CHEMISTRY

BOOKS - G.R. BATHLA & SONS CHEMISTRY (HINGLISH)

ISOMERISM (STRUCTURAL AND STEROISOMERISM)

Solved Example

1. Select the pair of chain isomers among the followings.

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2. Write down all structural of C_6H_{14} indicate chain and position isomers among them.

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3. Give the possible cyclic isomers of formula C_6H_{12}.

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4. (a) Which of the following compounds will not show enolisation?

(b) Draw the enol tautomers for each of the following compounds. Indicate which is more stable?

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5. Write possible isomers having molecular formulae (a) C_4H_9Br (b) $C_3H_6O_2$. Give their IUPAC names.

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6. Write all the cyclic and acyclic isomers (excluding tautomers) having the molecular formuale C_3H_6O.

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7. Indicate the configurations of the following geometrical isomers:

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8. Identify 'E' and 'Z' forms of stilbene.

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9. Mark the axymmetric carbon atoms and give the number of optical isomers in the following compounds:

(i) $CH_3 - (CHOH)_2 - COOH$

(ii) $HOCH_2 - (CHOH)_4 - CHO$

(iii) $HOCH_2 - (CHOH)_4 - CH_2OH$

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10. Indicate whether the following paris are identical or enanitiomers:

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11. Calculate the d-and i-isomers formed by the following compound and also give the number of meso forms.

$HOOC - CH(CH_3) - CHOH - CHBr - CHOH - CH(CH_3) - COO$

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12. Calculate the number of geometrical isomers in the following polyenes.

(i) $H_3C - CH = CH - CH = CH - CH = CH - CH = CH - Br$

(ii)

$H_3C - CH = CH - CH = CH - CH = CH - CH = CH - CH_3$

(iii) $C_6H_5 - CH = CH - CH = CH - CH = CH - C_6H_5$

(iv) $C_6H_5 - CH = CH - CH = CH - Cl$

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13. Which of the following compounds are erythro and threo enantiomers?

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14. Assign R or S configuration to each of the following compounds.

(a) $H - \underset{\displaystyle CH_2OH}{\overset{\displaystyle CHO}{\overset{|}{\underset{|}{C}}}} - OH$ (b) $Br - \underset{\displaystyle H}{\overset{\displaystyle Cl}{\overset{|}{\underset{|}{C}}}} - COOH$

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15. Assign R or S configuration of the following Fischer projections:

(a) 

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16. Assign the priority order number to the following atoms or groups:

(a) $-OH,\ -CH_2OH,\ -CHO,\ -H$

(b) $-CHO,\ -CH_2OH,\ -CH_3,\ -OH$

(c) $C_6H_6-,\ -CH(CH_3)_2,\ -H,\ -NH_2$

(d) $-CH(CH_3)_2,\ -CH=CH_2,\ -C\equiv CH, C_6H_5-$

(e) $-CH_3,\ -CH_2Br,\ -CH_2OH,\ -CH_2Cl$

(f) $-OCH_3,\ -N(CH_3)_2,\ -CH_3,\ -H$

(g) $-CH=CH_2,\ -CH_3, C_6H_5-,\ -CH_2CH_3$

(h) $(CH_3)_2CH-,\ -Cl,\ -CH_2CH_2CH_2Br-CH_2CH_2Br$

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

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17. Assign R or S configuration from Fischer projection of the following structures:

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18. Assign the configuration of each chirality centre in the following structure:

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19. Draw enatiomers of each of the following compounds using Fischer projection formula:

(i) $Cl - \underset{\underset{Br}{|}}{CH} - F$

(ii) $CH_3 - \underset{\underset{OH}{|}}{CH} - CH_2OH$

(iii) $CH_3 - \underset{\underset{CH_3}{|}}{CH} - \underset{\underset{Br}{|}}{CH} - CH_3$

(iv) $CH_3CH_2 - \underset{\underset{CH_3}{|}}{CH} - CH_2CH_2Cl$

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20. Assign R and S configuration to each chiral centre in the following Fischer projection:

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21. In the following reactions, assign R and S configuration to the products formed:

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22. The following compound has only one chirality centre. Why then does it have four steroisomers?

$$CH_3CH_2\underset{\underset{Br}{|}}{\dot{C}}HCH_2CH=CHCH_3$$

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23. (W) and (X) are optically active isomers of $C_5H_9Cl(W)$ on treatment with one mole of H_2 is converted to an optically inactive compound (Y). But (X) gives an optically active compound (Z) under the same conditions Give the structure of (Y) and configuration of (W),(X) and (Z) in Fischer projections.

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24. Identify the pairs of enantiomers and diastereomers from the following compounds (I),(II) and (III):

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25. Give the structural and diastereomers of pent-1-ene.

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26. For 1,2-dichloroethane $\begin{pmatrix} CH_2Cl \\ | \\ CH_2Cl \end{pmatrix}$

$\mu_{\text{compound}} = 1.0D$

$\mu_g = 5.55$

Find out mole fraction of anti (x_a).

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Illustrations

1. Which of the following is a dynamic isomerism?

A. Metamerism

B. Geometrical isomersim

C. Tautomerism

D. Optical isomerism

Answer: C

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2. Enol content is maximum in:

A. acetone

B. acetophenone

C. acetic acid

D. acetylacetone

Answer: D

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3. Which of the following are examples of metamerism?

A. Ethoxyethane and 1-methoxypropane

B. pentan-2-one and pentan-3-one

C. N-Methylpropan-1 amine and N-ethylethanamine

D. All of the above

Answer: D

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4. n-propyl alcohol and isopropyl alcohol are:

A. position isomers

B. chain isomers

C. tautomers

D. geometrical isomers

Answer: A

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5. How mnay constitutional isomers (excluding ring chain isomers) of molecular formula C_5H_8 are possible?

A. 5

B. 6

C. 7

D. 9

Answer: D

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6. Metamers of ethyl propionate are:

A. C_4H_9COOH and $HCOOC_4H_7$

B. CH_4H_9COOH and $CH_3COOC_3H_7$

C. CH_3COOCH_3 and $CH_3COOC_3H_7$

D. $CH_3COOC_3H_7$ and $C_3H_7COOCH_3$

Answer: D

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7. Which is optically inactive?

A. 

B. 

C. 

D. None of these

Answer: A

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8. Which will show geometrical isomerism?

A. 1,1,2-Trimethylcyclopropane

B. 1,2-Dimethylcyclobutane

C. Methylcyclohexane

D. 3,4-Dimethylhexane

Answer: B

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9. Which type of isomerism shown by the product of reaction between benzaldehyde and hydroxyl amine is?

