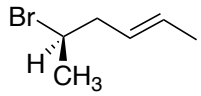
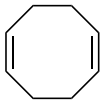
# Chemistry 2511: Exam 2

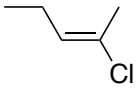
11/5/25

**Name:** Key

1. (16 points) Provide IUPAC names for the compounds. The stereochemistry is worth 2 pts each






(*R*,*E*)-5-bromohex-2-ene
note: there two stereochemical features

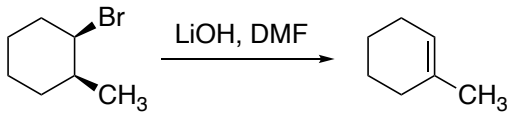
cycloocta-1,5-diene
note: no need for stereochemistry here

(*E*)-2-chloropent-2-ene
note: give the correct stereochemistry

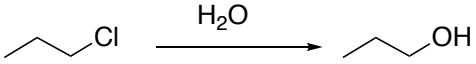
2. (12 points) Circle the best leaving group in the following pairs of molecules.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $HO^-$ | $Br^-$ | $I^-$ | $F^-$ | $H_2O$ | $OH^-$ | MeOH | $Me^-$ | $Cl^-$ | $Br^-$ | $TsO^-$ | $MeO^-$ |

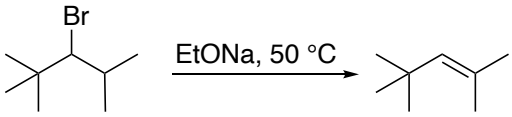
3. (21 points) Indicate the mechansim involved for each of the following reactions.



