q91. But-2-ene exhibits cis-trans-isomerism due to **(CBSE PMT 2000)**
(a) Rotation around C_3–C_4 sigma bond
(b) Restricted rotation around C = C bond
(c) Rotation around C_1–C_2 bond
(d) Rotation around C_2–C_3 double bond.

Q92. How many cyclic isomers (including stereoisomers) of C_5H_{10} are possible ? **(DPMT 2000)**
(a) 4 (b) 7
(c) 6 (d) 5

Q93. The pair of structures given below represent **(NSE 2001)**



(a) Enantiomers
(b) Diastereomers
(c) Structural isomers
(d) Two molecules of the same compound

Q94. Consider the following organic compound,

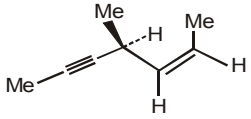
$$\overset{1}{C}H_3-\overset{2}{C}H_2-\overset{3}{C}H_2-\overset{4}{C}H_2-\overset{5}{C}H_2-\overset{6}{C}H_2-\overset{7}{C}H_3$$

To make it a chiral compound, the attack should be on carbon **(DCE 2001)**
(a) 1 (b) 3 (c) 4 (d) 7

Q95. A compound with molecular formula, C_7H_{16} shows optical isomerism, the compound will be **(CBSE PMT 2001)**
(a) 2, 3-dimethylpentane
(b) 2, 2-dimethylpentane
(c) 2-methylhexane
(d) None of these

Q96. Which of the following will show geometrical isomerism ? **(DPMT 2001)**
(a) 1-Butene (b) 1, 2-Dibromobutene
(c) Propene (d) Isobutylene

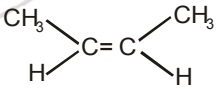
Q97. The number of ether metamers represented by the formula $C_4H_{10}O$ is **(Tamilnadu CET 2001)**
(a) 4 (b) 3 (c) 2 (d) 1

Q98.  **(IIT Screening Test 2001)**

Hydrogenation of the above compound in the presence of poisoned palladium catalyst gives
(a) Optically active compound
(b) An optically inactive compound
(c) A racemic mixture
(d) A diastereomeric mixture

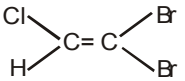
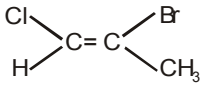
Q99. The number of isomers for the compound with molecular formula $C_2BrClFI$ is **(IIT Screening Test 2001)**
(a) 3 (b) 4 (c) 5 (d) 6

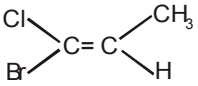
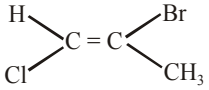
Q100. Which of the following compounds exhibits stereoisomerism ? **(IIT Screening Test 2002)**
(a) 2-Methylbutene-1 (b) 3-Methylbutyne-1
(c) 3-Methylbutanoic acid
(d) 2-Methylbutanoic acid

Q101. Which of the following has the lowest dipole moment ? **(IIT Screening Test 2002)**
(a)  (b) $CH_3-C\equiv C-CH_3$
(c) $CH_3CH_2C\equiv CH$ (d) $CH_2=CH-C\equiv CH$

Q102. The prefixes syn and anti are used to denote **(DPMT 2002)**
(a) Structural isomers
(b) Conformational isomers
(c) Geometrical isomers (d) Optical isomers

Q103. Which is a pair of geometrical isomers ? **(DPMT 2002)**

I.  II. 

III.  IV. 

(a) I and II (b) I and III
(c) II and IV (d) III and IV

Q104. Isomers of propionic acid are **(MP PMT 2002)**

(a) $HCOOC_2H_5$ and CH_3COOCH_3

(b) $HCOOC_2H_5$ and C_3H_7COOH

(c) CH_3COOCH_3 and C_3H_7OH

(d) C_3H_7OH and CH_3COCH_3

Q105. A similarity between optical and geometrical isomerism is that **(AIEEE 2002)**

(a) Each forms equal number of isomers for a given compound

(b) If in a compound, one is present then so is the other

(c) Both are included in stereoisomerism

(d) They have no similarity

Q106. Which of the following does not show geometrical isomerism ? **(AIEEE 2002)**

(a) 1, 2-dichloro-1-pentene

(b) 1, 3-dichloro-1-pentene

(c) 1, 1-dichloro-1-pentene

(d) 1, 4-dichloro-2-pentene

Q107. Cis-trans isomers generally **(Kerala CET 2003)**

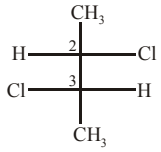
(a) Contain an asymmetric carbon atom

(b) Rotate the plane of polarized light

(c) Are enatiomorphs

(d) Contain double bonded carbon atoms

Q108. The absolute configurations of the following compound is **(AIIMS 2003)**



(a) 2S, 3R (b) 2S, 3S

(c) 2R, 3S (d) 2R, 3R

Q109. A compound whose molecules are superimposable on their mirror images even through they contain asymmetric carbon atom is called **(Kerala MEE 2003)**

(a) A meso compound (b) An erythro isomer

(c) A threo isomer (d) A glycol

Q110. In the reaction,

$CH_3CHO + HCN \longrightarrow CH_3CH(OH)CN \xrightarrow{H^+/H_2O} CH_3CH(OH)COOH$

an asymmetric centre is generated. The acid obtained would be **(CBSE PMT 2003)**

