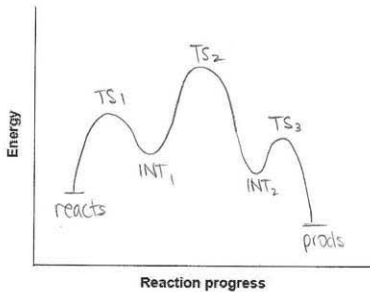


Chapter 5 Worksheet 1

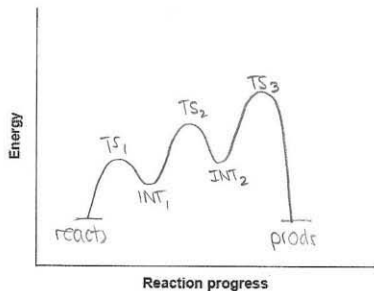
Draw the reaction energy diagram, and label the products, reactants, transition states, and intermediates.

1.



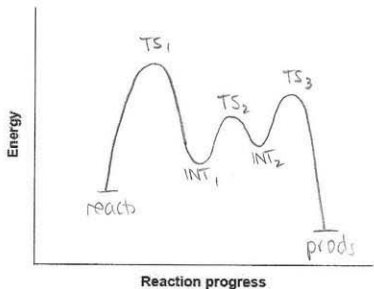
- 3-Step reaction
- 2nd step is Rate-Determining-Step
- 3rd step is faster than the 1st
- 1st step is endothermic
- 2nd step is exothermic
- 3rd step is exothermic
- The overall reaction is exothermic

2.



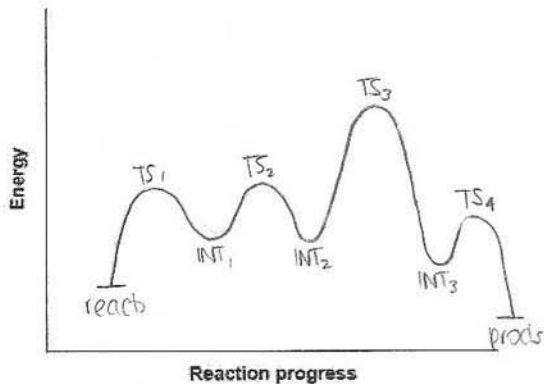
- 3-Step reaction
- 3rd step is Rate-Determining-Step
- 1st step is faster than the 2nd
- 1st and 2nd step are endothermic
- 3rd step is exothermic
- The overall reaction is neutral

3.



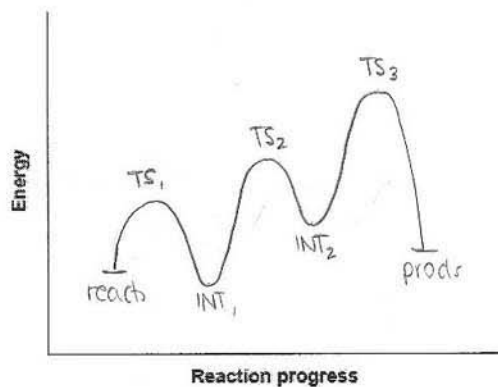
- 3-Step reaction
- 2nd step is faster than the 3rd
- 1st and 2nd step are endothermic
- 3rd step is exothermic
- The overall reaction is exothermic
- 1st step is RDS

4.



- 4-Step reaction
- 3rd step is Rate-Determining Step
- 1st step is endothermic
- 1st and 2nd step proceed at the same speed
- 3rd step is exothermic
- 4th step is exothermic
- The overall reaction is exothermic
- 4th step is faster than 1st

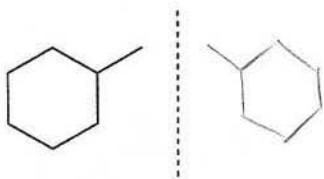
5.



