Self Test 4 (Units 10-11)

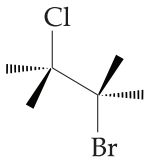
1. Provide structures for the following compounds:

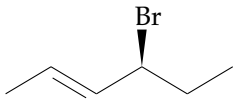
   a. 2-iodocycloheptene

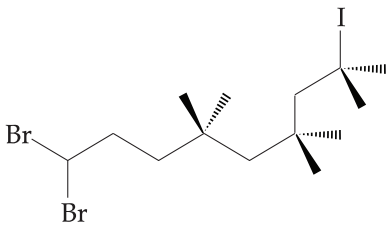
   b. 4,4-dibromo-2,2-dichloro-3,6-dimethylheptane

   c. 3,3-dibromohexa-1,5-diene

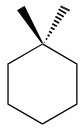
2. Provide complete IUPAC names for the following compounds, including stereochemical designations (i.e., E/Z or R/S) where appropriate.

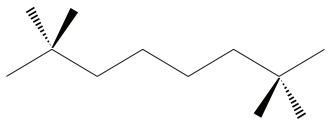
a. 

b. 

c. 

3. Draw all of the possible monochlorination products that may be prepared upon radical chlorination of the following hydrocarbons. If more than one enantiomer of a given product may be formed, draw both, but take care that you do *not* draw the same product (or enantiomer) multiple times.

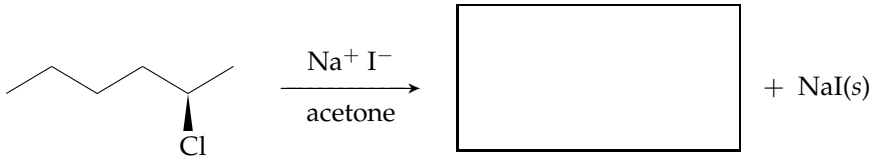
a. 

b. 

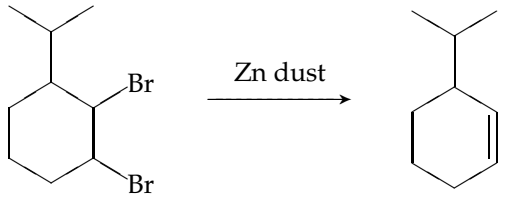
c. 

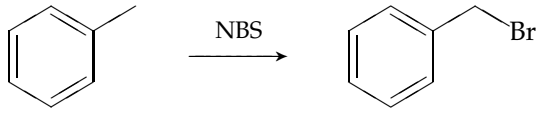
4. Outline a preparation of 2,2,7-trimethyloctane using 1-bromo-2-methylpropane and 2,2-dimethyl-5-iodopentane as the only organic starting materials. You may assume access to any necessary inorganic reagents. Show all intermediate compounds along the synthetic route.

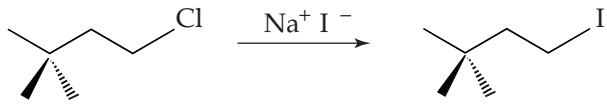
5. The reaction of pure (*R*)-2-chlorohexane with sodium iodide, using acetone as a solvent, furnished a single enantiomer of product. Name and draw this product, and specify (with a *brief* supporting argument) whether the reaction proceeded *via* an S_N1 or S_N2 mechanism.



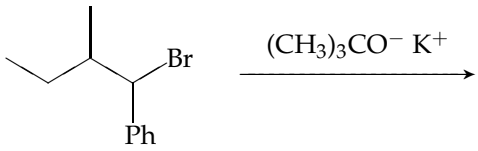
6. Identify each of the following processes as an oxidation, a reduction or neither, with respect to the organic compounds given.

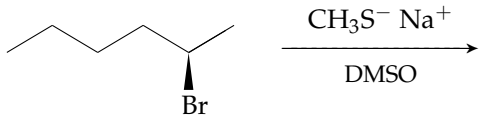
a. 

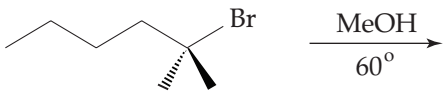
b. 

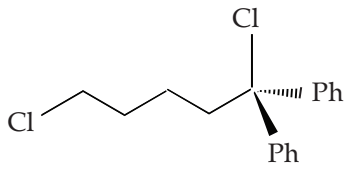
c. 

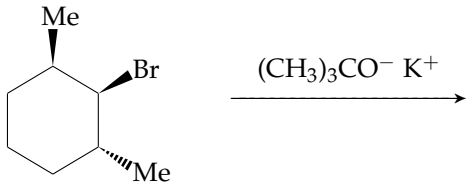
7. Identify the product or products you would expect to recover from the following reactions. If multiple products are likely, identify the major ones as such. Specify stereochemistry where appropriate.

a. 

b. 

c. 

d. 

e. 

f.