

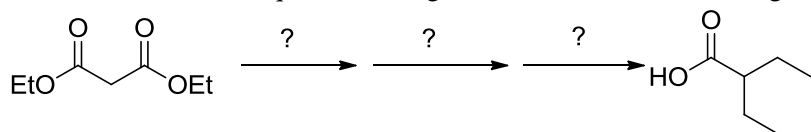
Organic Chemistry 2

Quiz #10

April 27, 2012

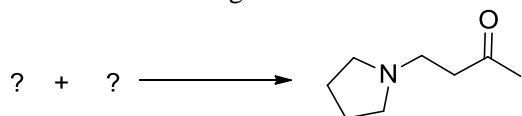
Name: _____

1. Select the correct sequence of reagents to conduct the following transformation. (2 pts.)



- a) $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ H}_3\text{O}^+, \Delta]{1) \text{ NaOH}}$
- b) $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{Br}]{1) \text{ NaOMe, MeOH}}$ $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}]{1) \text{ NaOMe, MeOH}}$ $\xrightarrow{\Delta}$
- c) $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ H}_3\text{O}^+, \Delta]{1) \text{ NaOH}}$
- d) $\xrightarrow[2) \text{ H}_3\text{C-I}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ H}_3\text{O}^+, \Delta]{1) \text{ NaOH}}$
- e) $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ } \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}]{1) \text{ NaOEt, EtOH}}$ $\xrightarrow[2) \text{ H}_3\text{O}^+, \Delta]{1) \text{ NaOCH}_3}}$

2. Circle the starting materials that could make the following product by conjugate addition.



- a) C1CCNCC1 + CC(=O)C=C
- b) C1CCNCC1 + CC(=O)C=CC=C
- c) C1CCNCC1 + CC(=O)CC=C
- d) C1CCNCC1 + CC(=O)CC=C
- e) C1CCNCC1 + CC(=O)C=C

3. What will be the most predominant form of nicotine in the blood stream, pH=7.4?

- a) CN1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=10}$ C[NH+]1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=5}$ C[NH+]1CCCC1C2=CNH+CC=C2
- b) CN1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=10}$ C[NH+]1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=5}$ C[NH+]1CCCC1C2=CNH+CC=C2
- c) CN1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=10}$ C[NH+]1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=5}$ C[NH+]1CCCC1C2=CNH+CC=C2
- d) CN1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=10}$ C[NH+]1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=5}$ C[NH+]1CCCC1C2=CNH+CC=C2
- e) CN1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=10}$ C[NH+]1CCCC1C2=CN=CC=C2 $\xleftrightarrow{pK_a=5}$ C[NH+]1CCCC1C2=CNH+CC=C2