A. syn and anti

B. cis and trans

C. E and Z

D. None of these

Answer: A

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10. Which of the following alkenes shown below has the Z-configuration of its double bond?

A. 

B. 

C. 

D. 

Answer: C

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11. Among the following compounds, the optically active alkane having the lowest molecular mass is:

A. $CH_3CH_2CH_2CH_3$

B. $CH_3CH_2\underset{\underset{CH_3}{|}}{C}HCH_3$

C. 

D. $CH_3CH_2 - C \equiv CH$

Answer: C

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12. The correct statement about the compounds (A),(B) and (C) is:

A. (A) and (B) are identical

B. (A) and (B) are diastereumers

C. (A) and (C) are enantiomers

D. (A) and (B) are enantiomers

Answer: B

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13. The number of isomeric pentyl alchohols possible are:

A. two

B. four

C. six

D. eight

Answer: D

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14. Which of the following will form two isomers with semicarbazide?

A. Benzaldehyde

B. Acetone

C. Benzoquinone

D. Benzophenone

Answer: A

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Problems For Prac

1. What isomerism is exhibited by the following pairs of compounds?

(a) CH_3CH_2CHO and CH_3COCH_3

(b) $CH_2H_5OC_2H_5$ and $CH_3OC_3H_7$

(c) $CH_3NHC_3H_7$ and $C_2H_5NHC_2H_5$

(d) $CH_3CH_2CH = CH_2$ and $CH_3CH = CHCH_3$

(e) $CH_3CH_2CH_2CHO$ and $CH_3CH_2CH = CHOH$

(f) $(CH_3)_3CH$ and $CH_3CH_2CH_2CH_3$

(g) $CH_3CH_2CH_2OH$ and $CH_3CHOHCH_3$

(h) 

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2. Mention the specific type of isomerism exhibited by each of the following pairs:

1,2-Dibromoethane	and	1,1-dibromoethane
n-Butylalcohol	and	diethylether
Propionic acid	and	Methylacetate
o-Methylphenol	and	benzylalcohol
Maleic acid	and	fumaric acid
n-Butane	and	Isobutane
o-Nitrophenol	and	m-nitrophenol
Acetic acid	and	methyl formate

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3. Find out the number of chiral centres in the following compounds:

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4. Write down the name and structure of one isomer of each or the following compounds:

(a) $CH_2 = CHCH_2CH_3$ (b) CH_3CHCl_2

(c) $(CH_3)_2CHOH$ (d) CH_3COOH_3

(e) CH_3COOH (f) $CH_3OCH_2CH_2CH_3$

(g) maleic acid (h) d-lactic acid.

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5. Which of the following compounds are optically active compounds? (i) Butan-1-ol (ii) Heptan-4-ol (iii) 2-Chlorobutane (iv) 3-Chloropentane (v) Pentan-2-ol (vi) 2-Bromo-2-methylbutane (vii) Penta-2,3-diene.

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6. State which of these exhibit stereoisomerism and of what type?

(a) $CHCH_2 - \overset{\overset{Br}{|}}{C} = \overset{\overset{Br}{|}}{C} - CH_2Cl$

(b) $Cl - CH_2 - \underset{\underset{O}{||}}{C} - CH_2 - \underset{\underset{CH_3}{|}}{CH} - CH_3$

(3) $CH_3 - \overset{\overset{Cl}{|}}{CH} - \underset{\underset{Br}{|}}{CH} - CH_2 - \overset{\overset{CH_2-CH_2-CH_3}{|}}{CH} - CH_3$

(d) $CH_3 - CH_2 - CH(OH)COOH$

(e) $CH_3CH = CHC_2H_5$

(f) $CH_3CH(Br)COOH$

(g) $H_2C = C(CH_3)_2$

(h) $C_2H_5CH = CHCl$

(i) 1-Bromo-3-chlorocyclobutane

(j) 1,4-Dimethylcyclohexane

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7. [A] Indicate whether each of the following compound is 'E' or 'Z'

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8. Determine the number of optical isomers in the following compounds:

(a) $CH_3CH(OH)COOH$ (b) $HOOC(CHOH)_2COOH$

(c) $HOOC(CHOH)_3COOH$ (d) $CH_3(CHOH)_2COOH$

(e) $CH_3CH(Br)CH(Br)COOH.$

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9. (i) Assign R or S configuration to each of the following compounds:

(a) $HOOC - \underset{\displaystyle CH_3}{\overset{\displaystyle OH}{\overset{|}{\underset{|}{C}}}} - H$

(b) $H_2N - \underset{\displaystyle CH_3}{\overset{\displaystyle COOH}{\overset{|}{\underset{|}{C}}}} - H$

(c) $H_3C - \underset{\displaystyle C_3H_7}{\overset{\displaystyle C_4H_9}{\overset{|}{\underset{|}{C}}}} - C_2H_5$

(d) $CH_3 - \overset{\overset{OH}{|}}{\underset{\underset{H}{|}}{C}} - C_2H_5$

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10. [A] Write the total number of cyclic structural as well as stereoisomers possible for a compound with the molecular formula, C_5H_{10}.

[B] Write the total number of cyclic isomers possible for a hydrocarbon with the molecular formula C_4H_6.

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11. (i) Name the hydrocarbon with lowest possible molar mass which has chiral structure.

(ii) Name the lowest possible alkane which has chiral structure.

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12. (A) Write the possible isomers of the formula $C_5H_{10}O_2$.

(B) Draw the structures of all isomeric ethers. Corresponding to the moecular formula, $C_5H_{12}O$.

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13. Molecular formula $C_4H_4O_4$ can have four isomers A,B,C and D: A is dicarboxylic acid giving racemic tartaric acid with alk. B is dicarboxylic acid giving meso tartaric acid with alk. $KMnO_4$.

C is also dicarboxylic acid giving another monobasic acid on heating. D is cyclic ester Identify A ,B, C andD

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14. (A) Write the possible structural isomers of the molecular formula C_7H_{16}.

(B) Write the condensed and bond line structural formulae for all the possible isomers having the molecular formulae C_4H_6.

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15. Explain that enol form of acetoacetic ester is said to be more volatile than keto form.

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16. How many asymmetric carbon atomsa re created during the complete reduction of benzil $(PhCOCOPh)$ with $LiAIH_4$? Also write the number of possible steroisomers in the product.

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17. Make structures of 2,3-dibromobutane and assign R and S configuration.