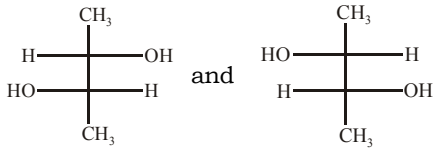
(a) D-isomer

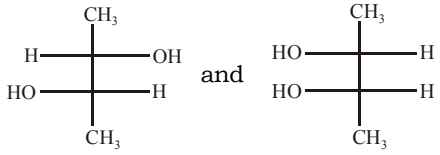
(b) L-isomer

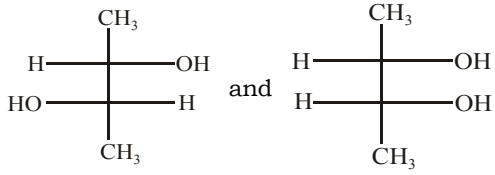
(c) 50% D + 50% L-isomer

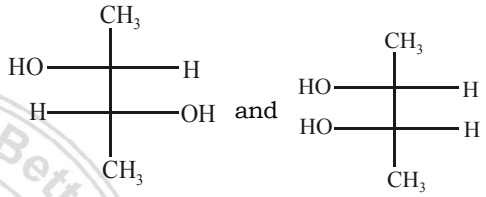
(d) 20% D + 80% L-isomer

Q111. Which of the following pairs of compounds are enantiomers ? **(CBSE PMT 2003)**

(a)  and

(b)  and

(c)  and

(d)  and

Q112. Among the following four structures I to VI **(AIEEE 2003)**

(I) $C_2H_5-\underset{\displaystyle CH_3}{\underset{|}{CH}}-C_3H_7$ (II) $CH_3-\overset{\displaystyle O}{\overset{\|}{C}}-\underset{\displaystyle CH_3}{\underset{|}{CH}}-C_2H_5$

(III) $H-\overset{\displaystyle H}{\overset{|}{C^+}}$ (IV) $C_2H_5-\underset{\displaystyle CH_3}{\underset{|}{CH}}-C_2H_5$

It is true that

(a) Only II and IV are chiral compounds

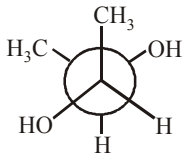
(b) All four are chiral compounds

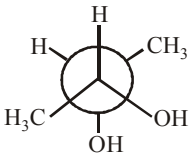
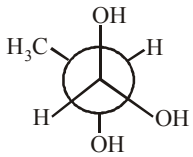
(c) Only I and II are chiral compounds

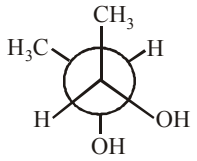
(d) Only III is a chiral compound

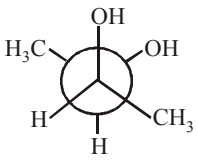
More Than One Option is Correct

Q113. Which of the following molecules is/are identical with that represented by



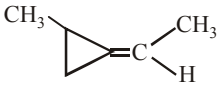
(a)  (b) 

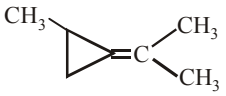
(c) 

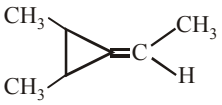
(d) 

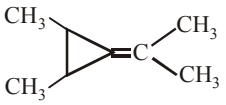
Q114. Which of the following have zero dipole moment ?
(a) p-Dichlorobenzene (b) Benzene-1, 4-diol
(c) Fumaric acid (d) Maleic acid

Q115. Which of the following will show optical isomerism as well as geometrical isomerism.

(a) 

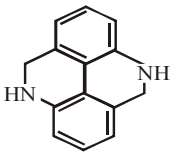
(b) 

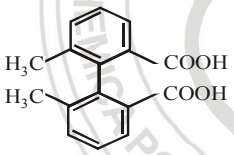
(c) 

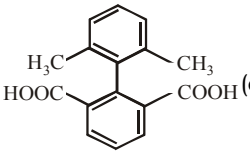
(d) 

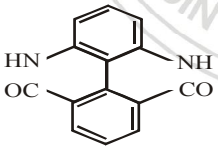
Q116. Which of the following statement is/are not correct ?
(a) Metamerism belongs to the category of structural isomerism
(b) Tautomeric structures are the resonating structures of a molecule
(c) Keto form is always more stable than the enol form
(d) Geometrical isomerism is shown only by alkenes

Q117. Select the optically inactive compound among the following :

(a) 

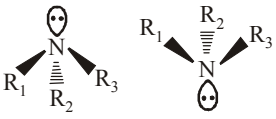
(b) 

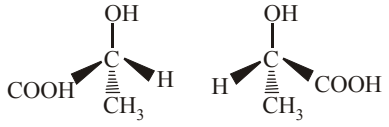
(c) 

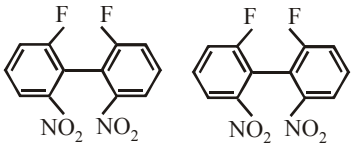
(d) 

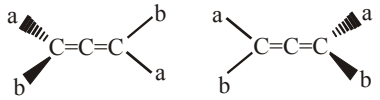
Q118. Which of the following statements for a meso compound is/are correct ?
(a) The meso compound has either a plane or centre of symmetry
(b) The meso compound has at least one pair of similar stereocenters
(c) The meso compound is achiral
(d) The meso compound is formed when equal amounts of two enantiomers are mixed

Q119. Which of the following pairs can be resolved?

