JARS EDUCATION
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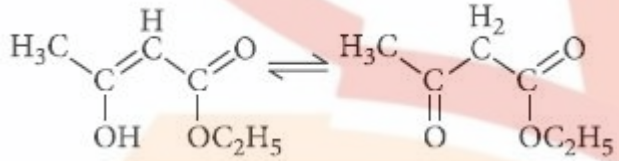
# Practice Paper

Time : 2 Hour | 11th standard (JEE BASED) GOC - ISOMERISM | Total Marks : 200

## Chemistry

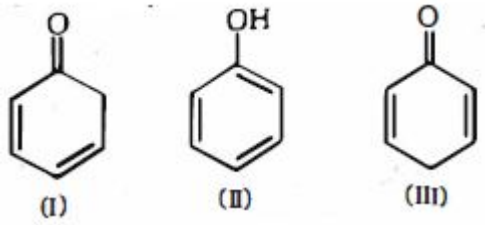
*** SECTION - A** [160]

1. Which of the following statement is wrong
   (A) Diethyl ketone and methyl propyl ketone are position isomers
   (B) $2-$ chloro pentane and $1-$ chloro pentane are position isomers
   (C) $n-$butane and $2-$methyl propane are chain isomers
   (D) Acetone and propinaldehyde are functional isomers
2. Number of isomers of $C_4H_{10}$ is
   (A) $2$ (B) $3$
   (C) $4$ (D) Isomerism not exist
3. $CH_3-O-C_3H_7$ and $C_2H_5-O-C_2H_5$ exhibit which type of isomerism
   (A) Metamerism (B) Position (C) Chain (D) Functional
4. The enolic form of ethyl acetoacetate as shown below has



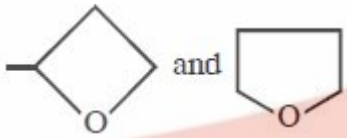
   (A) $9$ sigma bonds and $2$ pi-bonds (B) $9$ sigma bonds and $1$ pi-bond
   (C) $18$ sigma bonds and $2$ pi-bonds (D) $16$ sigma bonds and $1$ pi-bond.
5. $C_7H_9N$ has how many isomeric forms that contain a benzene ring
   (A) $4$ (B) $5$ (C) $6$ (D) $7$
6. In the molecule $CH_3C\equiv CCH=CH_2$ the maximum number of carbon atoms arranged linearly is
   (A) $2$ (B) $3$ (C) $4$ (D) $5$

7. The tautorner of $II$ is




(A) $I$ (B) $III$ (C) both $I$ and $III$ (D) none of these

8. Given two compounds are .....




(A) Ring chain isomer (B) Position isomer

(C) Functional isomer (D) Diastereomer

9. The number of structural isomers possible for the molecular formula $C_4H_8F_2$ are

(A) $7$ (B) $9$ (C) $11$ (D) $8$

10. Which of the following is isomeric with methyl vinyl ether

(A) Allyl alcohal (B) Propanal (C) Acetone (D) All of these

11. Increasing order of stability among the three main conformations (**i.e.** Eclipse, Anti, Gauche) of $2-$ fluoroethanol is

(A) Eclipse, Anti, Gauche (B) Anti, Gauche, Eclipse

(C) Eclipse, Gauche, Anti (D) Gauche, Eclipse, Anti

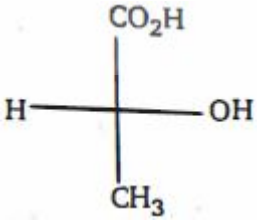
12.

$$\underset{(3)}{HO-CH_2}\ \underset{(2)}{-CH_2}\ -\underset{(1)}{\overset{\overset{O}{\|}}{C}}-H$$

Which conformer of above compound is most stable (consider conformer across $(C_2-C_3)$