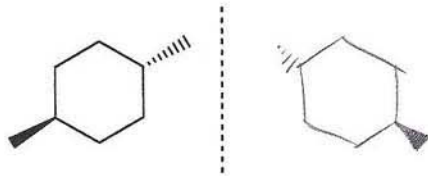
- 3-Step reaction
- 3rd step is Rate-Determining-Step
- 1st step is faster than the 2nd
- 1st and 3rd steps are exothermic
- 2nd step is endothermic
- The overall reaction is endothermic

Draw mirror images of the following.

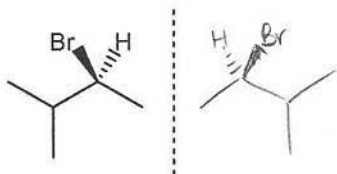
6.



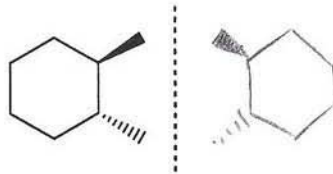
7.



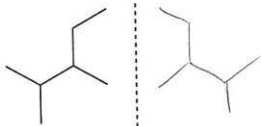
8.



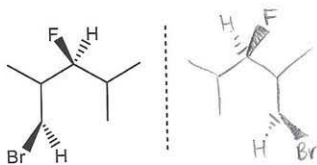
9.



