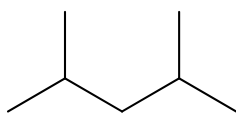


CHEM1002 Worksheet 2 – Answers to Critical Thinking Questions

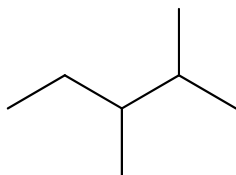
The worksheets are available in the tutorials and form an integral part of the learning outcomes and experience for this unit.

Model 1: Naming Organic Molecules

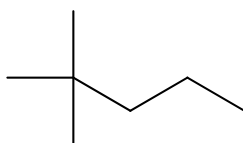
1. See below.



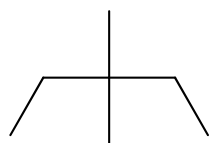
2,4-dimethylpentane



2,3-dimethylpentane



2,2-dimethylpentane



3,3-dimethylpentane

2. See above.

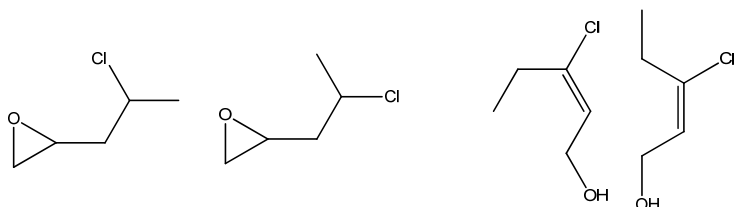
3. Yes.

4. See above.

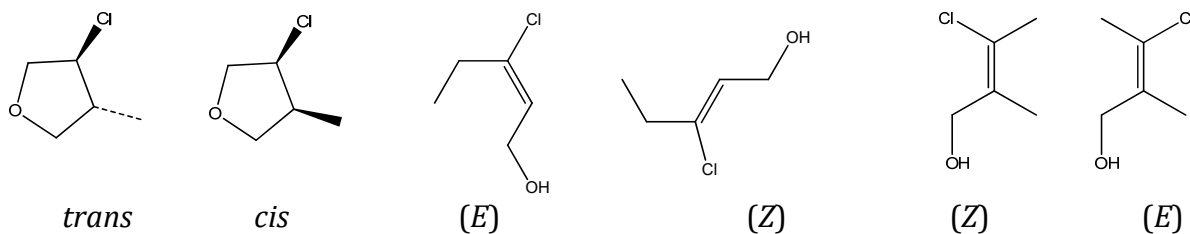
Model 2: Isomerism

1. All of the molecules are constitutional isomers except those are conformational (see Q2) or configurational / stereoisomers (see Q3).

- 2.



- 3.

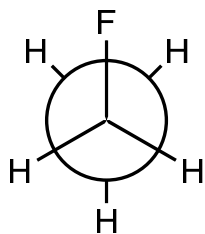


4. Top row: (i) cyclic ether & chloride, (ii) cyclic ether (epoxide) & chloride, (iii) alkene, chloride & alcohol and (iv) cyclic ether (epoxide) and chloride.

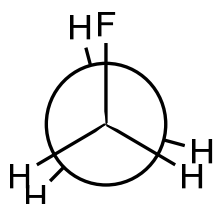
Second row: (i) ketone & chloride, (ii) cyclic ether & chloride, (iii) ether & chloride, (ii) cyclic ether (epoxide) & halide, (iii) alkene, chloride & alcohol and (iv) acid chloride.

Third row: (i) alkene, chloride & alcohol, (ii) alkene, chloride & alcohol, (iii) enol & chloride, (iv) alkene, chloride & alcohol and (v) cyclic ether & chloride

5. 'Staggered' conformation:



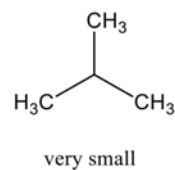
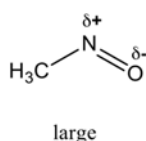
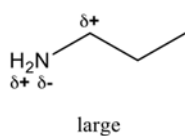
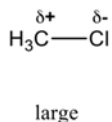
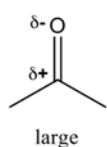
6. 'Eclipsed' conformation:



The C-H bonds at the two ends of the molecule are *eclipsed* with respect to each other.

Model 3: Polar Reactions

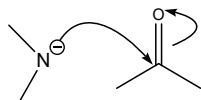
1. See below.



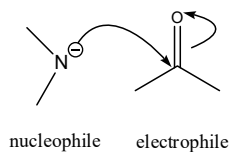
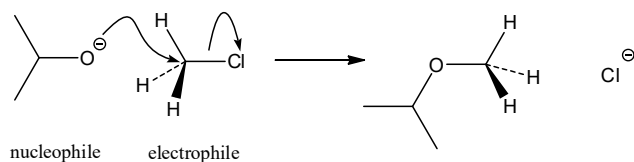
2. A bond would need to break.

3. The π bond in the C=O group is the weakest and would break.

4. See below.



5. See below.



6. See below.