(A) Staggered (B) Gauche (C) Fully eclipsed (D) Partially eclipsed

13. How many representations of lactic acid are possible in Fischer projection ($d$ & $l$) ?



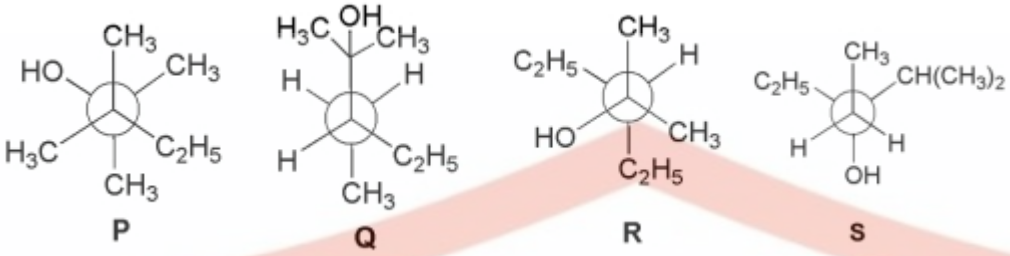

(A) $8$ (B) $12$ (C) $24$ (D) $36$

14. Which conformation of ethane has the lowest potential energy ?

(A) Eclipsed (B) Skew

(C) Staggered (D) All will have equal potential energy

15. Newman projections $P, Q, R$ and $S$ are shown below :
Which one of the following options represents identical molecules?




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

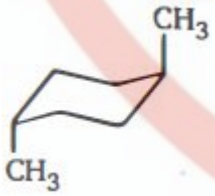
16. Which compound shows cis-trans isomerism

(A) $1-$butene (B) $2-$propene (C) $2-$butene (D) Benzene

17. The stable form of $trans-1,4$ -dimethylcyclohexane is represented as

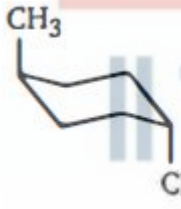
(A)

(B)



(C)

(D)



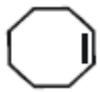
18. Maleic acid and fumaric acids are

(A) Chain isomers (B) Functional isomers

(C) Tautomers (D) Geometrical isomers

19. Which of the following compound does not show geometrical isomerism

(A)



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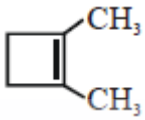
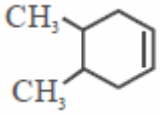
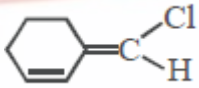



(C)




(D)




20. Types of geometrical isomerism shown at point $X, Y$ and $Z$ of the following compound respectively are

$X - Y - Z$

(A) cis - cis - trans (B) cis - trans - trans (C) trans - cis - cis (D) cis - trans - cis

21. The property by virtue of which a compound can turn the plane polarised light is known as

(A) Photolysis (B) Phosphorescence (C) Optical activity (D) Polarization

22. Which one of the following is the chiral molecule

(A) $CH_3Cl$ (B) $CH_2Cl_2$ (C) $CHBr_3$ (D) $CHClBrI$

23. Which of the following compounds is optically active

(A) $(CH_3)_2CHCH_2OH$

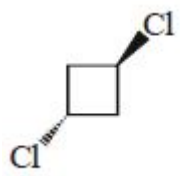
(B) $CH_3CH_2OH$

(C) $CCl_2F_2$

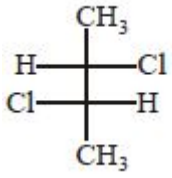
(D) $CH_3CHOHC_2H_5$

24. Identify the compound which rotate the plane polarised light

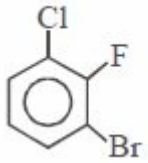
(A)



(B)



(C)