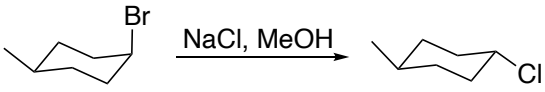

☐ $S_N1$ ☐ $S_N2$ ☐ E1 ☑ E2 ☐ $G_R3$



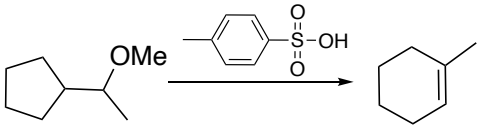

☐ $S_N1$ ☑ $S_N2$ ☐ E1 ☐ E2 ☐ $G_R3$



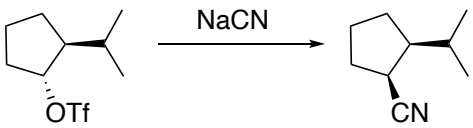

☐ $S_N1$ ☐ $S_N2$ ☐ E1 ☑ E2 ☐ $G_R3$



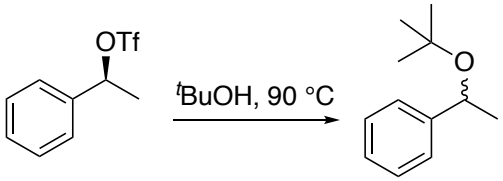

☐ $S_N1$ ☑ $S_N2$ ☐ E1 ☐ E2 ☐ $G_R3$




☐ $S_N1$ ☐ $S_N2$ ☑ E1 ☐ E2 ☐ $G_R3$