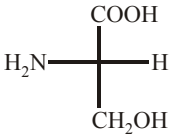
(a) 

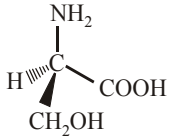
(b) 

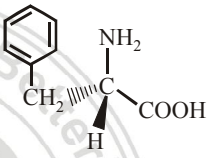
(c) 

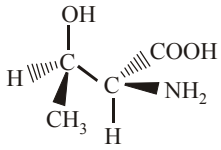
(d) 

Q120. Which of the following are correct representation of L-amino acids

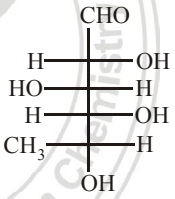
(a) 

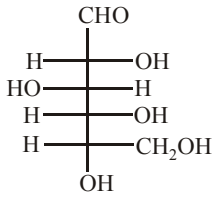
(b) 

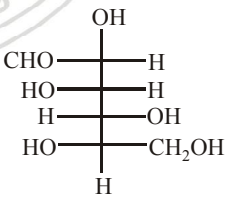
(c) 

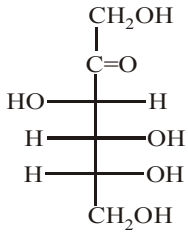
(d) 

Q121. Which of the following are D sugars :

(a) 

(b) 

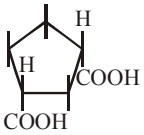
(c) 

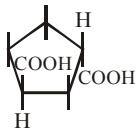
(d) 

Q122. Which out the following are Non-resolvable.

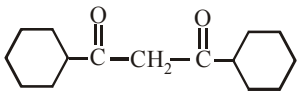
(a) 

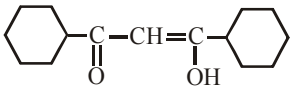
(b) 

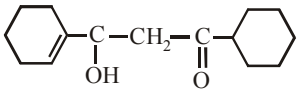
(c) 

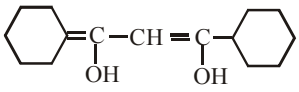
(d) 

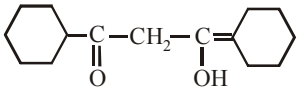
Q123. Tautomer of following compound is :



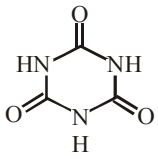
(a) 

(b) 

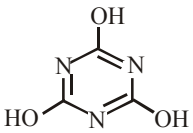
(c) 

(d) 

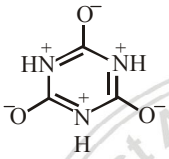
Q124. What is relation between (I), (II) and (III) ?



(I)



(II)



(III)

(a) I and II are tautomers
(b) III is conjugate base of II
(c) III is resonance structure of I
(d) No relation exists

Q125. Which of the following have asymmetric carbon atom ? **(IIT 1989)**

(a) CH_2Cl-CH_2Br (b) CH_3-CHCl_2

(c) $CH_3-CHDCl$ (d) $CH_2Br-CHOH-CH_3$

Q126. Which of the following pairs represents stereoisomerism? **(AIIMS 1992)**

(a) Geometrical isomerism, position isomerism
(b) Geomertrical isomerism, conformational isomerism
(c) Optical isomerism, geometrical isomerism
(d) Optical isomerism, metamerism.

Q127. Keto-enol tautomerism is observed in **(IIT 1988)**

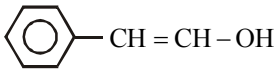
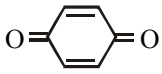
(a) C_6H_5CHO (b) $C_6H_5COCH_3$

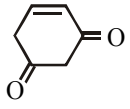
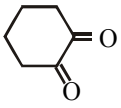
(c) $C_6H_5COC_6H_5$ (d) $C_6H_5COCH_2COCH_3$

Q128. Which of the following compounds will show geometrical isomerism? **(IIT 1998)**

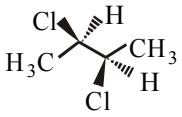
(a) 2-Butene (b) Propene
(c) 1-Phenylpropene (d) 2-Methyl-2-butene

Q129. Tautomerism is exhibited by **(IIT 1998)**

(a)  (b) 

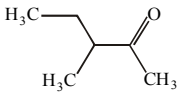
(c)  (d) 

Q130. The correct statement(s) about the compound given below is (are) **(IIT JEE 2008)**

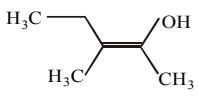


(a) the compound is optically active
(b) the compound possesses centre of symmetry
(c) the compound possesses plane of symmetry
(d) the compound possesses axis of symmetry

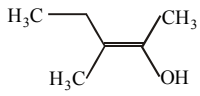
Q131. The correct statement(s) concerning the structures E, F and G is (are)



(E)



(F)



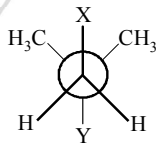
(G)

(a) E, F and G are resonance structures
(b) E, F and E, G are tautomers
(c) F and G are geomertrical isomers
(d) F and G are diastereomers

Q132. The correct statement(s) about the compound $H_3C(HO)HC-CH=CH-CH(OH)CH_3(X)$ is (are) **(IIT 2009)**

(a) The total number of stereoisomers possible for X is 6
(b) The total number of diastereomers possible for X is 3
(c) If the stereochemistry about the double bond in X is trans, the number of enantiomers possible for X is 4
(d) If the stereochemistry about the double bond in X is cis, the number of enantiomers possible X is 2

Q133. In the Newman projection for 2, 2-dimethylbutane

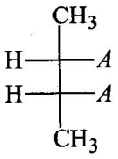


X and Y can respectively be : **(IIT 2010)**

(a) H and H (b) H and C_2H_5
(c) C_2H_5 and H (d) CH_3 and CH_3

Comprehension Type Question

Passage-1: The compound shown below in the deiagram, on treatment with acid catalyst isomerizes and equilibrium is established among the steteoisomers. The equilibrium mixture contains all the three stereoisomers of this compound. Specific rotation of its pure dextro isomer is $+62^o$ while the specific rotation of the equilibrium mixture is $+22^o$. Also the equilibrium mixture contains 20% of the meso isomer. Answer the following three questions based on the above information.