(D) $CH_2ClF$

25. How many number of optically active isomers are possible for $2,3-$ dibromo butane $1,4-$ dioic acid ?

(A) $2$ (B) $3$ (C) $4$ (D) $1$

26. Which one of the following is chiral ?

(A) $1,1$ -Dibromo- $1$ -chloropropane (B) $1,3$ -Dibromo- $1$ -chloropropane

(C) $1,1$ -Dibromo- $3$ -chloropropane (D) $1,3$ -Dibromo- $2$ -chloropropane

27. The structural formula of sativene is shown below. How many stereogenic centers are there in this molecule ?

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

28. The following compounds are best described as :

$(R)-PhCH(OH)CH_3$ and $(S)-PhCH(OH)CH_3$

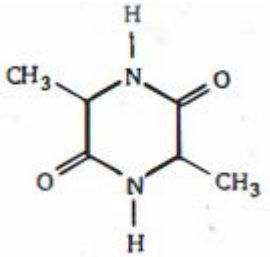
(A) enantiomers

(B) diastereomers

(C) not stereoisomers

(D) conformational isomers (differing by single bond rotation)

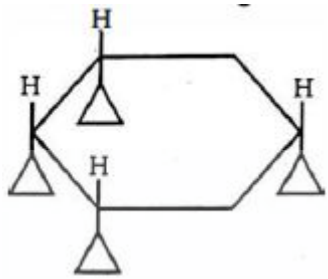
29. The number of stereoisomers formed by the given compound is



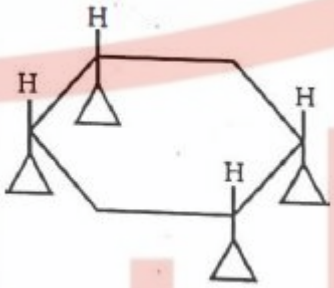
(A) 2 (B) 3 (C) 4 (D) 5

30. Which of the following having plane of symmetry ?

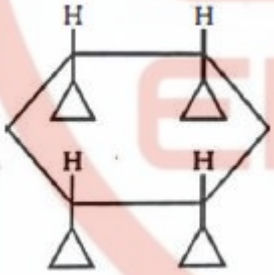
(A)



(B)

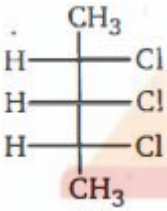


(C)



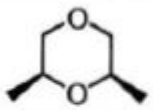
(D) All of these

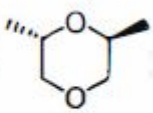
31. Number of diastereomer of given compound

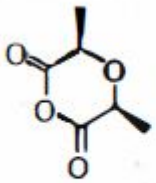


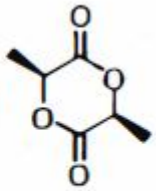

(A) 2 (B) 3 (C) 4 (D) 6

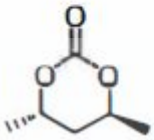
32. Identify which of the structures below are meso structures ?

(1) 

(2) 

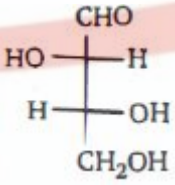
(3) 

(4) 

(5) 

(A) $1$ and $3$ (B) $1,3$ and $5$ (C) $1,3$ and $4$ (D) $2$ and $5$

33. The configurations of the chirality centres in $D-$ threose (shown) are



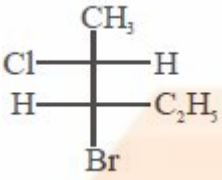

(A) $2R,3R$ (B) $2R,3S$ (C) $2S,3R$ (D) $2S,3S$

34. Relation between $(A)$ and $(B)$ is


(A) Diastereomers (B) Enantiomer (C) Identical (D) Structural isomer

35. Which of the following is optically inactive

(A)

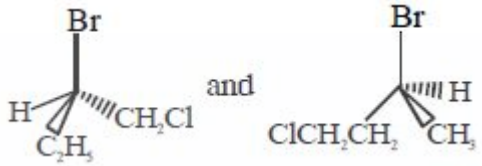



(B)

(C)

(D)


