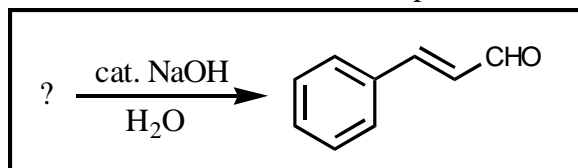
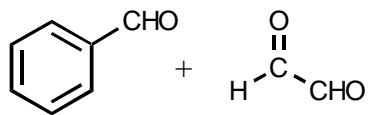


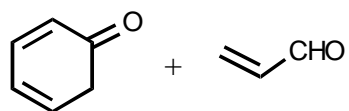
1. What reactants would be used to produce cinnamaldehyde?



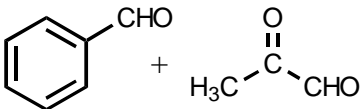
A)



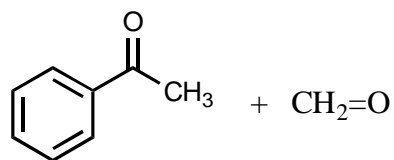
B)



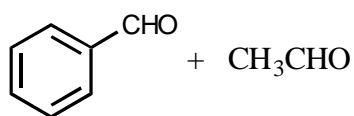
C)



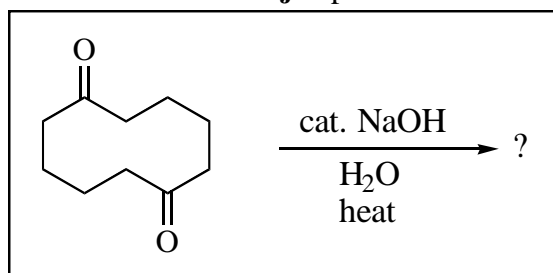
D)



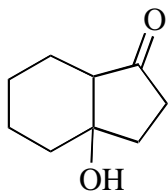
E)



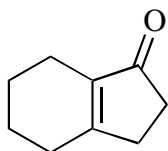
2. What would be the **major** product of the following reaction?



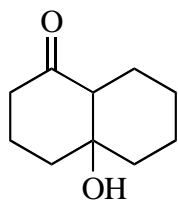
A)



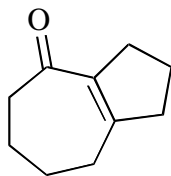
B)



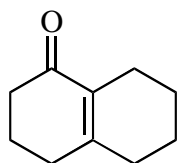
C)



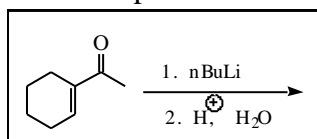
D)



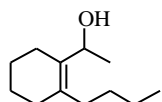
E)



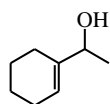
3. Predict the product of the following reaction:



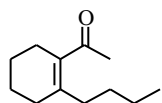
A)



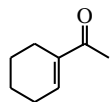
B)



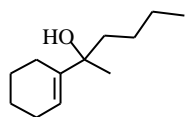
C)



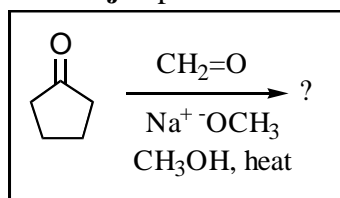
D)



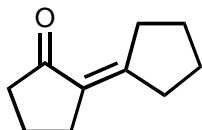
E)



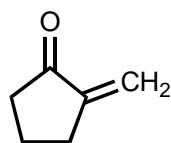
4. What **major** product would you expect from the following reaction?



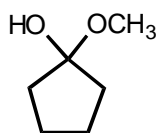
A)



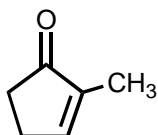
B)



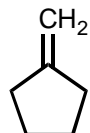
C)



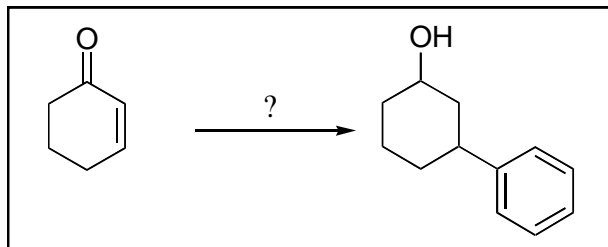
D)



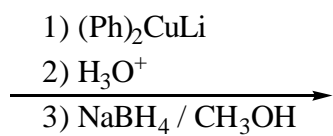
E)



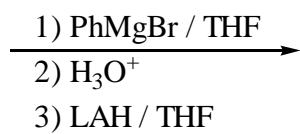
5. Which of the following sets of reaction conditions will result in the following transformation?