☐ $S_N1$ ☑ $S_N2$ ☐ E1 ☐ E2 ☐ $G_R3$




☑ $S_N1$ ☐ $S_N2$ ☐ E1 ☐ E2 ☐ $G_R3$

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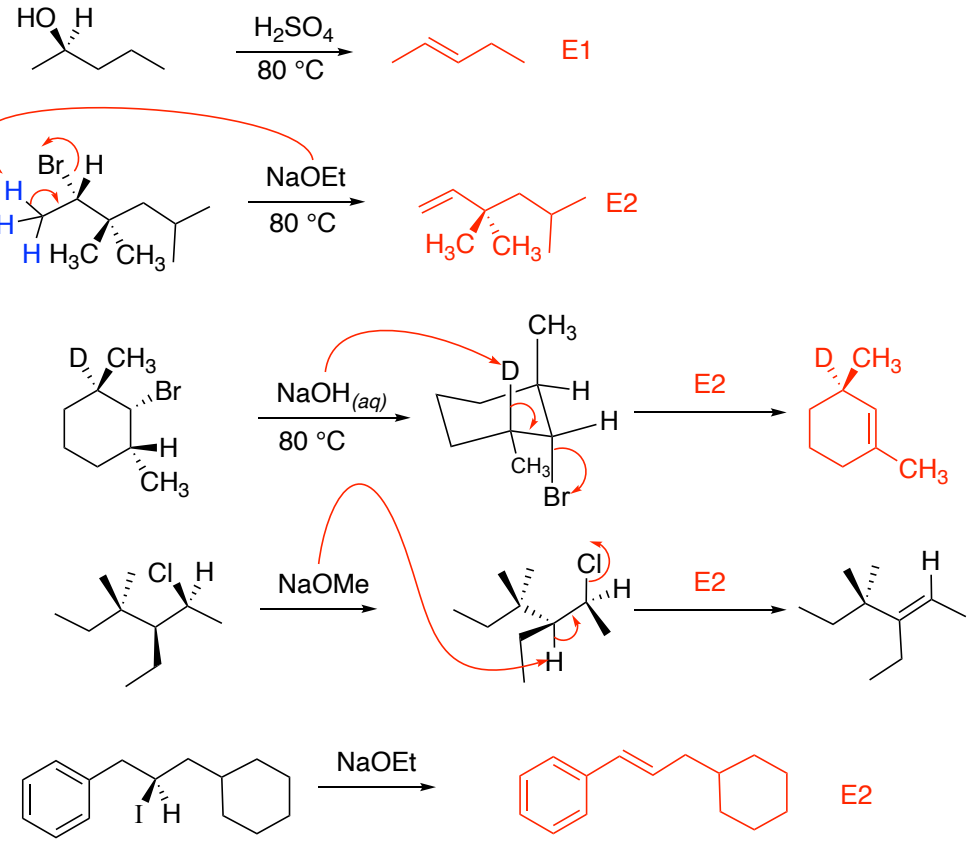
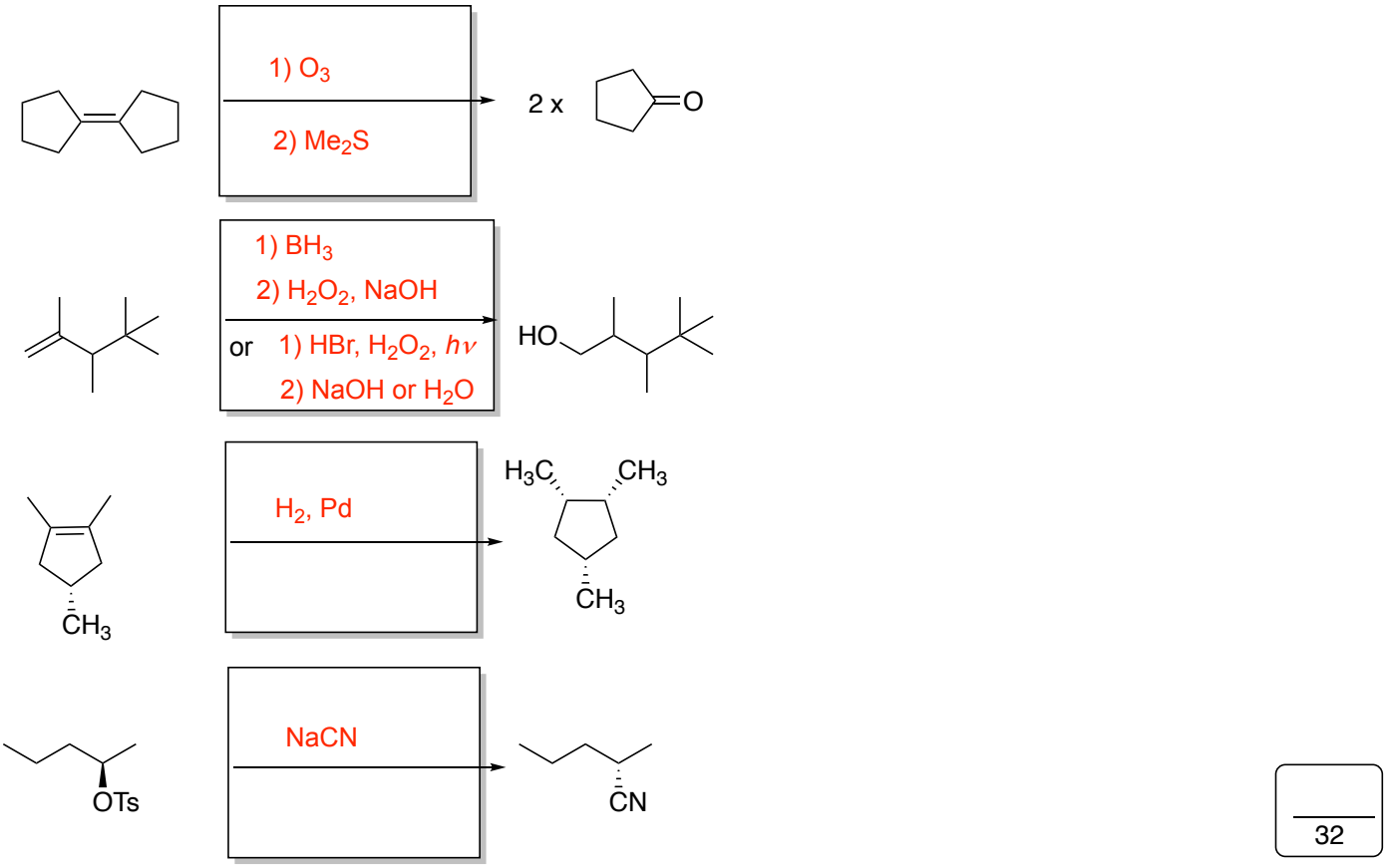
4. (20 points) Provide the major alkene with the correct stereochemistry for the following **elimination** reactions




