CHEMISTRY

BOOKS - BITSAT GUIDE

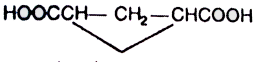
STEREOCHEMISTRY

Practice Exercise

1. Which class of compounds can exhibit geometrical isomerism?

A. $C_6H_5CH = NOH$

B. $CH_3CH = CHCH_3$

C. 

D. All of the above

Answer: D

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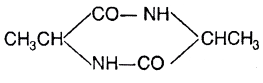
2. Which of the following shows geometrical isomerism?

A. 1,2-dichloroethene

B. 1,2-dimethylcyclopropane

C. 

D. All of the above

Answer: D

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3. The number of isomers of the compound $C_2FClBrl$ is :

A. 3

B. 4

C. 5

D. 6

Answer: D

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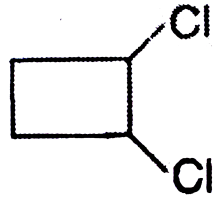
4. Which will form geometrical isomers?

A. 

B. $CH_3CH = NOH$

C. 

D. All of the above

Answer: D

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5.  the

double bonds are

A. cic,cis

B. cis,trans

C. trans,cis

D. trans, trans

Answer: C

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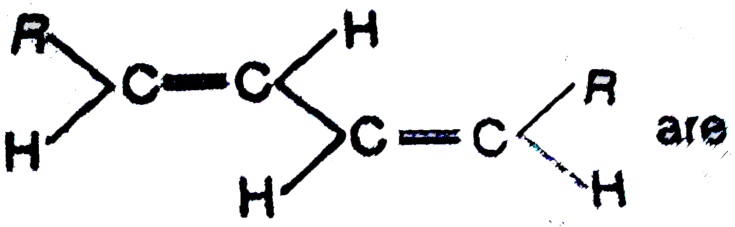
6. Number of geometrical isomers for the molecule



are

A. 2

B. 3

C. 4

D. 5

Answer: B

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7. Racemic modification can be resolved by

A. the use of enzymes

B. fractional crystailisation

C. fractional distillation

D. none of the above

Answer: A

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8. Racemic tartaric acid is optically inactive due to

A. external compensation

B. internal compensation

C. presence of plane of symmetry

D. All of the above

Answer: A

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9. (+) and (-) forms of optically active compounds are different in

A. boiling points

B. melting points

C. specific gravity

D. specific rotation

Answer: D

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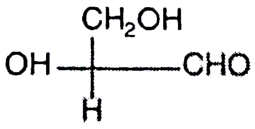
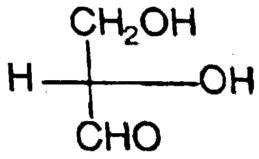
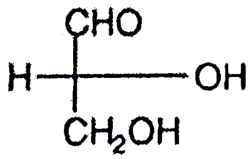
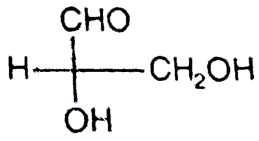
10. Which of the following fischer projection formula is same as D_glyceraldehyde?

A. 

B. 

C. 

D. 

Answer: C

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11. How many carbon atoms in the molecule

$HOOC - (CHOH)_2 - COOH$

are asymmetric?

A. 1

B. 2

C. 3

D. none of these

Answer: B

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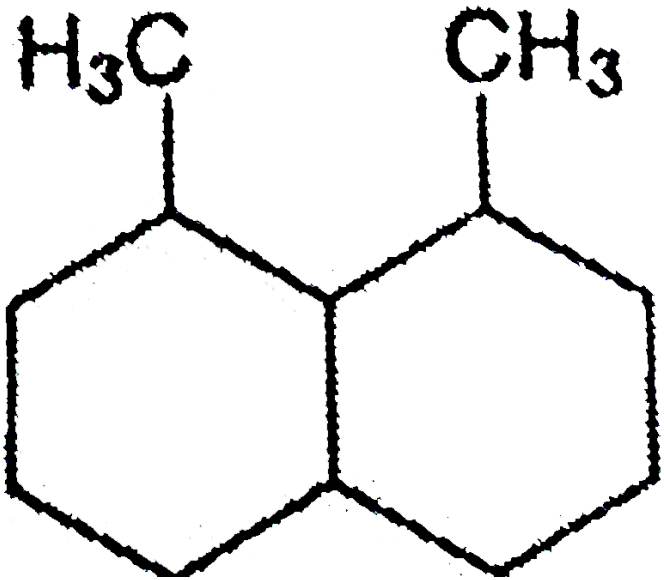
12. 

Number of chiral centres in

A. 1

B. 2

C. 3

D. 4

Answer: B

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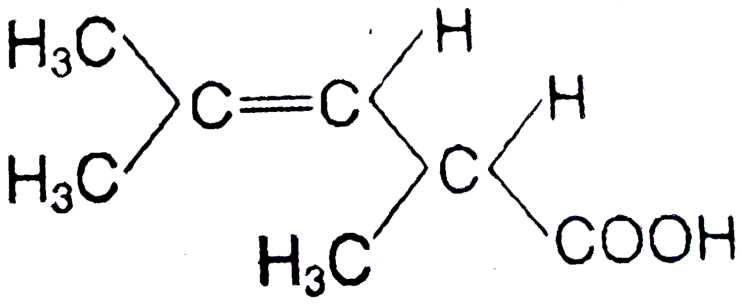
13.