36. The given pair are



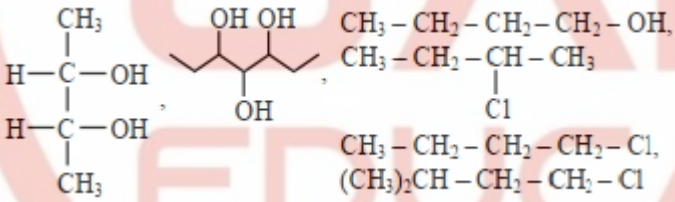

(A) enantiomers (B) diastereomers

(C) homomenrs (D) constitutional isomer

37. Total number of isomers (including stereoisomers) obtain on monochlorination of methylcyclohexane is .....

(A) $11$ (B) $13$ (C) $14$ (D) $12$

38. Total number of optically active compounds from the following is. . . . . .




(A) $5$ (B) $8$ (C) $1$ (D) $9$

39. $P$ and $Q$ are isomers of dicarboxylic acid $C_4H_4O_4$. Both decolorize $Br_2/H_2O$. On heating, $P$ forms the cyclic anhydride.

Upon treatment with dilute alkaline $KMnO_4, P$ as well as $Q$ could produce one or more than one from $S, T$ and $U$.$Image$

1. Compounds formed form $P$ and $Q$ are, respectively

$(A)$ Optically active $S$ and optically active pair $(T, U)$

$(B)$ Optically inactive $S$ and optically inactive pair $(T, U)$

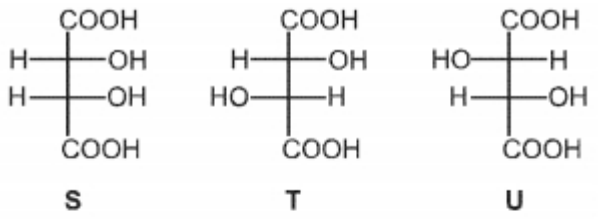
$(C)$ Optically active pair $(T, U)$ and optically active $S$

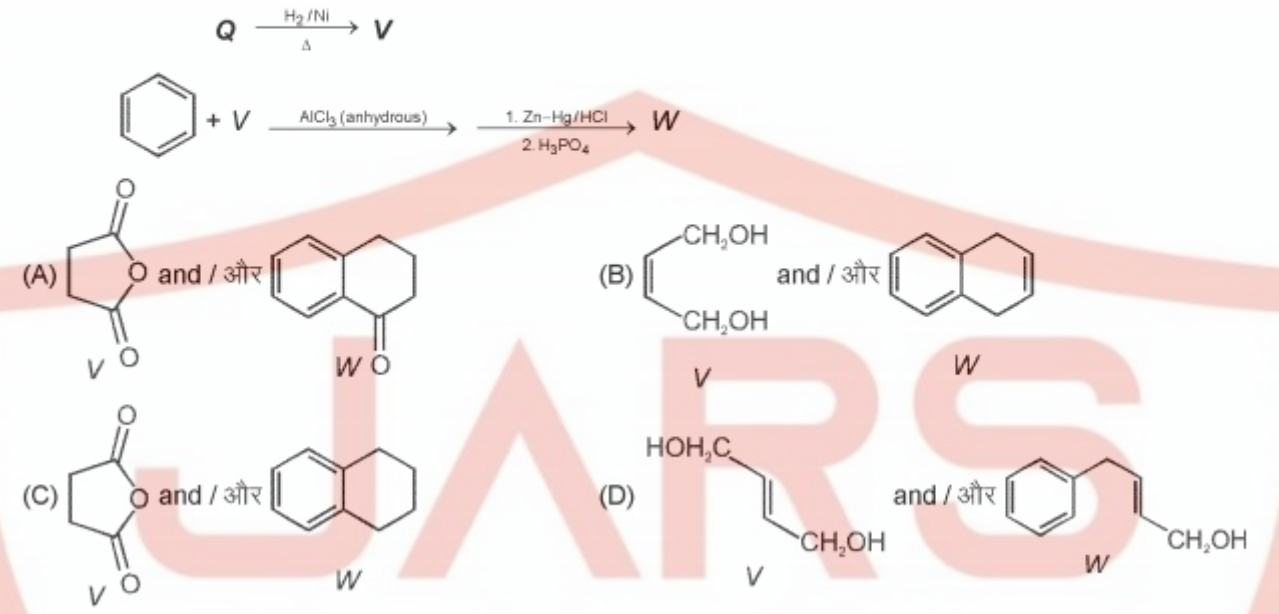
$(D)$ Optically inactive pair $(T, U)$ and optically inactive $S$