5. (12 points) Fill in the appropriate reagents for the following reactions. Some may require more than one step.

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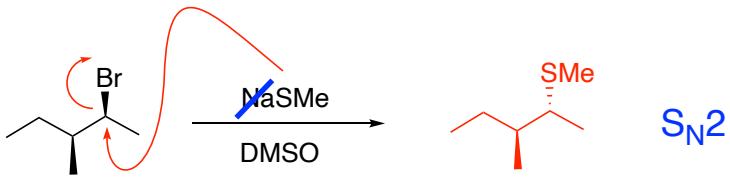
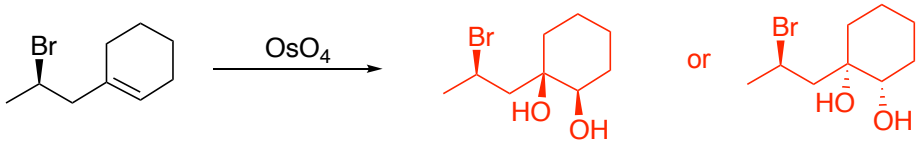
6. (35 points) Draw the **major product** for each of the reactions below and make sure to show the correct stereochemistry and regiochemistry where appropriate. Show your work–it might get you a few extra points!

**A.**

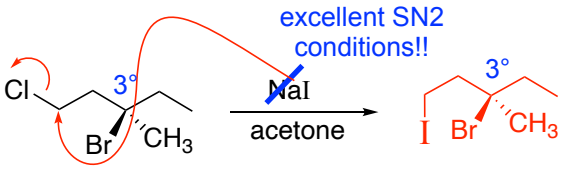



$S_N2$

**B.**

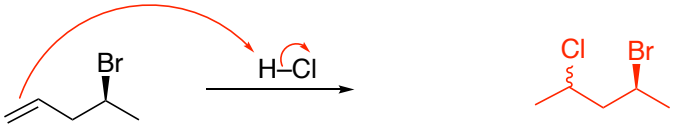



**C.**

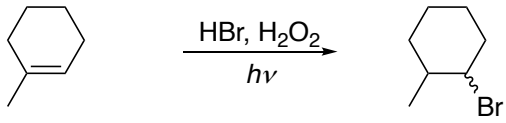



$S_N2$

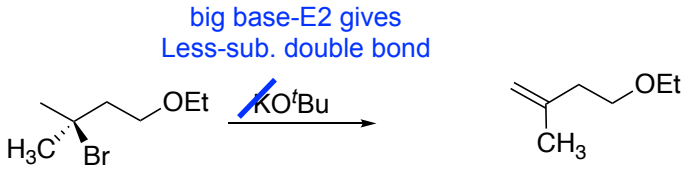
**D.**




**E.**

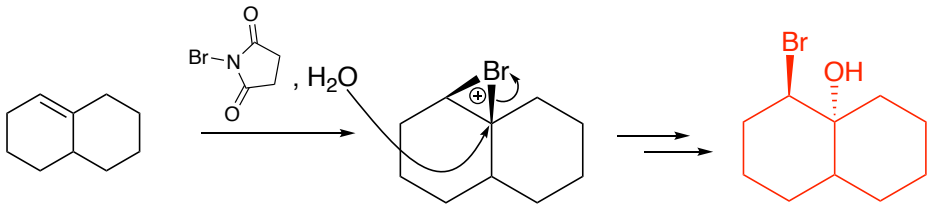



**F.**




E2

**G.**

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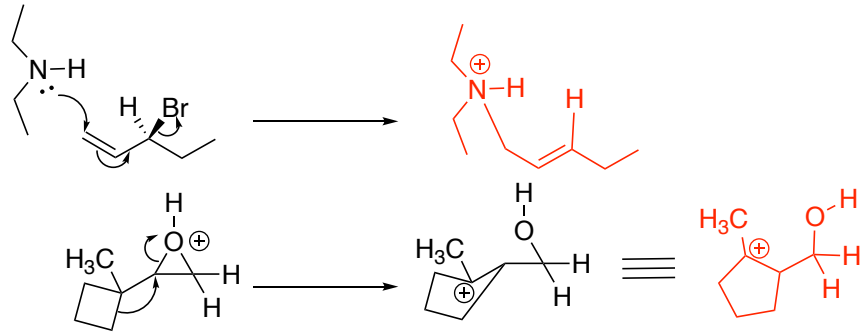
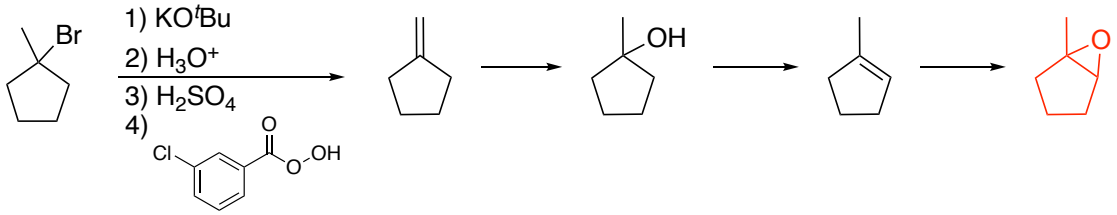
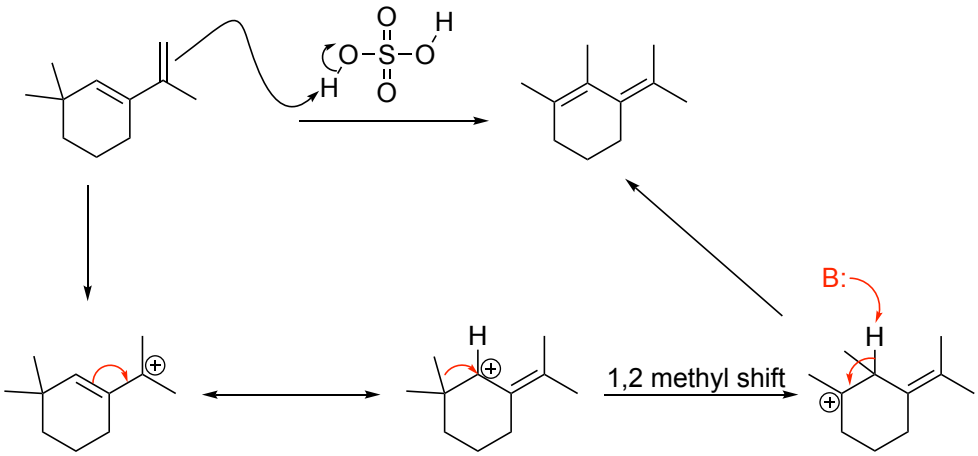
7. (6 points) Give the product/result of the arrow pushing shown below. The products are charged intermediates.




8. (8 points) For the multistep reaction below, give the major product. You are strongly urged to provide the intermediate products.




9. (14 points) Complete the mechanism below by first drawing the result of the arrows then including detailed curved arrows and intermediates for the following reaction.

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