The following compound can exhibits

A. tautomerism

B. optical isomerism

C. geometrical isomerism

D. geometrical and optical isomerism

Answer: B

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14. Which of the following statements is not correct?

A. A meso compound has chiral centres but exhibits no optical activity

B. A meso compound has no chiral centre. Thus it is optically inactive.

C. A meso compound has molecule in which one-half of molecule is superimposable on the other even through chiral centre is present in them

D. A meso compound is optically inactive because the rotation caused by one-half

of molecule is cancelled by the rotation produced by another half

Answer: D

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

A. optically active mixture

B. pure enantiomer

C. meso compound

D. racemic mixture.

Answer: A

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16. Which of the following will exhibit geometrical isomerism?

A. Propene

B. Butene-2

C. Butene-1

D. 1,1-dichloro butane

Answer: B

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17. Which statement is true?

A. A compound with R configuration is the

(+) enantiomer

B. If configuration changes from + to -, that essentially means inversion of configuration takes place

C. An achiral molecule reacts always with racemic forms, to give a chiral molecule.

D. By breaking two bonds on the chiral centre, configuration changes.

Answer: D

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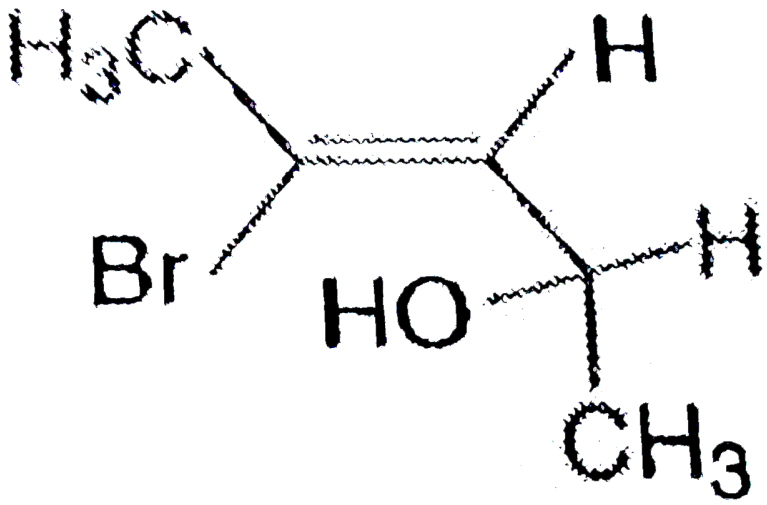

18.

the compound whose stereo chemical formula is written below, exhibits x-geometrical isomers and y-optical isomers. The value of x and y respectively are

A. 4 are 4

B. 2 and 2

C. 2 and 4

D. 4 and 2

Answer: B

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19. Incorrect statement is

A. ethane can have an infinite number of conformations

B. cyclopropane molecule has considerable angle strain

C. eclipsed form of ethane is less stable than staggered conformation

D. staggered conformation possesses maximum energy.

Answer: D

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20. At room temperature, the eclipsed and the staggered forms of ethane cannot be isolated because

A. both the conformers are equally stable

B. they interconvert rapidly

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

D. the energy difference between the conformers is large.

Answer: B

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21. The most stable conformation of ethane chlorohydrin at room temperature is

A. fully eclipsed

B. partially eclipsed

C. gauche

D. staggered

Answer: C

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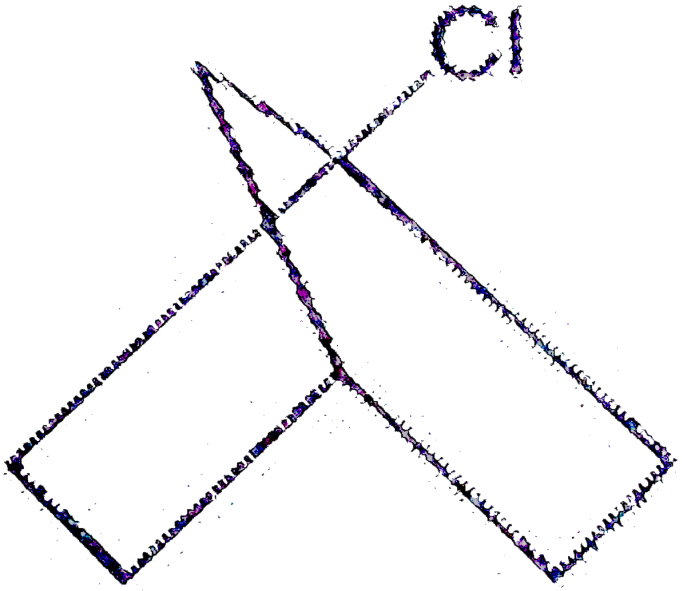
22.



the number of chiral carbon atoms present in the molecule.