2. In the following reaction sequences $V$ and $W$ are respectively :$Image$

mcq $Image$

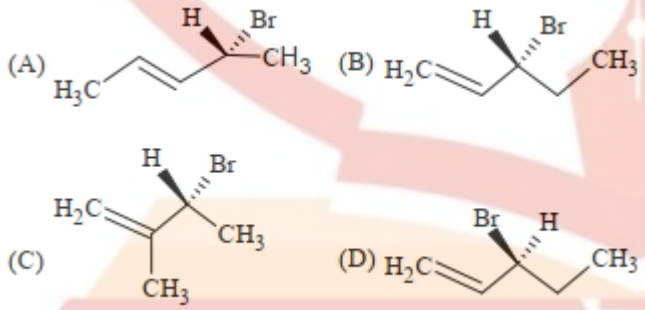
Give the answer question 1 and 2.




(A) $(B, A)$ (B) $(B, D)$ (C) $(B, C)$ (D) $(A, C)$

40. Compound$(s)$ that on hydrogenation produce$(s)$ optically inactive compound$(s)$ is (are)



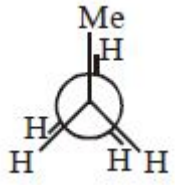

(A) $(A, D)$ (B) $(A, C)$ (C) $(B, C)$ (D) $(B, D)$

*** SECTION - B** **[40]**

41. The number of structural isomers possible from the molecular formula $C_3H_9N$ is

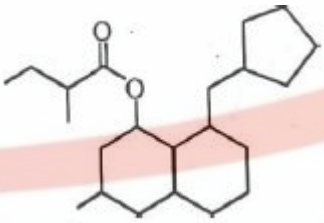
42. The number of different chain isomers for $C_7H_{16}$ is . . . . . .

43. Following eclipsed form of propane is repeated after rotation by an angle of.....$^{o}$

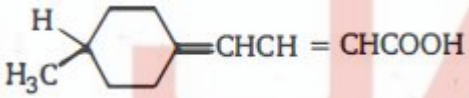



44. Total number of secondary amines (Excluding stereo isomer) possible with the molecular formula $C_5H_{13}N$ is

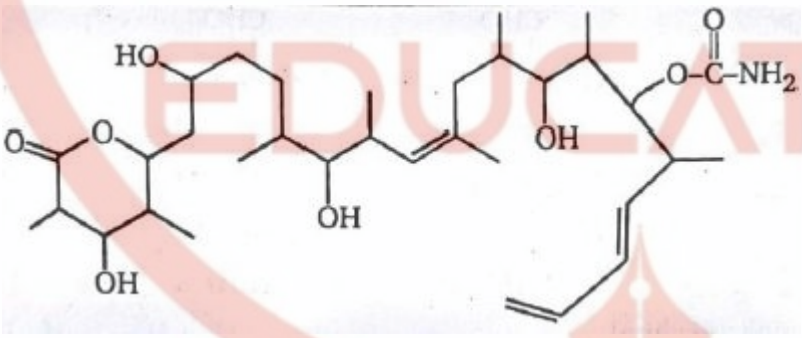
45. How many chiral centers are in the following compound ?




46. How many isomers are possible for the following molecule ?




47. What is the maximum number of stereoisomers possible for discodermolide ?




48. The total number of stereoisomer possible for $2,3$ -dichloro butane

49. Total number of stereoisomers of the compound $1$ -bromo- $3$ -chlorocyclobutane is

50. Total number of secondary amines (Excluding stereo isomer) possible with the molecular formula $C_5H_{13}N$ is

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