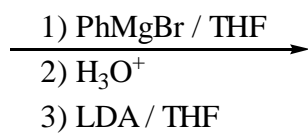
A)



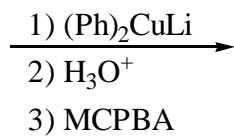
B)



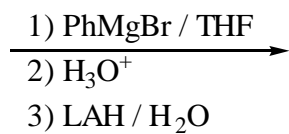
C)



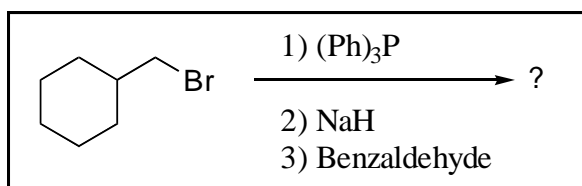
D)



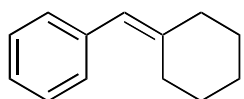
E)



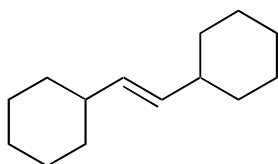
6. Predict the major organic product of the following reaction sequence.



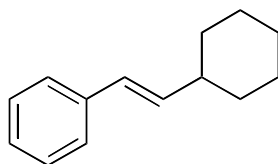
A)



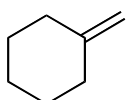
B)



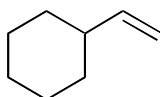
C)



D)

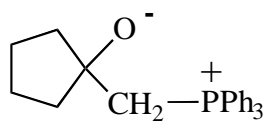


E)

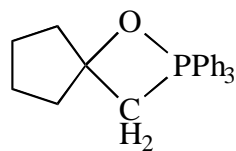


7. Which of the following could **not** be involved in a given Wittig reaction?

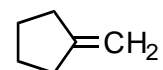
A)



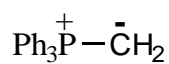
B)



C)



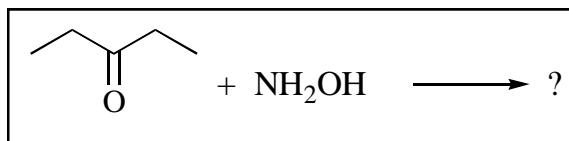
D)



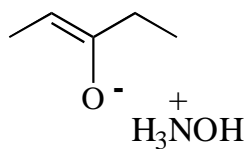
E) All of these are involved.

8. Which of the following is a typical ^{13}C -NMR shift value for a carbonyl carbon?
- A) 9.8 ppm
 - B) 1700 cm^{-1}
 - C) 29.3 ppm
 - D) 208 ppm
 - E) 45.2 ppm

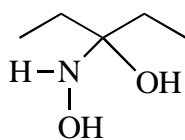
9. What product would you expect from the following reaction?



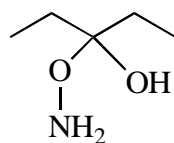
A)



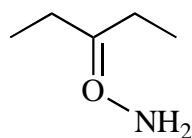
B)



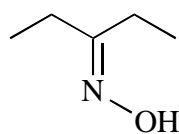
C)



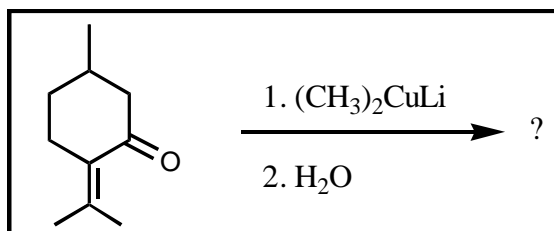
D)



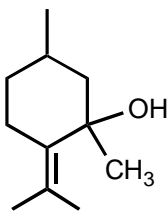
E)



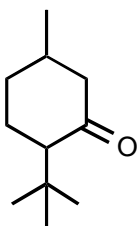
10. What would you expect to result from the following reaction?