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18. Write down the strucutres of the steroisomers formed when cis-2-butene is reacted with bromine.

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19. Write all the ring-chain isomers (excluding steroisomers) of pent-1-yne (C_5H_6).

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20. Write meatamers of 

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21. Optically active 2-iodobutane on treatment with Nal in acetone gives a product which does not show optical activity. Explain briefly.

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22. Explain that α-methyl acetyl acetone undergoes enolisation to a smaller extent than acetyl acetone.

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23. Draw the enantiomers of 3-bromo-cyclohexene and give R/S designation for each.

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Mathc The Column

1. 

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Brain Prob

1. Give the steroselective products. When cyclopentene is treated with (a) alkaline $KMnO_4$ (B) $HCOOH$ (c) Br_2

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2. Write down tautomeric and resonating structures of the following compounds :

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3. Give the ring-chain tautomers of 4-ketopentanoic acid (Laevulic acid):

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4. Identify enantiomers and diastereomers among the following:

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5. Indicate optical configuration in following compounds.

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6. Specific chiral-enantiomers and achiral -identical pairs among the following.

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7. Assign 'R' and 'S' configuration for the following:

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8. Assign Chan-Ingold Prelog priorities to the following sets of substituents:

(a) $-H,\ -Br,\ -CH_2CH_3,\ -CH_2CH_2OH$

(b) $-COOH,\ -COOCH_3,\ -CH_2OH,\ -OH$

(c) $-CH,\ -CH_2NH_2,\ -CH_2NHCH_3,\ -NH_2$

(d) $-Br,\ -CH_2Br,\ -Cl,\ -CH_3Cl.$

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9. Which of the following structures represent meso form?

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10. Which of the following have a meso form? (a) 2,3-Dibromobutane

(b) 2,3-Dibromopentane (c) 2,4-Dibromopentane

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11. Write down tautomeric structure of the following compounds.

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12. Specify whether the following pairs of compounds are identical, resonating structures or position isomers:

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13. Identify whether the stereogenic centre is present or not: (a) 2-cyclopentan-1-ol (b) 3-cyclopenten-1-ol (c) 2-bromopentane (d) 3-bromopentane

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14. How will your identify 'cis' and trans' 2-butene by cyclization method?

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15. How many number of isomers are possible for the compound with molecular formula $C_2BrCIFI$?

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16. Write whether the following molecules are chiral or not:

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17. Discuss the optical activity of tertiary amines of the type $R_1R_2R_3N$:

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Objective

1. Compounds having same number and kind of atoms but different arrangement of atoms in their molecules are called:

A. allotropes

B. isotopes

C. isomers

D. polymers

Answer: C

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2. Compounds having the same molecular formula but different strucutres are cllassified as:

A. Metamerism

B. optical isomerism

C. structural isomers

D. functioal group isomers.

Answer: C

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3. Which of the following has asymmetric carbon atom?

A. $CH_2Cl - CH_2Br$

B. CH_3CHDCl

C. CH_3CHCl_2

D. $CH_2Br - CHOH - CH_3$

Answer: B

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4. Total number of isomeric alcohols with formula $C_4H_{10}O$ is:

A. 1

B. 2

C. 3

D. 4

Answer: D

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5. Number of acyclic structural isomers represented by molecular formula $C_4H_{10}O$ is:

A. 7

B. 6

C. 8

D. 5

Answer: A

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6. The total number of structural isomers possible for an amine with molecular formula $C_4H_{11}N$ is:

A. 5

B. 6

C. 7

D. 8

Answer: D

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7. The molecular formula of a saturated is $C_2H_4Cl_(2)`$. This formula permits the existence of two:

A. functional isomers

B. position isomers

C. optical isomers

D. cis-trans isomers.

Answer: B

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8. Which one of the following is not an isomer of 3-methylbut-1-yne?

A. pent-1-yne

B. Pent-2-yne

C. 2-Methylbuta-1,3-diene

D. Buta-1,3-diene

Answer: D

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9. Which type of isomerism is shown by diethyl ether and methyl propyl ether?

A. Chain

B. Functional

C. Metamerism

D. Position

Answer: C

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10. Acetone and propanal are

A. position isomers

B. functional isomers

C. geometrical isomers

D. optical isomers.

Answer: B

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11. Maximum number of isomers for an alkene with molecular formula, C_4H_8 is:

A. 5

B. 4

C. 3

D. 2

Answer: B

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12. Keto-enol tautomerism is not observed in:

A. $C_6H_5COC_6H_5$

B. $C_6H_5COCH = CH_2$

C. $C_6H_5COCH_2COCH_3$

D. $CH_3COCH_2COCH_3$

Answer: A

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13. the total number of optical isomers possible for 2,3-dibromobutane is:

A. 3

B. 4

C. 2

D. 0

Answer: A

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14. The type of isomerism observed in urea molecule is:

A. chain

B. position

C. tautomerism

D. None of these

Answer: C

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15. The well known compouns, (+) lactic acid and (-) lactic acid have the same molecular formula, $C_3H_6O_3$. The correct relationship between them is:

A. constitutional isomerism

B. geometrical isomerism

C. optical isomerism

D. identicalness.

Answer: C

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16. Number of isomers of molecular formula C_2H_2Br. Is :

A. 1

B. 2

C. 3

D. 4

Answer: C

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17. C_7H_8O shows how many isomers?

A. 2

B. 3

C. 4

D. 5

Answer: D

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18. CH_3CH_2OH and $CH_3 - O - CH_3$ are the example of:

A. functional isomerism

B. chain isomerism

C. metamerism

D. position isomerism.

Answer: A

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19. Which one of the following will show optical isomerism?

A. $CH_2OH - COOH$

B. $(CH_3)_2CH - COOH$

C. $CH_3CH(OH)COOH$

D. $(CH_3)_2C(Cl)COOH$

Answer: C

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20. Stereoisomers have different :

A. molecular formula

B. structural formula

C. configuration

D. conformation.

Answer: C

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21. Select the pair of compounds which exhibit cis-trans (geometrical) isomerism:

A. fumaric acid and maleic acid

B. malonic acid and succinic acid

C. lactic acid and tartaric acid

D. acetic acid and crotonic acid.

Answer: A

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22. The isomerism that arises due to restricted bond rotation is:

A. optical isomerism

B. metamerism

C. position isomerism

D. functional isomerism

Answer: A

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23. Which of the following will have least hindered rotation abou carbon - carbon bond?