$A \neq H$ or CH_3

Q134. The percentage purity of the equilibrium mixture is
(a) 28% (b) 35%
(c) 46% (d) 54%

Q135. Composition of equilibrium mixture is
(a) 20% meso, 58% dextro and 22% leavo
(b) 20% meso, 60% dextro and 20% leavo
(c) 20% meso, 54% dextro and 26% leavo
(d) 20% meso, 30% dextro and 50% laevo

Q136. The equilibrium constant for dextro $\rightleftharpoons$ laevo is
(a) 2.63 (b) 3
(c) 2.07 (d) 0.60

PASSAGE-2

Suppose a sample of an initially pure single enantiomers of tartaric acid $[a]_D$ = + 12.4° (H_2O) underwent a chemical isomerization reaction which yielded 10% of the other enantiomers and 20% meso isomers in addition to 70% of the starting compound. Answer the following three questions based on the above observations.

Q137. What is the enantiomeric excess of the major enantiomers in the final solution ?
(a) 60% (b) 70%
(c) 75% (d) 87.5%

Q138. If 1.0 g of the total mixture (including meso) was dissolved in 1.0 mL of water and the optical rotation measured in a 1.0 dm cell, what would be the observed rotation of the solution ?
(a) + 9.92° (b) + 7.44°
(c) + 9.3° (d) + 8.7°

Q139. From the total mixture, chromatographic separation on silica gel (a commonly used achiral solid adsorbent) might be expected to yiled one of the three components in a pure state. Which one
(a) The major enantiomers
(b) Only the enantiomeric excess of the major enantiomers
(c) The 1 : 1 racemic mixture of tartaric acid
(d) The mese isomer

Assertion And Reason Type Question

Instructions :

The questions given below consist of an 'Assertion'(A) in column 1 and the 'Reason' (R) in column 2. Use the following key to choose the appropriate answer.

(a) If both assertion and reason are correct, and reason is the correct explanation of the assertion.
(b) If both assertion and reason are correct, but reason is not the correct explanation of the assertion.
(c) If assertion is correct, but reason is Incorrect.
(d) If assertion is Incorrect, but reason is correct.

Q140. **Assertion:** Alkanes containing more than three carbon atoms exhibit chain isomerism.
Reason: All the carbon atoms in alkanes are sp-hybridized. **(AIIMS 1994)**

Q141. **Assertion:** Metamers can also be chain or position isomers.
Reason: The term tautomerism was introduced to explain the reactivity of a sobstance according to two possible structure. **(AIIMS 1999)**

Q142. **Assertion:** Lactic acid shows geometrical isomerism
Reason: It has a C = C bond. **(AIIMS 1997)**

Q143. **Assertion:** Cyclobutane is less stable than cyclopentane
Reason: Presence of 'bent bonds' causes loss of orbital overlap. **(AIIMS 1995)**

Q144. **Assertion:** cis-1, 3-Dihydroxycyclohexane exists in boat conformation.
Reason: In the chair form, there will not be hydrogen bonding between the two hydroxyl groups. **(AIIMS 2003)**

Q145. **Assertion:** Enantiomers differ in their chemical action with other enantiomer.
Reason: A pair of enantiomers have different orienttion of collision with another enantiomer forming different transition state.

Q146. **Assertion:** A molecule containing chiral carbon must be non-superimposable on its mirror image.
Reason: A chiral carbon is bonded to four different atoms or groups.

Q147. **Assertion:** Conformers are impractical to separate.
Reason: Conformers have negligibly small difference in their potential energy.

Q148. **Assertion:** Geometrical isomers are non-interconvetible by rotation.
Reason: Alkenes have restricted rotation about Pi(p) bond.

Q149. **Assertion:** Enantiomers have same enthalpy of formation.
Reason: Pair of enantiomers have same connectivity and similar bonding environment.

True & False

Q150. The number of stereoisomers for the compound. HOOCCH(OH)COOH is zero. **(IIT JEE 1985)**

Q151. m-Chlorobromobenzene and m-bromochlorobenzene are isomers. **(IIT JEE 1990)**

Q152. 2, 3, 4-Trichloropentane has three chiral carbon atoms.

Match The Column

Q153. **Column-I Compound**

(A) Unsymmetrical compound with 'n' chiral carbon

(B) Symmetrical molecule with 'n' chiral carbon when n is even

(C) Symmetrical molecule with 'n' chiral carbon when n is odd

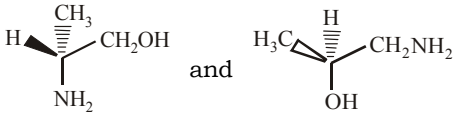
Column-II Number of optically active isomer

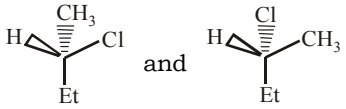
(P) 2^{n-1}

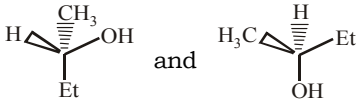
(Q) $2^{n-1} - 2^{n-1/2}$

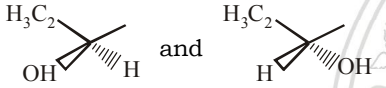
(R) 2^n

Q154. **Column-I**

(A)  and

(B)  and

(C)  and

(D)  and

Column-II

(P) Structural

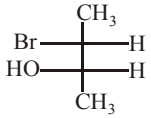
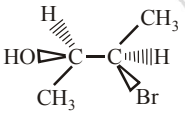
(Q) Identical

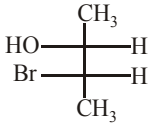
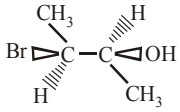
(R) Enantiomers

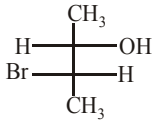
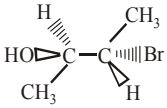
(S) Diasteromers

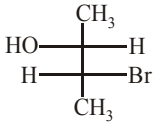
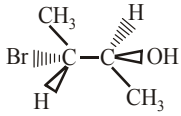
Q155. Match List-I, List-II & List-III :

