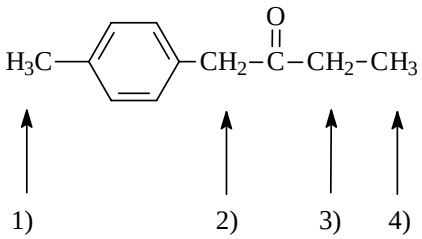
Chemistry 211 Name: _____
Chapter 18 quiz #2

1. Which one of the following has two different enol forms?

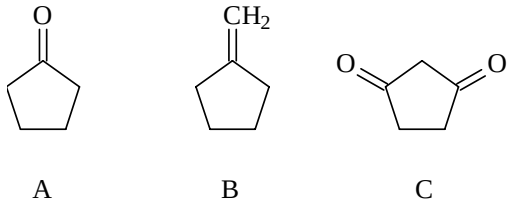
1) cyclohexanone
2) 2,2-dimethylcyclohexanone
3) 3,3-dimethylcyclohexanone
4) 4,4-dimethylcyclohexanone

2. Identify the most acid hydrogen for the following compound.



1) 1 2) 2 3) 3 4) 4

3. Arrange the following compounds in order of decreasing acidity.

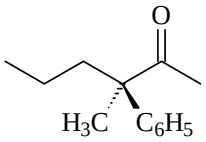


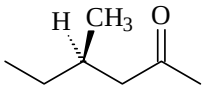
1) C>B>A 2) C>A>B 3) A>B>C 4) A>C>B

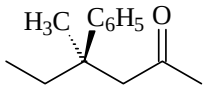
4. What is the relationship between keto and enol tautomers?

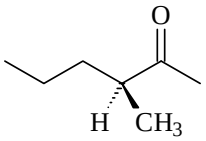
1) resonance forms
2) stereoisomers
3) constitutional isomers
4) different conformations of the same compound

5. Which one of the following optically active compounds racemizes in dilute KOH/CH_3OH solution?

1) 

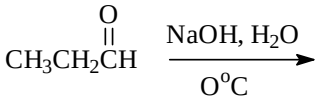
3) 

2) 

4) 

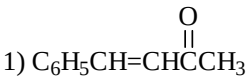
1) 1 2) 2 3) 3 4) 4

6. What is the aldol addition product of propanal?

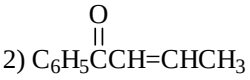


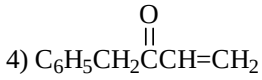
1) 2-hydroxy-2-methylpentanal
2) 3-hydroxy-2-methylpentanal
3) 3-hydroxyhexanal
4) 4-hydroxyhexanal

7. Benzalacetone is the crossed aldol condensation product formed between benzaldehyde and acetone. Which of the following is the structure of benzalacetone?

1) 

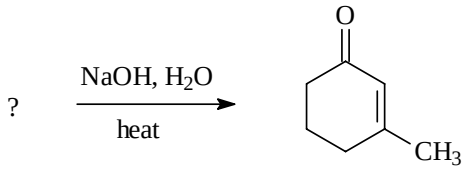
2)

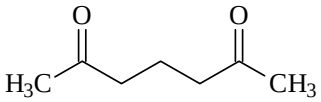
2) 

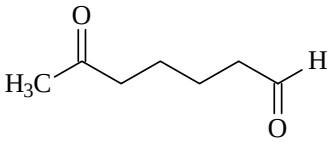
4) 

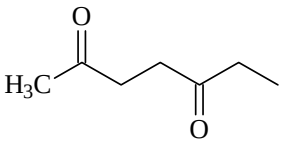
1) 1 2) 2 3) 3 4) 4

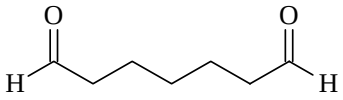
8. Identify the starting reagent needed to make the following cyclic ketone by an intramolecular aldol condensation reaction.



1) 

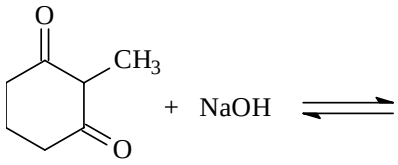
3) 

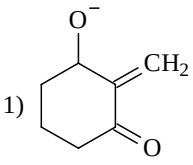
2) 

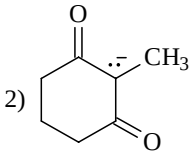
4) 

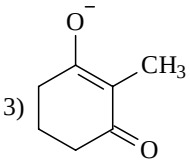
1) 1 2) 2 3) 3 4) 4

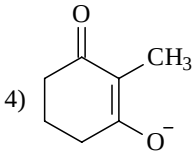
9. Which of the following is not a resonance form of the enolate ion formed in the following acid-base equilibrium?



1) 

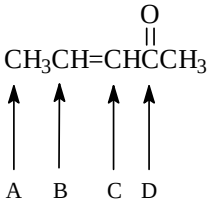
2) 

3) 

4) 

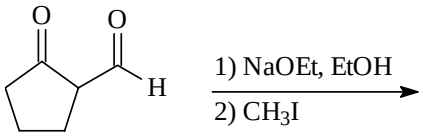
1) 1 2) 2 3) 3 4) 4

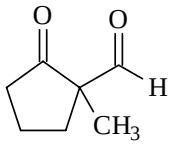
10. Which carbon atoms are most susceptible to nucleophilic attack?

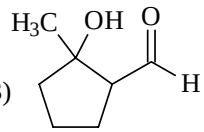


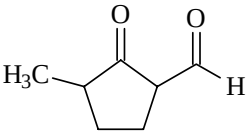
1) A and B 2) B and C 3) B and D 4) A and D

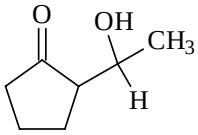
11. What is the product of the following reaction?



1) 

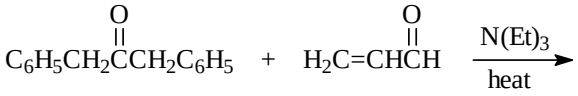
3) 

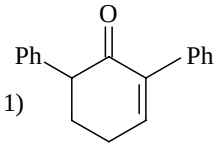
2) 

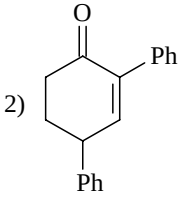
4) 

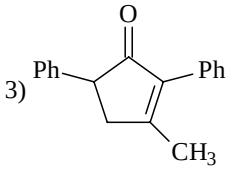
1) 1 2) 2 3) 3 4) 4

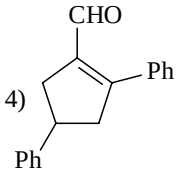
12. Heating a mixture of 1,3-diphenylacetone and acrolein in trimethylamine gives a product, $C_{18}H_{16}O$, in 53% yield. The mechanism for product formation is believed to be a Michael addition followed by an intramolecular aldol condensation. Which of the following is the product of this reaction?



1) 

2) 

3) 

4) 

1) 1 2) 2 3) 3 4) 4

13. Propose a mechanism for the following reaction.