A. Ethane

B. Ethylene

C. Acetylene

D. Hexachloroethane

Answer: A

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24. A compound contains two dissimilar asymmetric carbon atoms. The number of stereoisomers is:

A. 2

B. 3

C. 4

D. 1

Answer: C

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25. Isomers which can be interconverted through rotation around a single bond are:

A. position isomerws

B. enantiomers

C. metameres

D. conformers

Answer: D

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26. Meso tartaric acid and d-tartaric acid are:

A. position isomers

B. racemic mixture

C. enantiomers

D. diastereomers

Answer: D

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27. The number of conformations of ethane is:

A. 1

B. 2

C. 3

D. infinite.

Answer: D

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28. Out of the following, the alkene that exhibits optical isomerism is:

A. 2-methyl-2-pentene

B. 3-methyl-2-pentene

C. 4-methyl-1-1-pentene

D. 3-methyl-1-pentene

Answer: D

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29. Chiral molecuels are those which are:

A. superimposable on their mirror image

B. not superimposable on their mirror image

C. unstable molecules

D. capable of showing geometrical isomersim.

Answer: B

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30. The compound $CHCl - CHCHOHCOOH$ with molecular

A. geometrical, optical, position and functional isomerism

B. geometricla, optical functional isomerism

C. position and functional isomerism only

D. geometrical and optical isomerism only

Answer: A

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31. Meso compounds do not show optical activity because ?

A. they contain plane of symmetry

B. they do not contain chiral carbon atoms

C. they do not contain plane of symmetry

D. they have non-superimposable mirror images

Answer: A

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32. The maximum number of isomers (including steroisomres) that are possible on monochlorination of the following compound.

$CH_3CH_2 - \underset{H}{\overset{CH_3}{\underset{|}{\overset{|}{C}}}} - CH_2CH_3$, is:

A. 2

B. 4

C. 6

D. 8

Answer: D

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33. Which one is the correct statement?

A. (+) tartaric acid and mesotartaric acid are tautomers

B. (+) tartaric acid and mesotartaric acid are diasterioisomers.

C. (+)tartaric acid and (-) tartaric acid are diasterioisomers.

D. (+) tartaric acid and mesotartaric acid are enantiomers.

Answer: B

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34. The number of possible alkynes with molecular formula C_5H_8 is:

A. 2

B. 3

C. 4

D. 5

Answer: B

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35. Glucose has how many optical isomers?

A. 8

B. 12

C. 16

D. Cannot be predicted.

Answer: C

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36. During debromination of meso dibromobutane, the major compound formed as:

A. n-butane

B. 1-butene

C. trans-2-butene

D. cis-2-butene

Answer: C

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37. The most stable conformation of ethane is:

A. boat form

B. chair form

C. eclipsed form

D. staggered form

Answer: D

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38. With respect to conformers of ethane, which of the following statement is true?

A. Bond angle chagnes but bond length remaisn same

B. Bong angle and bond length remain same

C. Bond angle and bond length change

D. Bond angle remains same but bond length changes.

Answer: B

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39. The number of geometrical isomers in the following compound $CH_3 - CH - CH - CH = CH - C_2H_5$ is:

A. 4

B. 3

C. 2

D. 5

Answer: A

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40. Total number of configurational isomers of taritaric acid is:

A. 2

B. 3

C. 4

D. 5

Answer: B

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41. Which one among the following can not exhibit enantiomerism?

A. 1-Bromo-2-chlorobutane

B. 2-Butanol

C. 1,2-Dichlorobutane

D. Diphenyl methanol.

Answer: D

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42. Enantiomers can be better separated by:

A. Salt formation method

B. Mechanical separation

C. Fractional crystallisation

D. Fractional distillation.

Answer: A

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43. Which of the following will exhibit chirality?

A. Neopentane

B. Isopentane

C. 3-Methylhexane

D. 2-Methylhexane.

Answer: C

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44. Cis-2-butene and trans-2-butene are:

A. configurational isomers

B. Structural isomers

C. conformational isomers.

D. optical isomers.

Answer: A

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45. Identify the compound that exhibits tautomerism:

A. 2-butene

B. lactic acid

C. phenol

D. 2-pentanone.

Answer: D

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46. The number of possible enantiomeric pairs that can be produced during monochlorination of 2-methylbutane is:

A. 2

B. 3

C. 4

D. 1

Answer: A

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47. Tautomerism is not exhibit by:

A. 

B. 

C. 

D. 

Answer: D

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48. An enantiomerically pure acid is treated with racemic mixture of and alcohol having one chiral carbon. The ester formed will be:

A. optically active mixture

B. pure enantiomer

C. meso compound

D. racemic mixture.

Answer: A

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49. 2-Methylpenta-2,3-diene is achiral because it has:

A. a plane of symmetry

B. a centre of symmetry

C. ac_2 axis of symmetry.

D. both a plane and a centre of symmentry.

Answer: C

View Text Solution

50. The most contributing tautomeric enol form of $MeCOCH_2CO_2$ Et is:

A. $H_2C = C(OH)CH_2CO_2Et$

B. $MeC(OH) = CHCO_2Et$

C. $MeCOCH = C(OH)Oet$

D. $H_2C = C(OH)CH = C(OH)Et$

Answer: B

View Text Solution

51. The 'Z' isomer among the following is:

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

52. How many cyclic isomers of C_5H_{10} are possible?

A. 4

B. 3

C. 2

D. 5

Answer: D

View Text Solution

53. Consider the following organic compound:

$CH_3 - CH_2 - CH_2 - CH_2 - CH_2 - CH_2 - CH_3$

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

A. 1

B. 3

C. 4

D. 7

Answer: B

View Text Solution

54. A compound with molecular formula C_7H_{16} shows optical isomerism, the compound will be:

A. 2,3-dimethylpentane

B. 2,2-dimethylpentane

C. 2-methylhexane

D. none of the above.

Answer: A

View Text Solution

55. The number of isomers for the compound with molecular formula $C_2BrCIFI$ is:

A. 3

B. 4

C. 5

D. 6

Answer: D

View Text Solution

56. Which of the following compounds will exhibit geometrical isomerism?

A. 1-phenyl-2-butene

B. 3-phenyl-1-butene

C. 2-phenyl-butene

D. 1,1-Diphenyl-1-propene

Answer: A

View Text Solution

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

A. 1,2-Dichloro-1-pentene

B. 1,3-Dichloro-2pentene

C. 1,1-Dichloro-1-pentene

D. 1,4-Dichloro-2pentene

Answer: C

View Text Solution

58. A similarity between optical and geometrical isomerism is that:

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

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

C. both are included in steroisomerism

D. they have no similarity.

Answer: C

View Text Solution

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

A. $HC \equiv C - \overset{\overset{H}{|}}{\underset{\underset{Cl}{|}}{C}} - C \equiv CH$

B. $HC \equiv C - \overset{\overset{H}{|}}{\underset{\underset{Cl}{|}}{C}} - CH_3$

C. $HC \equiv C - \overset{\overset{H}{|}}{\underset{\underset{Cl}{|}}{C}} - H$

D. $HC \equiv C - \overset{\overset{Cl}{|}}{C} = CH_2$

Answer: B

View Text Solution

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

A. 2-Chlorobutane

B. 2,3-Dichlorobutane

C. 2,3-Dichloropentane

D. 2-Hydroxypropanoic acid.

Answer: B

View Text Solution

61. On monochlorination of 2-methylbutane, the total number of chiral compounds is:

A. 2

B. 4

C. 6

D. 8

Answer: B

View Text Solution

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

A. Diastero

B. Geometrical

C. Optical

D. Strucutral

Answer: C

View Text Solution

63. Which of the following compound is chiral?

A. 1-pentanol

B. 3-pentanol

C. 3-Methyl-1-butanol

D.

Answer: C

View Text Solution

64. Maximum enol content is in:

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

65. The number of steroisomers obtained by the bromination of trans-2-butene is:

A. 3

B. 2

C. 1

D. 4

Answer: A

View Text Solution

66. Identify the correct statement in the following:

A. dimethyl ether and ethanol are chain isomers

B. n-butane and isobutane are functional isomers

C. propan-1-ol and propan-2-ol are position isomers.

D. ethanoic acid and methyl methyl methanoate are position isomers.

Answer: C

View Text Solution

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

A. $(CH_3)_2CHCHO$

B. $CH_3CH_2CH_2CHO$

C. $CH_3CH_2CH(Br)CHO$

D. $CH_3CH_2CBr_2CHO$

Answer: C

View Text Solution

68. The number of optical isomers of the compound.

$CH_3 - CHBr - CHBr - COOH$ is:

A. 0

B. 1

C. 3

D. 4

Answer: D

View Text Solution

69. The optically active molecule is:

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

70. Which of the following compounds exhibits stereoisomerism?

A. 2-Methylbutanoic acid

B. 2-Methyl-1-butene

C. 3-Methyl butanoic acid

D. 3-Methyl-1-butene

Answer: A

View Text Solution

71. The term anomers of glucose refers to:

A. isomers of glucose that differ in configuration at carbons one and four (C-1 and C-4)

B. a mixture of (D)-glucose and (L)-glucose

C. enantiomers of glucose

D. isomers of glucose that differ in configuration at carbon one (C-1)

Answer: D

View Text Solution

72. Number of structural isomers for C_6H_{14} is:

A. 3

B. 4

C. 5

D. 6

Answer: C

View Text Solution

73. Which of the following molecules is expected to rotate the plane of polarised light?

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

74. Which of the following molecuels has S-configuration?

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

75. Geometrical isomersim is possible in:

A. isobutene

B. acetone-oxime

C. benzophenone-oxime

D. acetophenone -oxime

Answer: D

View Text Solution

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

A. 2,3-Dichlorobutane

B. 2-Chlorobutane

C. 2,3-Dichloropentane

D. 2-Hydroxypropanoic acid.

Answer: A

View Text Solution

77. Which of the following molecules will not show optical activity?

A. 

B. $H_3C - \underset{\underset{OH}{|}}{C}H - CD_3$

C. 

D. $H_3C - \underset{\underset{Cl}{|}}{C}H - CH_2 - CH_3$

Answer: A

View Text Solution

78. Among the following pairs, the pair that illustrates stero isomerism is:

A. 1-butanol and 2-butanol

B. dimethyl ether and ethanol

C. acetone and propanal

D. ethanol and ethanal

Answer: C

View Text Solution

79. The number of geometrical isomers in

$CH_3CH = CHCH_2CH = CH_2$ is:

A. two

B. three

C. four

D. five.

Answer: A

View Text Solution

80. Which of the following is the correct order of stability of the following four distinct conformation of n-butane?

A. Gauche $>$ Staggered $>$ Partially eclipsed $>$ Fully eclipsed

B. Staggered $>$ Gauche $>$ Partially eclipsed $>$ Fully eclipsed

C. Staggered $>$ partially eclipsed $>$ Gauche $>$ Fully eclipsed

D. Fully eclipsed $>$ Staggered $>$ Partially eclipsed $>$ Gauche.

Answer: B

View Text Solution

81. How many steroisomers doe this molecule have?

$H_3C - CH = CHCH_2CHBrCH_3$

A. 2

B. 4

C. 6

D. 8

Answer: B

View Text Solution

82. C_8H_{16} that can form cis-trans geometrical isomers and also has a chiral centre, is:

A. 

B. 

C. both of these

D. none of these.

Answer: A

View Text Solution

83. Which one of the following is chiral?

A. $ClCH_2CH_2CH_2CH_2CH_3$

B. $CH_3CH_2\underset{\underset{Cl}{|}}{C}HCH_2CH_3$

C. $ClCH=CHCH_2CH_2CH_3$

D. $\underset{\underset{Cl}{|}}{HC}=C=CHCH_2CH_3$

Answer: D

View Text Solution

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

A. 2,3-dimethylbutane and n-hexane

B. 3-methylpentane and 2,3-dimethylbutane

C. 2,2-dimethylbutane and 2-methylpentane

D. 2,3-dimethylbutane and 2-methylpentane

Answer: D

View Text Solution

85. How many chiral carbon atoms are presetn in 2,3,4-trichloropentane?

A. 1

B. 2

C. 3

D. 4

Answer: B

View Text Solution

86. The total number of acyclic isomers including the steroisomers (geometrical and optical), with the molecular formula C_4H_7Cl is:-

A. 12

B. 11

C. 10

D. 9

Answer: A

View Text Solution

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

A. $CH_2Br - CH_2Br$

B. $CBr_3 - CH_3$

C. $CHBr = CHBr$

D. $CBr_2 = CH_2$

Answer: C

View Text Solution

88. Which one of the following compounds is capable of existing in a meso form?

A. 3,3-Dibromopentane

B. 4-Bromo-2-pentanol

C. 3-Bromo-2-pentanol

D. 2,3-Dibromopentane

Answer: C

View Text Solution

89. Which of the following compounds will show geometrical isomerism?

A. Cyclohexene

B. 2-Hexene

C. 3-Hexene

D. 1,1-Diphenyl ethylene

Answer: B

View Text Solution

90. A compound is formed by substitution of two chlorine for two hydrogens in propane, the number of possible isomeric compounds is:

A. 2

B. 3

C. 4

D. 5

Answer: D

View Text Solution

91. The number of steroisomers possible for a compound of the molecular formula.

$CH_3 - CH = CH - CH(OH) - Me$ is:

A. 2

B. 3

C. 4

D. 6

Answer: C

View Text Solution

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

A. 2,2-Dimethylbutane

B. 2-Methylpentane

C. 3-Methylpentane

D. 2,3-dimethylbutane and 2-methylpentane

Answer: D

View Text Solution

93. The total number of acyclic structural and optical isomers possible for a hydrocarbon of the molecular formula C_7H_{16} is:

A. 6

B. 8

C. 10

D. 12

Answer: B

View Text Solution

94. The alkene that exhibits geometrical isomerism is:

A. propene

B. 2-methyl propene

C. 2-butene

D. 2-methyl-2-butene

Answer: C

View Text Solution

95. Two possible stero structures of

$CH_3 - CHOH - COOH$,

Which are optically active are called:

A. diasteromers

B. atropisomers

C. enantiomers

D. mesomers.

Answer: C

View Text Solution

96. Which of the following biphenyl is optically active?

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

97. 3-Methylpent-2-ene on reaction with HBr in presence of peroxide forms an addition product. The number of possible steroisomers for the product is:

A. two

B. four

C. six

D. zero.

Answer: B

View Text Solution

Level B

1. The isomer of an oxime is:

A. $R - NO_2$

B. $R-O-C\equiv N$

C. $R-O-N\equiv O$

D. $R-CONH_2$

Answer: D

View Text Solution

2. Which of the following compounds has meso isomer?

A. $CH_3CHNH_2CONH_3$

B. $HOCH_2CHOHCH_2CH_3$

C. 

D. 

Answer: C

View Text Solution

3. Maximum enolisation takes place in:

A. CH_3COCH_3

B. CH_3COCH_2CHO

C. $CH_3COCH_2COCH_3$

D. 

Answer: D

View Text Solution

4. Which of the following C_6H_6 structures will not give only one C_6H_5Br isomer

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

5. The total number of isomers (including steroisomers) of hydrocarbon with molecular formula C_4H_8 is:

A. 2

B. 4

C. 5

D. 6

Answer: D

View Text Solution

6. Select the same molecuels among the following:

A. 

B. 

C. 

D. all are same

Answer: D

View Text Solution

7. The most stable conformation of 1,2-diphynylethane is:

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

8. Which of the following can form geometrical isomer?

A. 

B. $CH_3 - CH = N - OH$

C. 

D. All of these

Answer: D

View Text Solution

9. Which of the following will not show optical activity?

A. 

B. $CH_3 - \underset{OH}{\overset{OH}{CH}} - CD_3$

C. 

D. 

Answer: C

View Text Solution

10. Which of the following compounds can not show tautomerism?

A. $HO - CH = CH_2$

B. 

C. 

D. 

Answer: C

View Text Solution

11. Among the following amino acids, the (R)-enantiomer is represented by:

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

12. Select the optically inactive compound among the following:

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

13. Idenfity, which of the following molecuels does not have 'R' configuration?

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

14. Increasing order of stability among the three main conformation (i.e., eclipse,anti,gauche) of 2-fluoroethanol is:

A. eclipse,gauche,anti

B. gauche,eclipse,anti

C. eclipse,anti,gauche

D. anti,gauche,eclipse

Answer: C

View Text Solution

15. The S-ibuprofen is responsible for its pain relieving property. Which one of the structures shown in S-ibuprofen?

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

16. In the dehydrohalogenation of 2-bromobutane, which conformation leads to the formation of cis-2-butene?

A. 

B. 

C. 

D. 

Answer: A

View Text Solution

17. The major product from the reaction of Br_2 with Z-3-hexene is:

A. optically active racemic mixture

B. racemic mixture

C. meso form

D. both racemic mixture and meso form.

Answer: B

View Text Solution

18. which one of the following statement (s) is/are true for threo-butene-2,3-diol regarding their population of different conformers?

A. The most populated conformer will have the hydroxyl groups of the gauche position.

B. The most populated conformer will have the hydroxyl groups at the anti position.

C. All staggered conformations will be equally populated

D. Relative population of different conformers is not predictable.

Answer: A

View Text Solution

Set Ii

1. Select 'cis' isomer among the following

A. 

B. 

C. 

D. 

Answer: A::B

View Text Solution

2. For which of the following pairs of compounds are the correct notations given?

A. 

B. 

C. 

D. 

Answer: B::C::D

View Text Solution

3. Which of the following compounds will exhibit geometrical isomerism?

A. $CH_3 - CH = CH - COOH$

B. $Br - CH = CH - Br$

C. $C_6H_5 - CH = NOH$

D. 

Answer: A::B::C

View Text Solution

4. Which of the following compounds exhibits optical isomerism?

A. 

B. $CH_2 = C = CH_2$

C. 

D. 

Answer: A::C

View Text Solution

5. Which of the following represetns a pair of enantiomers?

A. 

B. 

C. 

D. 

Answer: A::B

View Text Solution

6. Which of the following cycloalkanes will show cis-trans isomerism?

A. 

B. 

C. 

D. 

Answer: C::D

View Text Solution

7. Which of the compound is correctly matched?

A. $CH_3 - CH = CH - CH = CH - C_2H_54$

B. $CH_3 - (CH = CH)_4 - CH_32$

C. $H_2C = CH - CH = CH_2 2^3 + 2^1 = 10$

D. $CH_3(- CH = CH)_5 - CH_5 2^4 + 2^2 = 20$

Answer: A::D

View Text Solution

8. Which of the following will have a trans isomer?

A. 

B. 

C. 

D. 

Answer: B::C::D

View Text Solution

9. Which of the following compounds shows tautomerism?

A. $NH_2 - \overset{\overset{O}{||}}{C} - NH_2$

B. $NH_2 - \overset{\overset{S}{||}}{C} - NH_2$

C. 

D. $CH_3 - \overset{\overset{O}{||}}{C} - CH_3$

Answer: A::B::C::D

View Text Solution

10. Which of the following is (are) optically active?

A. $C_2H_5 - \overset{\overset{CH_3}{|}}{\underset{\underset{C_6H_5}{|}}{P}} = O$

B. 

C. 

D. 