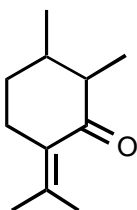
A)



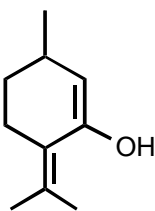
B)



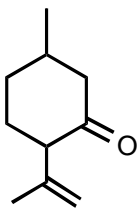
C)



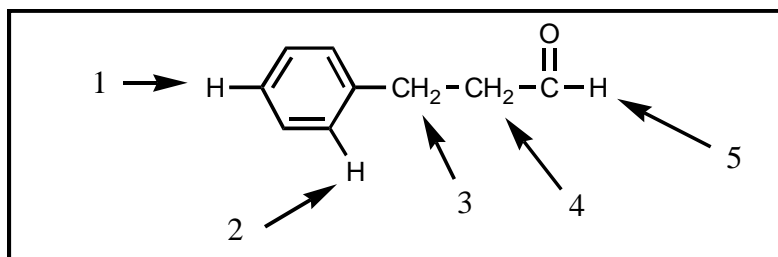
D)



E)

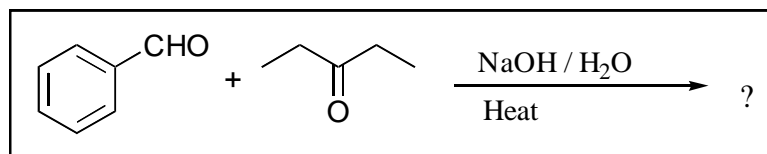


11. Which proton in the following molecule is the most acidic?

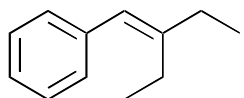


- A) 5
- B) 3
- C) 1
- D) 2
- E) 4

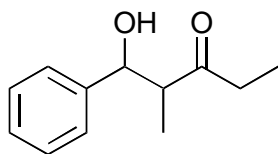
12. Predict the major organic product of the following reaction.



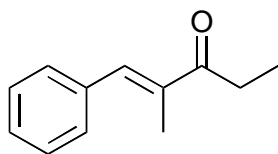
A)



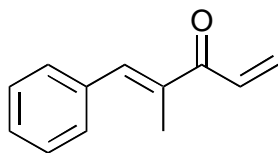
B)



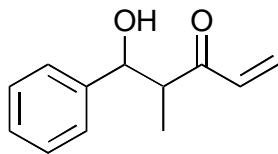
C)



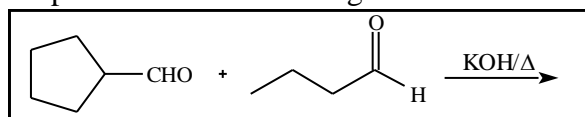
D)



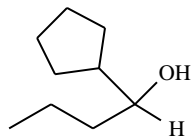
E)



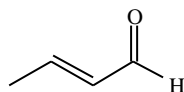
13. One product of the following reaction would be:



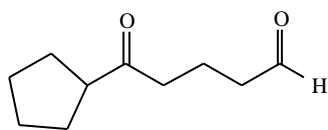
A)



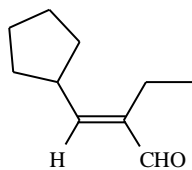
B)



C)

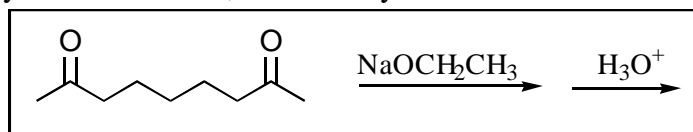


D)

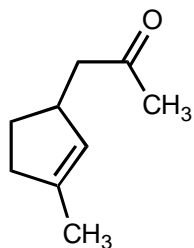


E) None of these are correct.

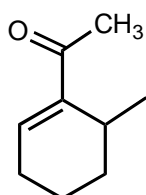
14. Which **major** product would you expect when the following diketone undergoes aldol cyclization in base, followed by acid?



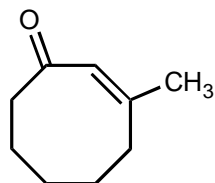
A)



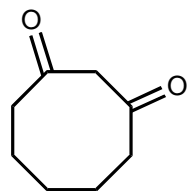
B)



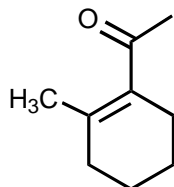
C)



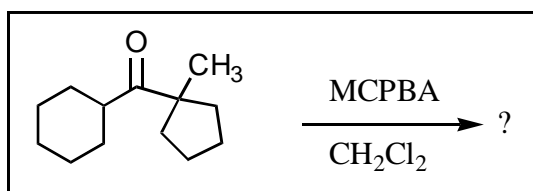
D)



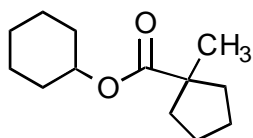
E)



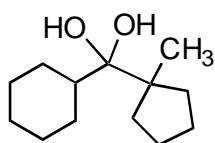
15. What is the **major** organic product of the reaction below?



