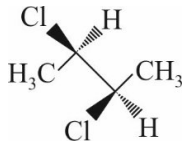
| Date Planned : __ / __ / __ | Daily Tutorial Sheet-5 | Expected Duration : 45 Min |
|---|---|---|
| Actual Date of Attempt : __ / __ / __ | JEE Advanced Archive | Exact Duration :_____ |

***61.** The correct statements about the compound given below is : **(2008)**



**(A)** the compound is optically active

**(B)** the compound possesses centre of symmetry

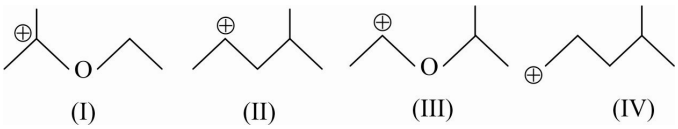
**(C)** the compound possesses plane of symmetry

**(D)** the compound possesses axis of symmetry

**62.** Hyperconjugation involves overlap of the following orbitals : **(2008)**

**(A)** $\sigma - \sigma$ **(B)** $\sigma - p$ **(C)** $p - p$ **(D)** $\pi - \pi$

**63.** The correct stability order for the following species is : **(2008)**

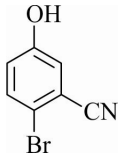


(I) (II) (III) (IV)

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

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

**64.** The IUPAC name of the following compound is : **(2009)**



**(A)** 4-bromo-3-cyanophenol

**(B)** 2-bromo-5-hydroxybenzonitrile

**(C)** 2-cyano-4-hydroxybromobenzene

**(D)** 6-bromo-3-hydroxybenzonitrile

**65.** The alkene that exhibits geometrical isomerism is : **(2009)**

**(A)** propene **(B)** 2-methyl propene

**(C)** 2-butene **(D)** 2-methyl-2-butane

***66.** The correct statements about the compound $H_3C(HO)HC - CH = CH - CH(OH)CH_3(X)$ is/are : **(2009)**

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

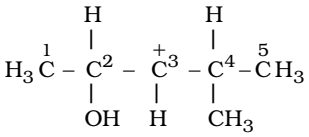
**(B)** the total number of diastereomers possible for X is 3

**(C)** if the stereochemistry about the double bond in X is trans, the number of enantiomer possible for X is 4

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

**67.** Give the total number of cyclic structural as well as stereoisomers possible for a compound with the molecular formula $C_5H_{10}$. **(2009)**

**68.** In the following carbocation; $H/CH_3$ that is most likely to migrate to the positively charged carbon is :



**(2009)**

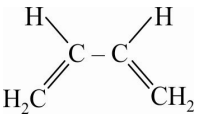
**(A)** $CH_3$ at C – 4 **(B)** H at C – 4 **(C)** $CH_3$ at C – 2 **(D)** H at C – 2

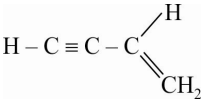
**69.** The total number of cyclic structural as well as stereo isomers possible for a compound with the molecular formula $C_5H_{10}$ is : **(2009)**

**70.** Which one of the following conformation of cyclohexane is chiral ? **(2010)**

**(A)** Twist boat **(B)** Rigid **(C)** Chair **(D)** Boat

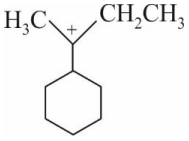
***71.** Amongst the given options, the compounds in which all the atoms are in one plane in all possible conformations is : **(2011)**

**(A)** 

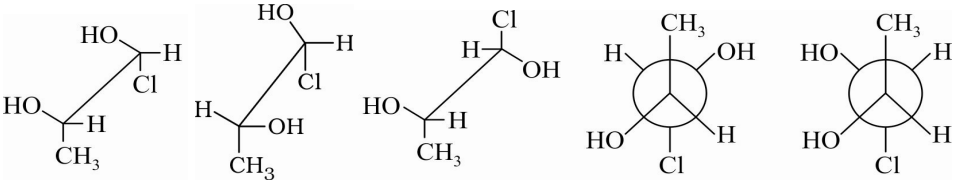
**(B)** 

**(C)** $H_2C = C = O$ **(D)** $H_2C = C = CH_2$

**72.** The total number of contributing structures showing hyperconjugation (involving C-H bonds) for the following carbocation is _____ . **(2011)**