Answer: A::B::C

View Text Solution

11. Cis-2butene and transjj-2-butene are:

A. geometrical isomers

B. diasteroeomers

C. enantiomers

D. position isomers.

Answer: A::C::D

View Text Solution

12. Which of the following can exist in 'syn' and 'anti' forms?

A. $C_6H_5 - N = N - OH$

B. $C_6H_5 - N = N - C_6H_5$

C. $C_6H_5 - CH = N - OH$

D. $(C_6H_5)_2C = N - OH$

Answer: A::B

View Text Solution

13. Keto-enol tautomerism is observed in:

A. $C_6H_5 - ChO$

B. $C_6H_5COCH_3$

C. $C_6H_5COC_6H_5$

D. $C_6H_5COCH_2COCH_3$

Answer: A::C

View Text Solution

14. Which of the following statement's is /are correct about tautomers?

A. They possess different electronic and atomic arrangement

B. They possess different electronic but same atomic arrangement

C. They have different atomic arrangements but same electronic arrangement

D. They exist in equilibrium.

Answer: B::D

View Text Solution

15. The lowest molecular weight alkanes, which are optically active, are:

A. 3-methylhexane

B. 2,3-dimethylpentane

C. 2,3,3-triemthylbutane

D. 2-methylhexane

Answer: A::D

View Text Solution

16. Which of the following compounds are chiral and resolvable?

A. $\left[C_6H_5N(CH_2CH_2CH_3)(C_2H_5)(CH_3)Br^-\right.$

B. $C_6H_5N(CH_3)(C_2H_5)$

C. $CH_3CH_2CH(CH_3)N(CH_3)(C_2H_5)$

D. 

Answer: A::B

View Text Solution

17. Which of the following compounds will show geometrical isomerism?

A. 2-Butene

B. Propene

C. 1-Phenylpropene

D. 2-Methyl-2-butene

Answer: A::C

View Text Solution

18. Tautomerism is exhibited by:

A. 

B. 

C. 

D. 

Answer: A::C

View Text Solution

19. Geometrical isomerism is exhibited by:

A. 2-chlorobut-2-ene

B. but-2-ene

C. 3-methylpent-2-ene

D. 2-methyl but-2-ene

Answer: A::C::D

View Text Solution

20. The correct statement(s) about the compound

$H_3C(HO)HC-CH=CH-CH(OH)CH_3(X)$ is (are):

A. the total number of stereoisomers possible for (X) is 6

B. the total number of diastereomers possible for (X) is 3

C. if the stereochemistry about the double bond in (X) is trans, the number of enantiomers possible for (x) is 4.

D. if the stereochemistyr about the double bond in (X) is cis, the number of enantiomers possible for (X) is 2 .

Answer: B::C::D

View Text Solution

21. Which one of the following exhibits geometrical isomerism?

A. 1,2-dibromopropene

B. 2,3-dimethylbut-2-ene

C. 2,3-dibromobut-2-ene

D. 2-methylbut-2-ene

Answer: A::D

View Text Solution

22. Amongst the given options, the compound (s) in which all the atoms are in one plane in all the possible conformations (if any) is (are):

A. 

B. 

C. $H_2C = C = O$

D. $H_2C = C = CH_2$

Answer: A::C

View Text Solution

23. Tautomerism is exhibited by:

A. $(MeCCO)_3CH$

B. 

C. 

D. 

Answer: A::B::C

View Text Solution

Assertion

1. (A) All compounds having C=C bond exhibit geometrical isomerism.

(R) Rotation about C=C bond is restricted.

View Text Solution

2. (A) Diastereomers are not mirror image of each other.

(R) Diastereomers may be optically active.

View Text Solution

3. Dextro-isomers rotate the plane of polarised light towards right.

(R) Dextro-isomers are represented by putting (D) before their name.

View Text Solution

4. Trans-1-chlroropene has higher dipole moment than cis-1-chloropropene.

(R) The resultant of the two vectors in trans-1-chloro propene is more than in cis-1-chloropropene.

View Text Solution

5. (A) Meso tartaric acid is optically inactive.

(R) Meso tataric acid has plane of symmetry.

View Text Solution

6. (A) Alkanes containing more than three carbons exhibit chain isomerism.

(R) All the carbon atoms in alkanes are sp^3-hybridized.

View Text Solution

7. (A) Lactic acid shows geometrical isomerism.

(R) It has a C=C double bond.

(R) It has a C=C double bond.

View Text Solution

8. Metamers can also be chain or position isomers.

(R) The term tautomerism was introduced to explain the reactivity of a substance according to two possible structures.

View Text Solution

9. (A) All the hydrogen atoms in but-2-ene lie in one plane.

(R) All the carbon atoms in it are sp^2-hybridized.

View Text Solution

10. (A) Benzaldehyde forms two oximes on reacting with NH_2OH.

(R) The two oximes arise due to geometrical isomerism around C=N bond.

View Text Solution

11. (A) Cyclobutane is less stable than cyclopentane.

(R) Presence of bent bonds causes loss of orbital overlap.

View Text Solution

12. (A) Ethyl acetoacetate gives reddish violet colour on treatment with ferric chloride.

(R) Keto form is ominant in it.

View Text Solution

13. (A) The boiling point of cis-1,2-dichloroethene is higher than corresponding trans-isomer.

(R) The dipole moment of cis-1,2-dichloroethene is higher than trans-isomers.

View Text Solution

14. (A) Molecuels that are not superimposable on their mirror images are chiral.

(R) All chiral molecules have chiral centre.

View Text Solution

15. (A) Cyclohexanone exhibits keto-enol tautomerism.

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

View Text Solution

16. (A) The energy difference between staggered and eclipsed conformations of ethylene dichloride is less than in ethylene dibromide.

(R) The bond moment of C-Cl is greater than that of C-Br.

View Text Solution

17. (A) Alkanes can have an infinite number of conformations.

(R) In configurational isomerism, the isomers are distinct individual substances.

View Text Solution

Comp

1. Stereoisomers, which can be interconverted simply by rotation about sigma bonds, are confomational isomers while those, which can be converted only by breaking and remaking of bonds and not simply by rotation, are called configurational isomers.

The angle between C-C and C-H bonds on adjacent carbon atoms in any conformation is called dihedral angle.

The cyclic compounds most commonly found in nature containing six membered rings can exist in a conflormation that is almost completely free of strain. the most stable conformation of cyclohexane is chair form.

According to Bayer strain theory, the greater deviation from the normal

tetrahedral angle, greater is the angle strain or torsional strain and hence lesser is the stability of the cycloalkane.