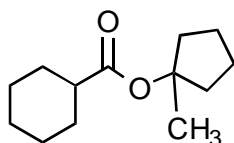
A)



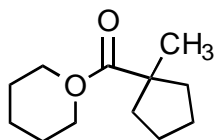
B)



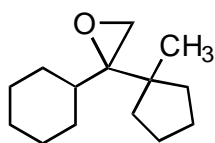
C)



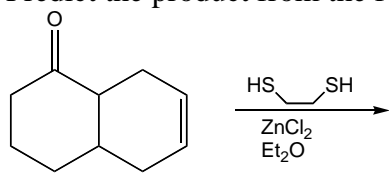
D)



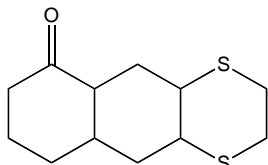
E)



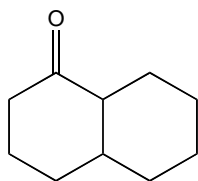
16. Predict the product from the following reaction.



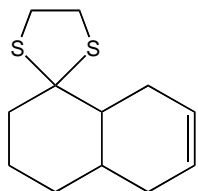
A)



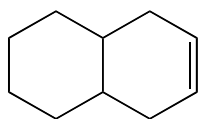
B)



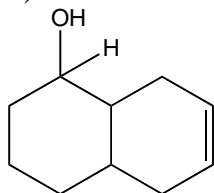
C)



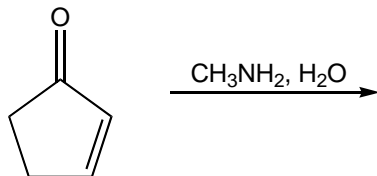
D)



E)

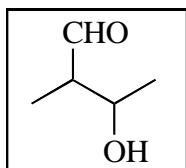


17. Predict the product of the following reaction:



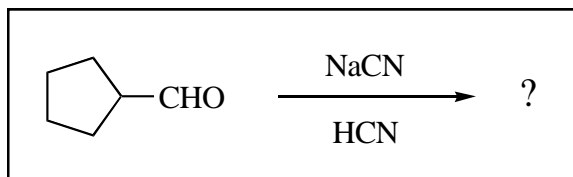
- A)
- B)
- C)
- D)
- E)

18. What would be the proper name of the following molecule?

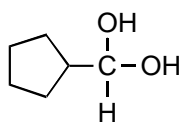


- A) 1-methyl-3-formyl-1-propanol
- B) 3-formyl-2-butanol
- C) 2,3-dimethylpropan-3-ol-1-al
- D) 2-(hydroxyethyl)propanal
- E) 3-hydroxy-2-methylbutanal

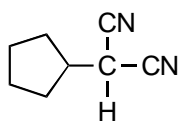
19. What would you expect to result from the following reaction?



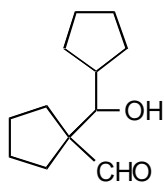
A)



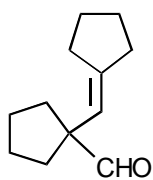
B)



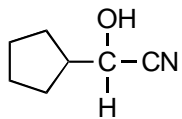
C)



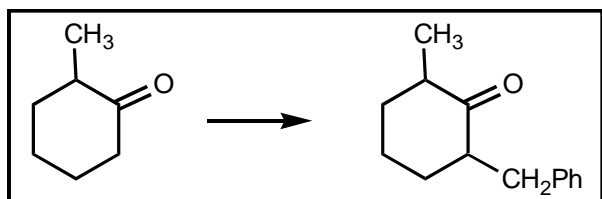
D)



E)