List-I **List-II** **List-III**

(a)  (1)  (i) (2R,3R)

(b)  (2)  (ii) (2S,3S)

(c)  (3)  (iii) (2S, 3R)

(d)  (4)  (iv) (2R,3S)

Q156. Match the Column :

Column-I

(a) A pair of metamer

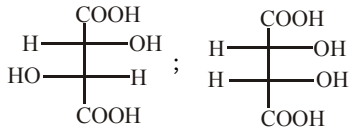
(b) Tautomerism

(c) A pair of geometrical isomer

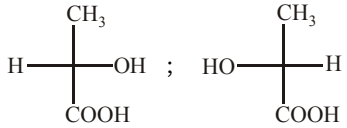
(d) A pair fo distereomers

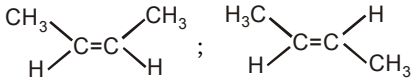
(e) A pair of optical isomer

Column-II

(i) 

(ii) $CH_3OC_3H_7$; $C_2H_5OC_2H_5$

(iii) 

(iv) 

(v) $CH_3CH_2CH_2\overset{O}{\overset{\|}{C}}H$; $CH_3CH_2CH{=}CH{-}OH$

Q157. Select the correct answer from the codes given below the lists.

Column I

(A) Constitutional isomer

(B) Stereoisomers

(C) Enantiomers

(D) Diastereomers

Column II

(P) Stereoisomers that are not enantiomers

(Q) Isomer that have same constitution but differ in the arrangement of their atom in space

(R) Isomers that differ in the order in which their atoms are connected

(S) Stereoisomers that are related as an object and its non-superimposable mirror image

Q158. Each of the compounds in column A is subjected to further chlorination. Match the following for them.

Columnn I

(A) $CHCl_2$ - CH_2 - CH_3

(B) CH_2Cl - CHCl - CH_3

(C) CH_3 - CCl_2 - CH_3

(D) 2, 3-dichloro-2, 3-dimethyl butane

Column II

(P) Optically active

(Q) Only one trichloro product

(R) Three trichloro product

(S) Four trichloro product

(T) At least one of the trichloro product is optically active

Q159. Match the molecule in column A with the type of stereisomerism shown by them in column B

Column-I

(A) 2,3-dichlorobutane
(B) 2-methyl-3-pentenoic acid
(C) 2-butanol
(D) 1,3-dichloro propadiene

Column-II

(P) Enantiomerism
(Q) Diastereomerism
(R) Meso form
(S) Conformational

Q160. Match the molecule in column A with the type of isomerism shown by them in column B

Column-I	**Column-II**
(A) CH_3CH_2CHO	(P) Functional
(B) CH_3CHCl_2	(Q) Positional
(C) $CH_3CH_2CH = CH_2$	(R) Ring-chain
(D) $CH_3OCH_2CH_2CH_3$	(S) Metamerism

Integer Type Question

Set I

Q161. Number of position isomers of dichlorobenzene is .....

Q162. Total number of isomers of $C_4H_{10}O$ is .....

Q163. When p-dichlorobenzene is further chlorinated, number of isomer(s) formed is .....

Q164. Number of hydrogen atoms in cyclobutene is .....

Q165. Acetoacetic ester has ..... hydrogen atoms at active methylene group.

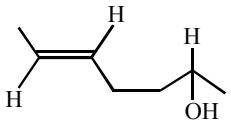
Q166. Dipole moment of trans-2-butene is .....

Q167. In $CH \equiv CCH = CH_2$, yne is at number .....

Q168. Optically active isomers of tartaric acid are .....

Set II

Consider the following structure



Answer the following questions

Q169. Number of geometrical isomer is .....

Q170. Number of optical isomers is .....

Q171. Double bond is numbered at .....

Q172. Number of stereocentres is .....

Q173. Types of alcohol is .....

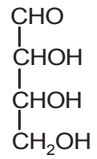
Q174. Number of primary carbons is .....

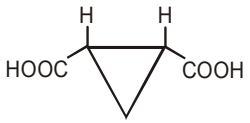
Q175. Number of secondary carbons is .....

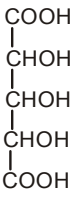
Q176. Number of pi electrons .....

Subjective

Q177. Calculate the total number of stereoisomers in the following compounds.

(I) 

(II) 

(III) 

Q178. Find out the total number of cyclic isomers of C_6H_{12} which are optically active ?

Q179. How many pair(s) of geometrical isomers are possible with C_6H_{12} (only in open chain structures)

Q180. Calculate the number of Benzenoid isomers possible for C_6H_3ClBrI.

Q181. Calculate the total number of structural isomers of 3°-amines for the molecular formula $C_6H_{15}N$ are?

Q182. Calculate the number of chiral center in the molecule Ethyl 2,2-dibromo-4-ethyl-6-methoxy cyclohexane carboxylate.

Q183. How many monochlorinated products of methyl cyclohexane are optically active.

Q184. How many cyclopentane structures (including stereo) are possible for C_7H_{14}.

Q185. X $\xrightarrow[Pt]{2H_2}$ 

Find out structures of X.

Q186. How many enantiomers are possible on monochlorination of isopentane.

Q187 (a) Calculate the total number of cyclic isomeric carbonyl compounds of molecular formula C_5H_8O which can't show geometrical isomerism. (Excluding enantiomers)

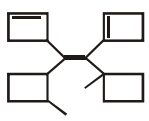
(b) Calculate the total number of open chain isomeric carbonyl compounds of molecular formula C_5H_8O which can't show geometrical isomerism.