Dihedral angle is staggered and eclipsed conformation are:

A. 60° and 0°

B. 0° and 60°

C. 60° and 120°

D. 120° , and 60°

Answer: A

View Text Solution

2. Stereoisomers, which can be interconverted simply by rotation about sigma bonds, are confomational isomers while those, which can be converted only by breaking and remaking of bonds and not simply by rotation, are called configurational isomers.

The angle between C-C and C-H bonds on adjacent carbon atoms in any conformation is called dihedral angle.

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Dihedral angle between two methyl groups of n-butane in the gauche and anti forms are:

A. $60^\circ, 0^\circ$

B. $60^\circ, 180^\circ$

C. $0^\circ, 60^\circ$

D. $180^\circ, 60^\circ$

Answer: B

View Text Solution

3. Stereoisomers, which can be interconverted simply by rotation about sigma bonds, are confomational isomers while those, which can be converted only by breaking and remaking of bonds and not simply by rotation, are called configurational isomers.

The angle between C-C and C-H bonds on adjacent carbon atoms in any conformation is called dihedral angle.

The cyclic compounds most commonly found in nature containing six membered rings can exist in a conflormation that is almost completely free of strain. the most stable conformation of cyclohexane is chair form.

According to Bayer strain theory, the greater deviation from the normal tetrahedral angle, greater is the angle strain or torsional strain and hence lesser is the stability of the cycloalkane.

Which among the following conformations of cyclohexane is the most stable form?

A. Chair form

B. Half chair form

C. Twist boat form

D. Boat form.

Answer: A

View Text Solution

4. Stereoisomers, which can be interconverted simply by rotation about sigma bonds, are confomational isomers while those, which can be converted only by breaking and remaking of bonds and not simply by rotation, are called configurational isomers.

The angle between C-C and C-H bonds on adjacent carbon atoms in any conformation is called dihedral angle.

The cyclic compounds most commonly found in nature containing six membered rings can exist in a conflormation that is almost completely free of strain. the most stable conformation of cyclohexane is chair form.

According to Bayer strain theory, the greater deviation from the normal tetrahedral angle, greater is the angle strain or torsional strain and hence lesser is the stability of the cycloalkane.

Which of the following molecules has the highest deviation from tetrahedral bond angle?

A. Cyclopropane

B. Cyclobutane

C. Cyclopentane

D. Cyclohexane

Answer: A

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5. Stereoisomers, which can be interconverted simply by rotation about sigma bonds, are confomational isomers while those, which can be converted only by breaking and remaking of bonds and not simply by rotation, are called configurational isomers.

The angle between C-C and C-H bonds on adjacent carbon atoms in any conformation is called dihedral angle.

The cyclic compounds most commonly found in nature containing six

membered rings can exist in a conflormation that is almost completely free of strain. the most stable conformation of cyclohexane is chair form. According to Bayer strain theory, the greater deviation from the normal tetrahedral angle, greater is the angle strain or torsional strain and hence lesser is the stability of the cycloalkane.

The energy barrier between eclipsed and staggered forms is:

A. 44 kJ/mol

B. 6.7kj/mol

C. 12.55kJ/mol

D. 29.7kJ/mol

Answer: C

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Select the correct sequence of decreasing order of stability?

A. gauche $>$ staggered $>$ partially eclipsed $>$ fully eclipsed

B. staggered $>$ gauche $>$ partially eclipsed $>$ fully eclipsed

C. fully eclipsed $>$ partially eclipsed $>$ gauche $>$ staggered

D. partially eclipsed $>$ fully eclipsed $>$ staggered $>$ gauche.

Answer: B

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7. Tautomerism arises due to 1,3-migration of a proton from one polyvalent atom to the other within the same molecule. Two isomers thus obtained exist in dynamic equilibrium with each other are called tautomers and the phenomenon is called tautomerism or allelotropism or dynamic isomerism.

For an aldehyde or ketone to exhibit keto-enol tautomerism, it is essential that it must have at least one a-hydrogen atom. In simple aldehydes and ketones the enolic form is negligibly small. this is due to greater stability of the keto form with respect to enol form. strength of (C=O) bond in keto form has greater energy than (C=C) bond in enol form.

The compound acetophenone  shows the keto-enol tautomerism. (a) True (b) False

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Enol form of acetoacetic ester is more stable that keto form

(a) True (b) False

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9. The prefixes erythro and threo are used for distinguishing a pair of enantriomers containing two chiral carbon atoms when two of the atoms or groups on each chiral carbon atom are the two identical groups are on the same side of the Fischer projection formula, is called the erythro isomer while the isomer, in which the two identical groups are on the opposite sides of the fischer projection formula, is called the Threo

isomer.

Which among the following is a threo isomer?

A. 

B. 

C. 

D. 

Answer: B

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10. The prefixes erythro and threo are used for distinguishing a pair of enantriomers containing two chiral carbon atoms when two of the atoms or groups on each chiral carbon atom are the two identical groups are on the same side of the Fischer projection formula, is called the erythro isomer while the isomer, in which the two identical groups are on the opposite sides of the fischer projection formula, is called the Threo

isomer.

Erythro isomer among the following is:

A. 

B. 

C. 

D. 

Answer: D

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11. The prefixes erythro and threo are used for distinguishing a pair of enantriomers containing two chiral carbon atoms when two of the atoms or groups on each chiral carbon atom are the two identical groups are on the same side of the Fischer projection formula, is called the erythro isomer while the isomer, in which the two identical groups are on the opposite sides of the fischer projection formula, is called the Threo

isomer.

Select the correct representation among the following:

A. 

B. 

C. 

D. 

Answer: B::C::D

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Integer

1. Write the total number of cyclic structural as well as stereosiomers possible for a compound with the molecular formula C_5H_{10}.

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2. Write the total number of cyclic isomers possible for a hydrocarbon with the molecular formula, C_4H_6.

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3. Total number of steroisomers possible for the compound $H_3C - CH = CH - CH = CH - CH = CH - Ph$ are

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4. How many of the following can not show tautomerism? Acetophenone, Acetadehyde, Benzaldehyde, Propanal, Benzophenone, Butan-2-one, Ethylacetoacetate, p-Benzoquinone, Acetophenone.

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5. Find out the maximum number of isomers (including steroisomers) that are possible on monochlorination of the given compound:

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

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6. Write all the acyclic and cyclic isomers (excluding stereoisomers) of a compound having molecualr formula. C_3H_6O.

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7. Write all the ring-chain isomers (excluding steeoisomers) of pent-1-yne (C_5H_8).

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