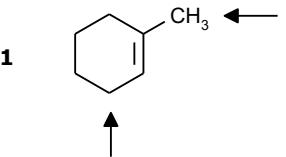
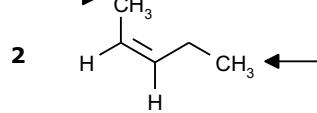
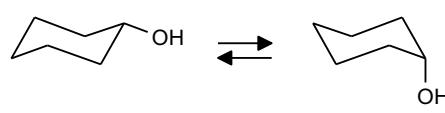
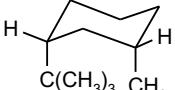
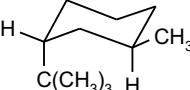
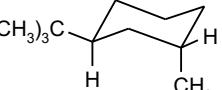
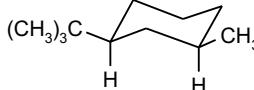
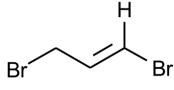
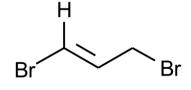
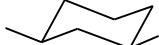


PRACTICE TEST No. 3

1.	<p>Indicate which compound is a trans-type cyclohexane..</p> <p>(1) 1,2-Dimethylcyclohexane, with two equatorial substituents; (2) 1,3- Dimethylcyclohexane, with two equatorial substituents.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
2.	<p>Indicate which molecule exhibits geometric isomerism.</p> <p>(1) 1- Heptene; (2) 2-METHYL-2-heptene.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
3.	<p>Indicate which statement is correct.</p> <p>(1) In the chair conformation of cyclohexane, there are 12 axial hydrogens; (2) In an alkane, the staggered conformation is more stable than the eclipsed conformation due to steric repulsion.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
4.	<p>Indicate which statement is correct.</p> <p>(1) Diastereomers rotate the plane of polarized light equally and in the same opposite direction.; (2) Diastereomers have the same boiling point.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
5.	<p>Knowing that the equilibrium constant for the following conversion is $K = 5$, estimate the percentage of molecules in which the OH substituent is in the axial position.</p> <p></p> <p>A) <1%. B) 17%. C) 50%. D) 99%.</p>
6.	<p>Indicate whether the following compounds are isomers.</p> <p>(1) Isopropyl propyl ether and 2,3-dimethyl-1-butanol; (2) Cyclohexanol and methyl pentyl ether.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>

7.	<p>Indicate whether the carbon atoms indicated by the arrows are on the same plane..</p> <p>1 </p> <p>2 </p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
8.	<p>Indicate which statement is correct.</p> <p>(1) In cyclohexane, there is no free rotation around the C-C bonds of the ring.; (2) In an alkane, the staggered conformation is less stable than the eclipsed conformation.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
9.	<p>Indicate in which isomer of dimethylcyclohexane the two chair conformations have the same energy.</p> <p>(1) <i>trans</i>-1,4-Dimethylcyclohexane; (2) 1,1- Dimethylcyclohexane.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
10.	<p>Indicate whether the following carbonyl compounds are isomers.</p> <p>(1) 2-Ethylpentanal and 3-Methylpentanal; (2) 2,4,3-Trimethylpentanal and 2-Ethyl-3-methylbutanal.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
11.	<p>Indicate which compound exhibits geometric isomerism.</p> <p>(1) 1,1- Dimethylcyclopentane; (2) 1,1- Dibromocyclohexane.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
12.	<p>Indicate how many compounds are formed by a cyclopropane ring and two CH₃ groups, not considering enantiomers as different molecules.</p> <p>A) 1. B) 2. C) 3. D) 4.</p>
13.	<p>Knowing that the equilibrium constant for the following conversion is K = 0.2, estimate the percentage of molecules in which the OH substituent is in the equatorial position.</p> <p></p> <p>A) <1%. B) 15%. C) 50%. D) 85%.</p>

14.	<p>Indicate the most stable form of <i>cis</i>-1-<i>tert</i>-butyl-3-methylcyclohexane.</p> <p>A </p> <p>B </p> <p>C </p> <p>D </p>
15.	<p>Indicate the relationship between the following structures.</p> <p></p> <p></p> <p>A) They are enantiomers. B) It is the same compound. C) They are structural isomers. D) They are geometric isomers.</p>
16.	<p>Indicate which compounds exhibit geometric isomerism..</p> <p>(1) 1-Hexene; (2) 2,3-dimethyl-2-hexene.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
17.	<p>The figure shows a chair conformation of 1,3-dimethylcyclohexane. Indicate which statement is correct.</p> <p></p> <p>A) It is the <i>cis</i> isomer, in the most stable conformation. B) It is the <i>trans</i> isomer, in the most stable conformation. C) It is the <i>trans</i> isomer, in the least stable conformation. D) It is the <i>cis</i> isomer; the two <i>cis</i> conformers have the same stability.</p>
18.	<p>Indicate how many stereoisomers the following compound has..</p> <p>$\text{CH}_3\text{CH}_2\text{CHOHCH}_2\text{CHFCH}(\text{CH}_3)_2$</p> <p>A) 2. B) 4. C) 8. D) 16.</p>
19.	<p>Indicate which compounds are isomers.</p> <p>A) 1-Propanol and 2-propanol. B) Methanoic acid and ethanoic acid. C) Methanol and methanal. D) Ethane and ethanol.</p>
20.	<p>Indicate how many isomeric ethers of formula $\text{C}_5\text{H}_{12}\text{O}$ there are, considering stereoisomers as different molecules. Hint: first write down the ethers without considering stereoisomers, then evaluate how many of them are present as enantiomers..</p> <p>A) 5. B) 6. C) 7. D) 8.</p>

21.	<p>Indicate which compound is a trans-type cyclohexane.</p> <p>(1) 1,3-Dimethylcyclohexane, with two axial substituents; (2) 1,3-Dimethylcyclohexane, with two equatorial substituents.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>
22.	<p>Indicate which statement is correct.</p> <p>(1) In the chair conformation of cyclohexane, there are 6 equatorial hydrogens; (2) In cyclohexane, the axial substituents interact unfavorably with each other.</p> <p>A) 1 = Yes; 2 = Yes. B) 1 = Yes; 2 = No. C) 1 = No; 2 = Yes. D) 1 = No; 2 = No.</p>