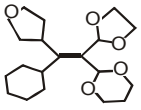
Q188. Calculate the total number of chiral carbon atoms in

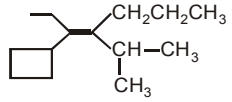
Q189. (a) The number of diastereoisomers (excluding optical) for 1-bromo-2-chloro-3-iodocyclopropane

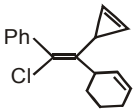
(b) Minimum number of carbon atoms required for an alkane to show any kind of isomerism.

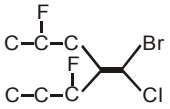
Q190. Assign E and Z configuration ?

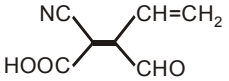
(I) 

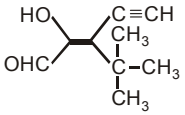
(II) 

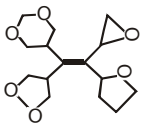
(III) 

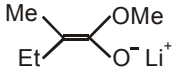
(IV) 

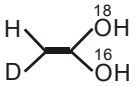
(V) 

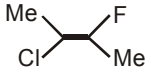
(VI) 

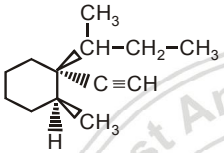
(VII) 

(VIII) 

(XI) 

(X) 

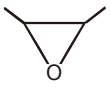
(XI) 

(XII) 

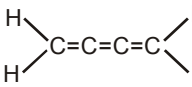
Q191. Write the structure of :
- (i) (E)penta-1,3-diene
- (ii) (2Z, 4E)hexa-2, 4-diene
- (iii) (2E, 4E)-3-ethylhexa-2,4-diene
- (iv) (R)-2-Bromopentane
- (v) (S)-3-bromo-3-chlorohexane
- (vi) (2S, 3R)-2, 3-dibromobutane

Q192. In what stereoisomeric forms would you expect the following compounds to exist ?

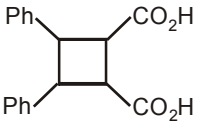
(a) $EtCH(CO_2H)Me$ (b) $MeCH(CO_2Et)CO_2H$

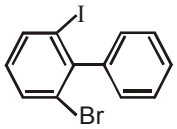
(c) 

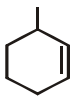
(d) 

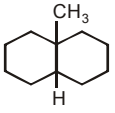
(e) 

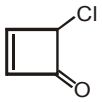
(f) Et(Me)C=C=C(Me)Et

(g) 

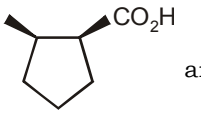
(h) 

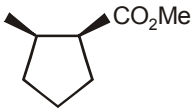
(i) 

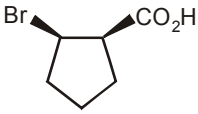
(j) 

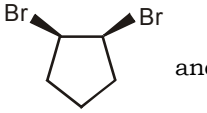
(k) 

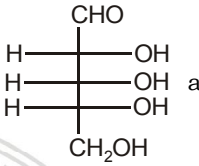
Q193. What are the relationships between the following pairs of isomers ?

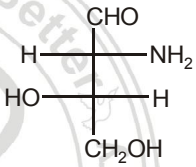
(a) 

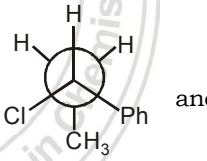
(b) 

(c) 

(d) 

(e) 

(f) 

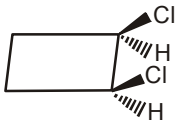
(g) 

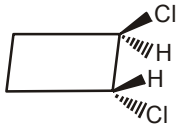
(h) 

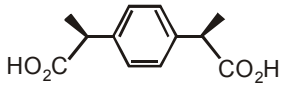
(i) 

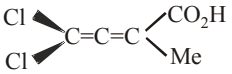
Q194. Mention the specific type of isomerism exhibited by each of the following pairs :
- (a) 1,2-dichloro ethane and 1,1-dichloro ethane
- (b) Propanoic acid and methyl acetate
- (c) Methyl acetate and ethyl formate
- (d) o-Nitrophenol and P-nitrophenol
- (e) Anisole and o-cresol
- (f) Phenol and Cyclohexa-2,4-dien-1-one

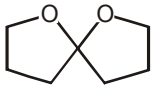
Q195. With reasons, state whether each of the following compounds I to IX is chiral.

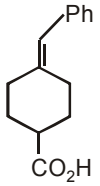
(I) 

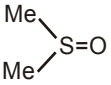
(II) 

(III) 

(IV) 

(V) 

(VI) 

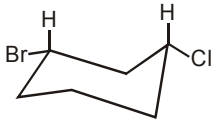
(VII) 

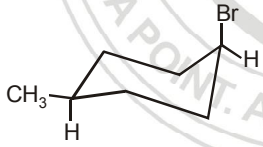
Q196. Draw the two chair conformers of each compound and indicate which conformer is more stable.
(a) cis-1-ethyl-3-methylcyclohexane
(b) trans-1-ethyl-2-isopropylcyclohexane
(c) trans-1-ethyl-2-methylcyclohexane
(d) trans-1-ethyl-3-methylcyclohexane
(e) cis-1-ethyl-3-isopropylcyclohexane
(f) cis-1-ethyl-4-isopropylcyclohexane

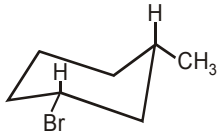
Q197. Draw the most stable conformer of N-methylpiperidine.

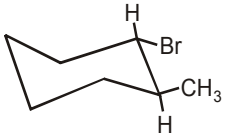
Q198. Considering rotation about the C-3-C-4 bond of 2-methylhexane
(a) Draw the Newman projection of the most stable confomer
(b) Draw the Newman projection of the least stable conformer

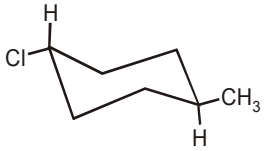
Q199. Determine whether each of the following compounds is a cis isomer or a trans isomer.