***73.** Which of the given statements about **N, O, P** and **Q** with respect to **M** is correct ? **(2012)**

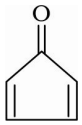
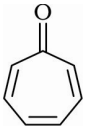


**(M)** **(N)** **(O)** **(P)** **(Q)**

**(A)** **M** and **N** are non-mirror image stereoisomers

**(B)** **M** and **O** are identical **(C)** **M** and **P** are enantiomers **(D)** **M** and **Q** are identical

***74.** Which of the following molecules, in pure form, is (are) unstable at room temperature ? **(2012)**

**(A)**  **(B)**  **(C)**  **(D)** 

**75.** The hyperconjugative stabilities of tert-butyl cation and 2-butene, respectively, are due to : **(2013)**

**(A)** $\sigma \longrightarrow p(\text{empty})$ and $\sigma \longrightarrow \pi^*$ electron delocalisations

**(B)** $\sigma \longrightarrow \sigma^*$ and $\sigma \longrightarrow \pi$ electron delocalisations

**(C)** $\sigma \longrightarrow p(\text{filled})$ and $\sigma \longrightarrow \pi$ electron delocalisations

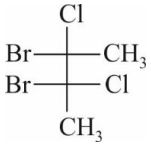
**(D)** $p(\text{filled}) \longrightarrow \sigma^*$ and $\sigma \longrightarrow \pi^*$ electrons delocalisations

***76.** The correct combination of names of isomeric alcohols with molecular formula $C_4H_{10}O$ is/are : **(2014)**

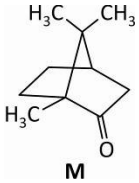
**(A)** tert-butanol and 2-methylpropan-2-ol **(B)** tert-butanol and 1, 1-dimethylethan-1-ol

**(C)** n-butanol and butan-1-ol **(D)** iso-butyl alcohol and 2-methylpropan-1-ol

**77.** The total numbers of stable conformers with non-zero dipole moment for the following compound is_____. **(2014)**

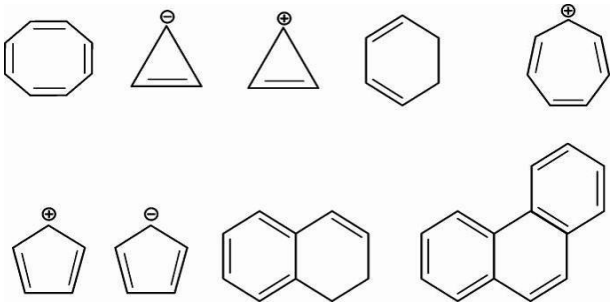


**78.** The total number of stereoisomers that can exist for M is _____. **(2015)**

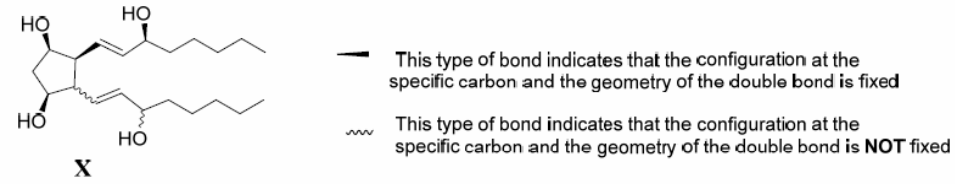


**M**

**79.** Among the following, the number of aromatic compound(s) is _____. **(2017)**



**80.** For the given compound X, the total number of optically active stereoisomers is _____. **(2018)**




**X**

**81.** Total number of isomers, considering both structural and stereoisomers, of cyclic ethers with the molecular formula $C_4H_8O$ is_____. **(2019)**