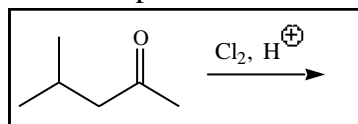


20. Which set of reagents would be needed for the following conversion?

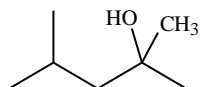


- A) PhCH₂MgBr, then H₃O⁺
- B) LDA, then PhCH₂Br
- C) NaOCH₂CH₃, CH₃I
- D) CH₃MgBr, then PhCH₂Br
- E) H₃O⁺, then PhCH₂Br

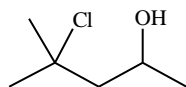
21. Predict the product of the following reaction:



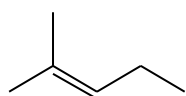
A)



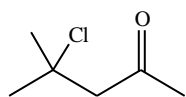
B)



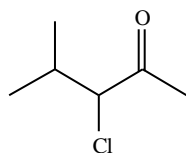
C)



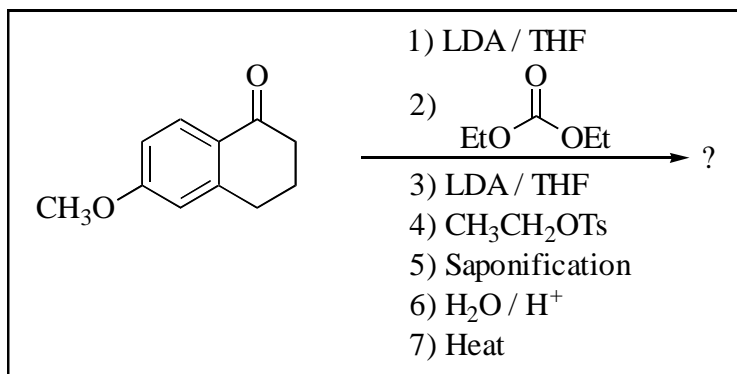
D)



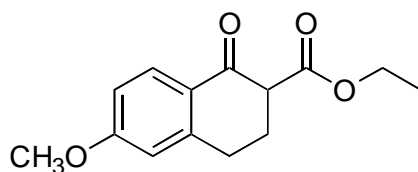
E)



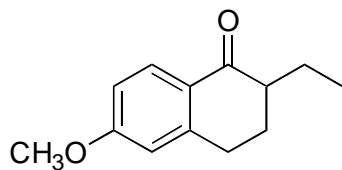
22. Predict the major organic product of the following reaction sequence.



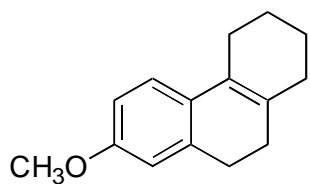
A)



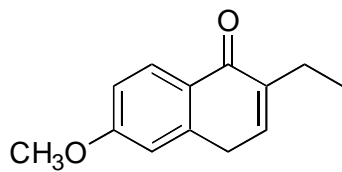
B)



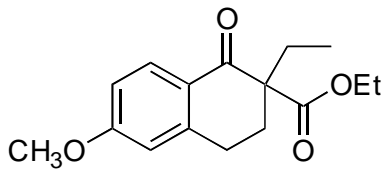
C)



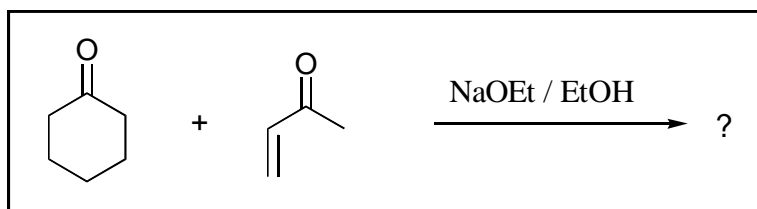
D)



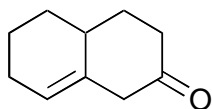
E)



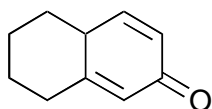
23. Predict the major organic product of the following reaction.



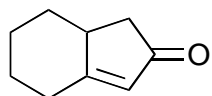
A)



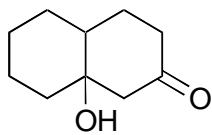
B)



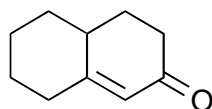
C)



D)



E)



Answer Key

1. E
2. D
3. E
4. B
5. A
6. C
7. E
8. D
9. E
10. B
11. E
12. C
13. D
14. E
15. C
16. C
17. E
18. E
19. E
20. B
21. E
22. B
23. E