

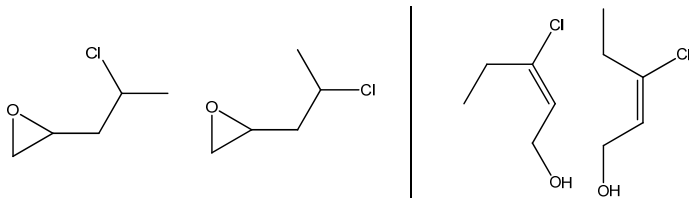
## CHEM1102 Worksheet 2 – Answers to Critical Thinking Questions

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

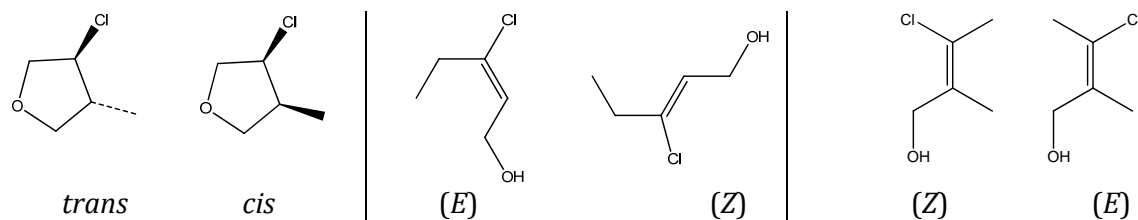
### Model 1: Isomerism

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

2.



3.

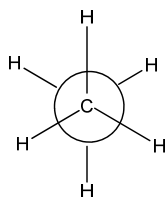


4. Top row: (i) cyclic ether & alkyl chloride, (ii) cyclic ether (epoxide) & alkyl chloride, (iii) alkene, alkenyl chloride & alcohol, (iv) cyclic ether (epoxide) and alkyl chloride.

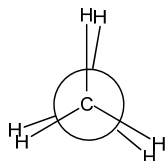
Second row: (i) ketone & alkyl chloride, (ii) cyclic ether & alkyl chloride, (iii) alkene, alkenyl chloride & alcohol and (iv) acyl chloride

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

5. The arrangement of the molecule which maximizes the separation between the atoms at either end of the common bond.

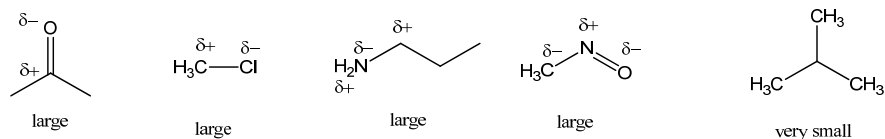


6. Eclipsed conformation:



## Model 2: Polar Reactions

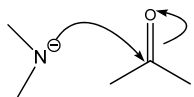
1.



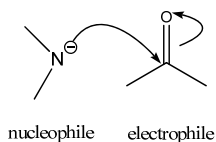
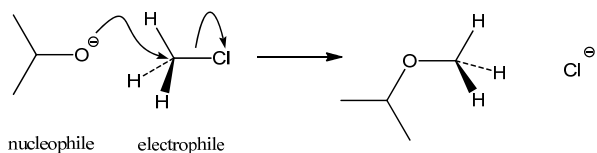
2. A bond would need to break.

3. The  $\pi$  bond in the C=O group is the weakest and would break.

4.



5.

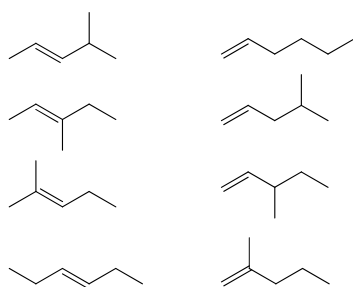


## Exercises

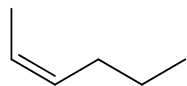
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- (*E*)-hex-2-ene

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