Chemistry 211
 Name
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 Chapter 21 Quiz #2
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- 1. Which of the following works best as a base to quantitatively convert ethyl acetate, CH<sub>3</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, to its enolate?
  - 1) NaOH 2)  $KOC(CH_3)_3$
  - 3) CH<sub>3</sub>Li 4) [(CH<sub>3</sub>)<sub>2</sub>CH]<sub>2</sub>NLi

2. What is the product of the following reaction?

3. The acetoacetic ester synthesis, shown below, can be used to prepare 5methyl-2-hexanone. Which one of the following alkyl bromides would be used in the synthesis?

 $\underbrace{(1) \text{ NaOEt}}_{\text{OEt}} \underbrace{(1) \text{ NaOEt}}_{(2) \text{ alkyl bromide }} \underbrace{(1) \text{ NaOH, H}_2\text{O}}_{(2) \text{ H}_3\text{O}^+} \xrightarrow{\text{heat}} 5\text{-methyl-2-hexanone}$ 

- 1) (CH<sub>3</sub>)<sub>2</sub>CHBr
   2) (CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</sub>Br

   3) (CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</sub>CH<sub>2</sub>Br
   4) CH<sub>3</sub>CH<sub>2</sub>CHBrCH<sub>3</sub>
- 4. Which one of the following would <u>not</u> give an appreciable yield of Claisen condensation product?
  - ethyl hexanoate
     ethyl 3-methylhexanoate
     ethyl 4-methylhexanoate
- 5. What is the product of the following reactions?

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$$\begin{array}{c|c} & & & \\ \hline \\ & & \\ EtO \end{array} \xrightarrow{OEt} & \begin{array}{c} 2 \text{ NaOEt} \\ \hline 2 \text{ CH}_3 \text{I} \end{array} \xrightarrow{(1) \text{ LiAlH}_4} \end{array}$$

2,2-dimethylpropanedioic acid
 2-methylpropanoic acid
 2-methyl-1-propanol
 2,2-dimethyl-1,3-propanediol

6. Which one of the following is not a resonance form of the enolate ion formed from ethyl acetoacetate?



7. Which one of the following would not be expected to give a significant yield in a Dieckmann condesation?



8. Identify the most acidic hydrogen on the following molecule.



9. What is the product of the reaction shown below?



10. Which one of the following esters gives the Claisen condensation product shown below?



- 1) ethyl 2-methylpentanoate
- 3) ethyl 3,3-dimethylbutanoate
- 2) ethyl 4-methylpentanoate
- 4) ethyl 5-methylhexanoate

11. Which of the following is the Michael addition product of the reaction below?