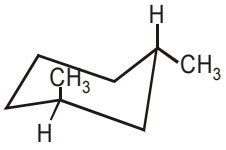
(a) 

(b) 

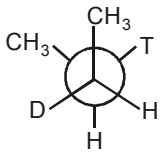
(c) 

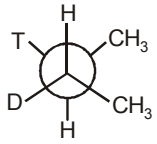
(d) 

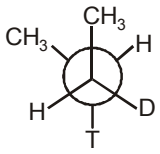
(e) 

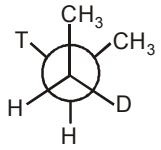
(f) 

Q200. Comment on the relationship among the following compounds.

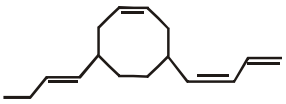
(I) 

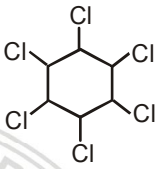
(II) 

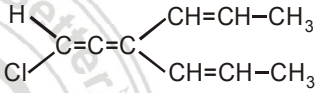
(III) 

(IV) 

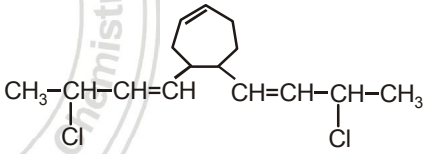
Q201. Calculate the total number of geometrical isomers possible for

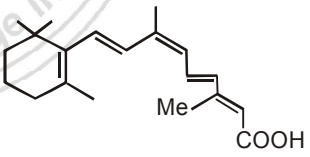
(i) 

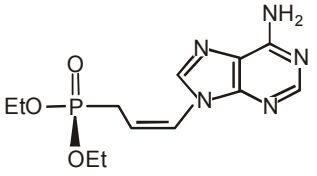
(ii) 

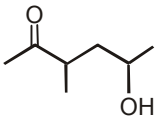
(iii) 

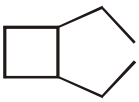
Q202. Total number of stereoisomers for the following molecule : (including optical)

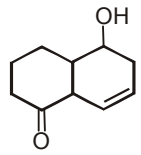
(i) 

(ii) 

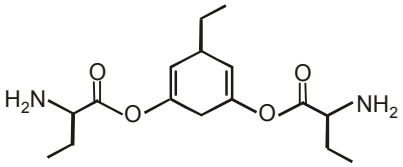
(iii) 

(iv) 

(v) 

(vi) 

Q203. How many stereocenter and pseudochirality center present in the following compound ?



Q204. A 0.1 M solution of an enantiomerically pure chiral compound D has an observed rotation of +0.20° in a1 dm sample container, the molecular mass of the compound is 150.

(a) What is the specific rotation of D ?

(b) What is the observed rotation if this solution of D is diluted with an equal volume of solvent?

(c) What is the observed rotation of this solution is mixed with an equal volume of a solution that is 0.1 M in L, the enantiomer of D ?

(d) What is the specific rotation of D after the dilution described in part (b) ?

(e) What is the specific rotation of L, the enantiomer of D, after the dilution described in part (b) ?

(f) What is the observed rotation of 10 ml of a solution that contains 0.01 mole of D and 0.005 mole of L ? (Assume a 1 dm path length)

Q205. Assign the priority order number to the following atoms or groups

(a) $-CHO$, $-CH_2OH$, $-CH_3$, $-OH$

(b) $-Ph$, $-CH(Me)_2$, $-H$, $-NH_2$

(c) $-COOH$, $-Ph$, $-CHO$, $-CH = CH_2$

(d) $-CH(Me)_2$, $-CH=CH_2$, $-C \equiv CH$, $-Ph$

(e) $-CH_3$, $-CH_2Br$, $-CH_2OH$, $-CH_3Cl$

(f) $-H$, $-N(Me)_2$, $-Me$, $-OMe$

(g) $-CH = CH_2$, $-Me$, $-Ph$, $-Et$

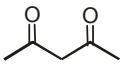
(h) $-CH_2-CH_2-Br$, $-Cl$, $-CH_2-CH_2-CH_2-Br$, $(Me)_2CH-$

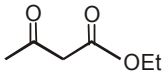
(i) $-Cl$, $-Br$, $-I$, $-NH_2$

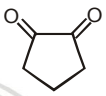
(j) NH_2, NO_2, CH_2NH_2, $C \equiv N$

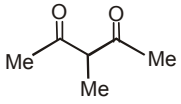
Q206. Calculate the number of Benzenoid isomers possible for C_6H_3ClBrI.

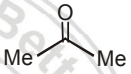
Q207. Decreasing order of enol content of the following (along with proper explanation).

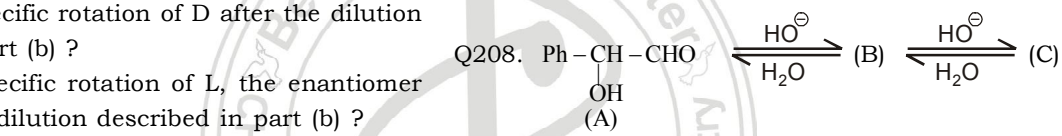
(a) 

(b) 

(c) 

(d) 

(e) 

Q208. 

(A), (B) and (C) are structural isomers and isomerization is effectively carried out by trace of base. Give structure of (B) and (C) and also write base catalysed mechanism for this interconversion.