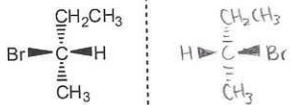
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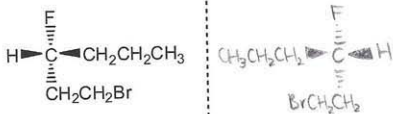
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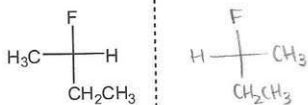
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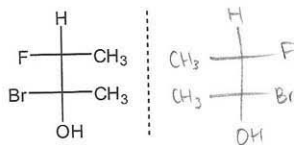
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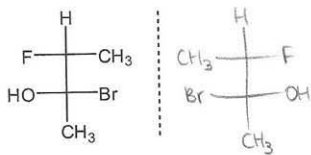
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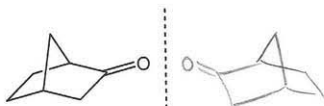
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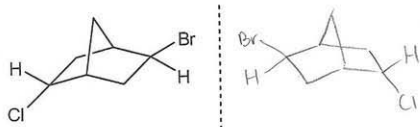
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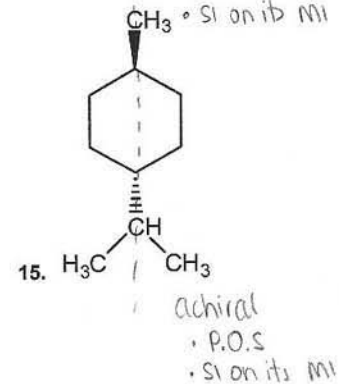
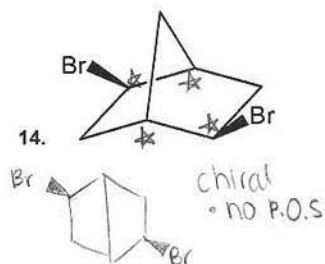
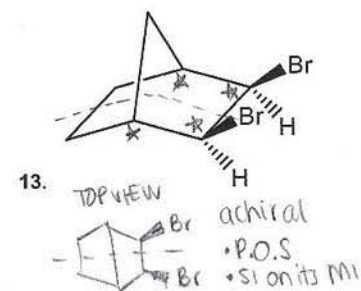
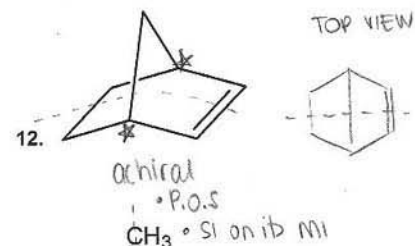
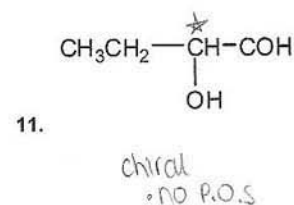
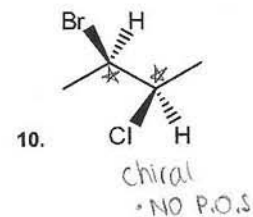
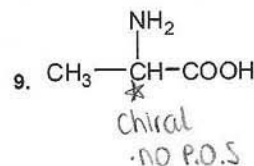
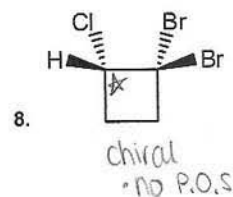
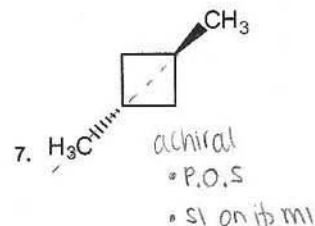
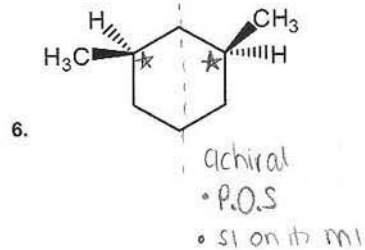
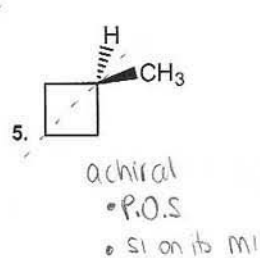
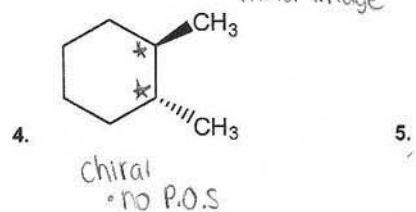
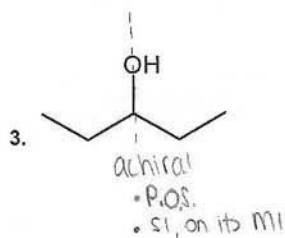
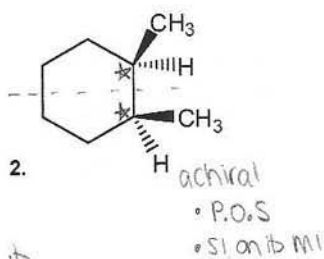
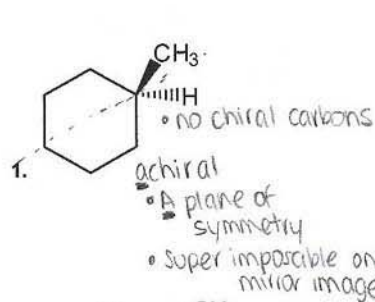
17.

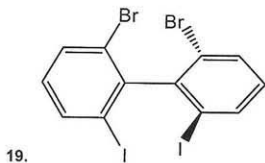
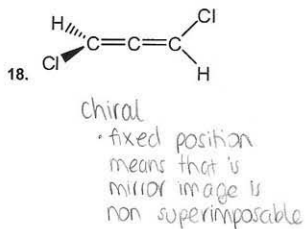
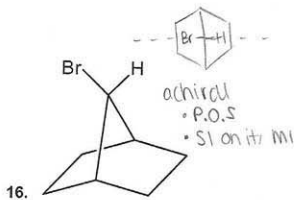


18.



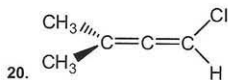
Label the chiral carbons with an asterisk (*), and determine whether the compound itself is chiral or achiral.





chiral

- Br's and I's prevent free rotation around the single bond joining the two, therefore symmetry is never achieved.
- not SI on its MI



achiral

- SI on its MI
- symmetry from a top view