A. 3

B. 4

C. 2

D. 1

Answer: C

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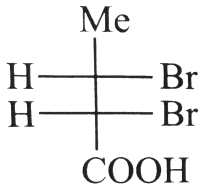
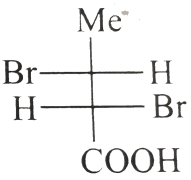
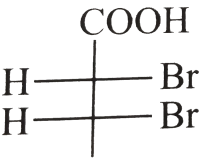
23. Which of the following are diastereomers ?

i. 

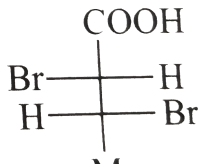
(I)

ii. 

(II)

iii. 

(III)

iv. 

(IV)

A. I and III

B. II and IV

C. I and II

D. None of these

Answer: C

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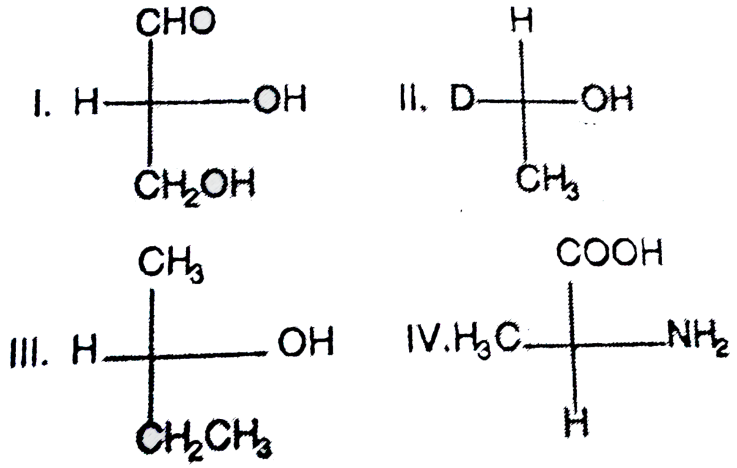
24.



The R-isomer among the following are

A. I and II

B. II and III

C. III and IV

D. I and III

Answer: A

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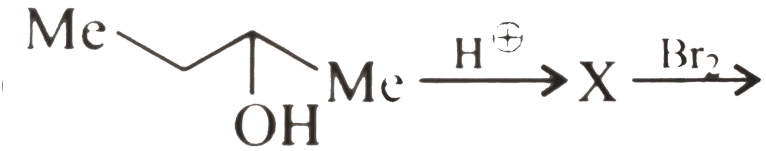
25.



formula $C_4H_8Br_2$.

Five compounds with formula $C_4H_8Br_2$

How many structrue of (X) are possible?

A. 2

B. 3

C. 4

D. 5

Answer: B

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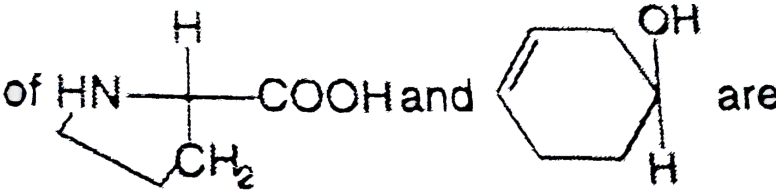
26.



Configuration of

A. R,R

B. R,S

C. S,S

D. S,R

Answer: B

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27. The specific rotation of a pure enantiomer is $+16^{\circ}$ its observed rotation if it is isolated

from a reaction with 25% racemisation and 75% retention is,

A. -12°

B. $+12^\circ$

C. $+16^\circ$

D. -16°

Answer: B

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28. Out of following, the alkane that exhibit optical isomerism is

A. 3-methyl-2-pentene

B. 4-methyl-1-pentene

C. 3-methyl-1-pentene

D. 2-methyl-2-pentene

Answer: C

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29. The alkene that exhibits geometrical isomerism is

A. propene

B. 2-methyl propene

C. 2-butene

D. 2-methyl-2-butene

Answer: C

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30. The absolute configuration of

A. S,S

B. R,R

C. R,S

D. S,R

Answer: B

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1. Which among the following is likely to show geometrical isomerism?

A. $CH_3CH = NOH$

B. $CH_3CH = CH_2$

C. $CH_2 = CH - CH = CCl_2$

D. $CH_3C(Cl) = C(CH_3)_2$

Answer:

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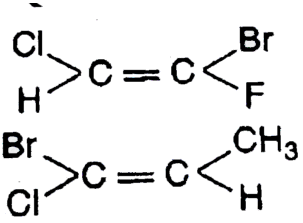
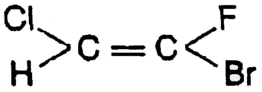
2. 

II. 

Which of the following compound (S) has Z-configuration?

A. Only I

B. Only II

C. Only III

D. I and III

Answer:

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