ANSWER KEY

ONLY ONE OPTION IS CORRECT

1-c	2-a	3-d	4-b	5-d	6-b	7-d	8-b	9-a
10-a	11-a	12-c	13-a	14-d	15-a	16-a	17-b	18-c
19-b	20-a	21-c	22-a	23-a	24-b	25-d	26-c	27-c
28-c	29-c	30-a	31-a	32-a	33-a	34-d	35-c	36-c
37-b	38-(i)-b	(ii)-c	39-a	40-a	41-a	42-b	43-b	44-b
45-c	46-a	47-d	48-c	49-a	50-d	51-b	52-c	53-d
54-d	55-d	56-b	57-d	58-a	59-c	60-c	61-b	62-a
63-b	64-c	65-a	66-a	67-d	68-c	69-a	70-c	71-a
72-d	73-a	74-d	75-d	76-d	77-a	78-d	79-a	80-c
81-c	82-b	83-c	84-d	85-d	86-d	87-a	88-a	89-b
90-b	91-b	92-b	93-c	94-b	95-a	96-b	97-b	98-b
99-d	100-d	101-b	102-c	103-c	104-a	105-c	106-c	107-d
108-b	109-a	110-c	111-a	112-c				

MORE THAN ONE OPTION IS CORRECT

113-ad	114-ac	115-ac	116-bcd	117-acd	118-bc	119-bcd	120-acd	121-acd
122-ac	123-acd	124-ac	125-cd	126-bc	127-bd	128-ac	129-ac	130-ad
131-bcd	132-ad	133-bd	134-b	135-c	136-a	137-c	138-b	139-d
140-c	141-b	142-d	143-a	144-d	145-a	146-d	147-a	148-b
149-a	150-T	151-F	152-F					

MATCH THE COLUMN

153-(A-R); (B-P); (C-Q)

154- (A-P); (B-R); (C-Q); (D-R)

155- (a-4-iii); (b-3-iv); (c-2-ii) (d-1-i)

156- (a-ii); (b-v); (c-iv); (d-i, iv); (e-i, iii)

157- (A-R); (B-Q); (C-Q,S); (D-P,Q)

158- (A-P,T,S); (B-P,S,T); (C-Q); (D-P,Q,T)

159-(A-P,Q,R,S); (B-P,Q,S); (C-P,S); (D-P)

160-(A-P,R,S); (B-Q); (C-Q,R,S); (D-P,Q,S)

INTEGER TYPE QUESTION

SET-I

161-3, 162-7 163-1 164-6 165-2 166-0 167-3 168-2

SET-II

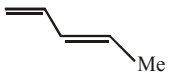
169-2 170-2 171-5 172-3 173-3 174-2 175-2 176-1

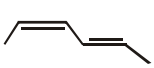
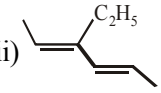
SUBJECTIVE

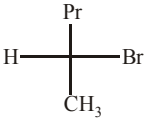
177-I-4, II-3, III-4; 178-8 179-4 180-10 181-7 182-3 184-8

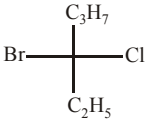
185-7 186-4 187-(a)-9, (b)-8 188-8 189-(a)-4, (b)-4

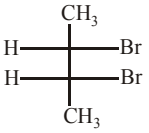
190-Z-I, II, III, VI, VII; E-IV, V, VIII, IX, X, XI, XII

191-(i) 

(ii) 
(iii) 

(iv) 

(v) 

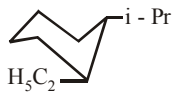
(vi) 

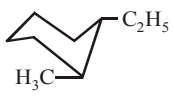
192- 17- Optical : a,b,c,d,f,g,i,j,k ; Geometrical isomer : c,gj; None : e,h,

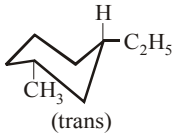
193- (a) Enantiomers, (b) Enantiomers, (c) Geometrical isomers & Diastereomers, (d) Positional,
(e) Optical (Diastereomers), (f) Diastereomers, (g) Enantiomers, (h) Identical,
(i) Geometrical isomers (Diastereomers)

194- (a) Positional (b) Functional (c) Metamerism (d) Positional (e) Functional (f) Tautomerism

195- achiral : I, III, IV ; chiral : II, V, VI, VII

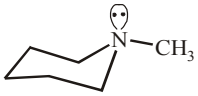
196- Stable are : (a) diequatorial, (b) 

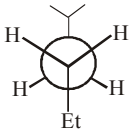
(c) 

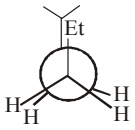
(d) 

(e) 

(f) 

197- 

198- (a) 

(b) 

199- (a) cis (b) cis (c) cis (d) trans (e) trans (f) trans

200- II, III & IV are Identical; I is Enantiomer of these.

201- (i) 16 (ii) 9 (iii) 4

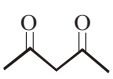
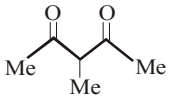
202- (i) 2^6, (ii) 2^4, (iii) 2, (iv)4, (v) 3, (vi) 8

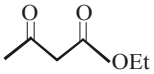
203- 3,1

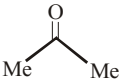
204- (a) + 13.3 ; (b)0.10 ; (c) zero ; (d) unchanged ; (e) unchanged ; (f) 1

205- (a) 4, 1, 2, 3 (b) 4, 1, 2, 3 (c) 1, 3, 2, 4 (d) 4, 3, 2, 1 (e) 2, 4, 3, 1 (f) 4, 2, 3, 1 (g) 3, 1, 4, 2 (h) 2, 4, 1, 3

206- 10

207-(a)  > (b)  > (c) 

> (d) 

> (e) 

(b) Active 'H' atom/Acidic 'H' atom so has more enolic content (enol stabilise by resonance & Intra molecular H-bonding) >

(c) Enolic contents decreases with introduction of e^- donator group which causes repulsion in enolic form

(d) Due to ester group acidic structure of active H decreases & C = C of enol undergoese cross reosnance >

(e) Lowest enolic content becasue >C=O is more stable than >C=C< BOnd

208-