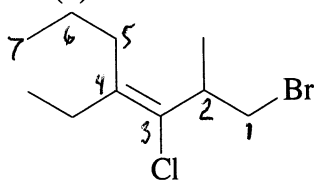


Key

1. (3) Write the **IUPAC name** (including *E* or *Z* designation) for the following compound:

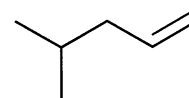
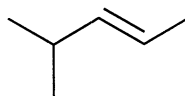
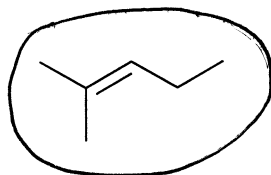
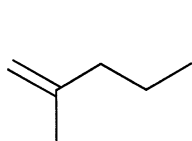


(E)-1-bromo-3-chloro-4-ethyl-2-methyl-3-heptene

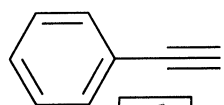
2. (3) Draw in the box the **skeletal structure** of 3-vinylcyclopentene:



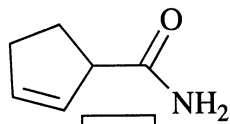
3. (2) Which of the following alkenes is the most **stable**? (circle correct answer)?



4. (4) Specify the **degree of unsaturation** of the following formulas (put number in the box):



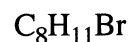
6 1pt



3 1pt

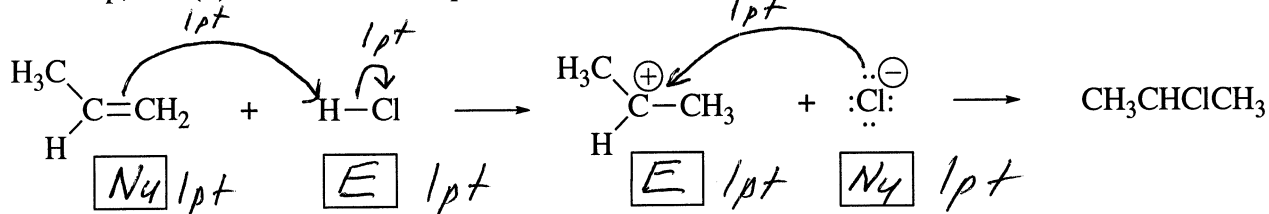


2 1pt

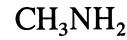
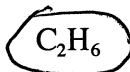
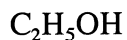


3 1pt

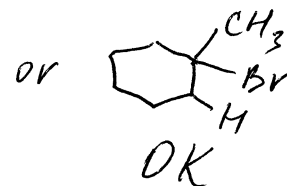
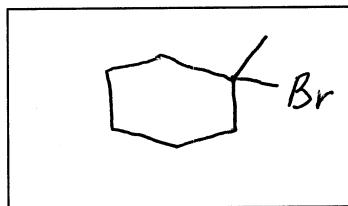
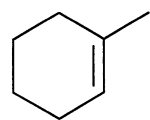
5. (7) For the two-step reaction shown below: (a) Use curved arrows to show the flow of electrons in each step, and (b) Label the nucleophile and the electrophile by placing **Nu** or **E** in the box.



6. (3) Which of the following species is **NOT** a nucleophile?



7. (3) Complete the following reaction by drawing the appropriate **product** in the provided box:



Overall Score: 25