

CHEM 2322

Exam 2

Dr. Hale
T,Th 9:30–10:50

Name: _____

Sign below to acknowledge that you are aware of the penalty for violating the University's academic integrity policy.

Signature: _____

Score: Page 2: ____ (16)

Page 3: ____ (27)

Page 4: ____ (17)

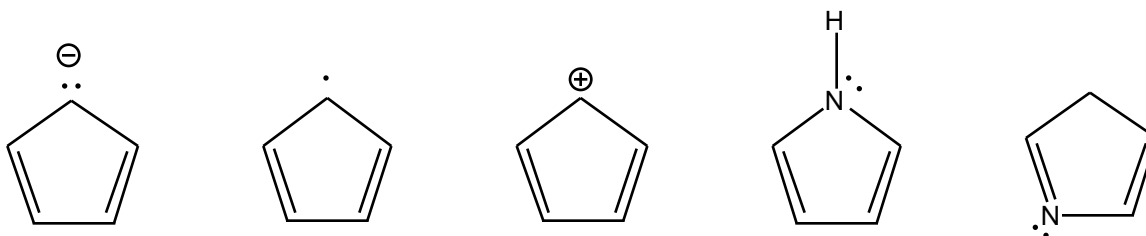
Page 5: ____ (20)

Page 6: ____ (10)

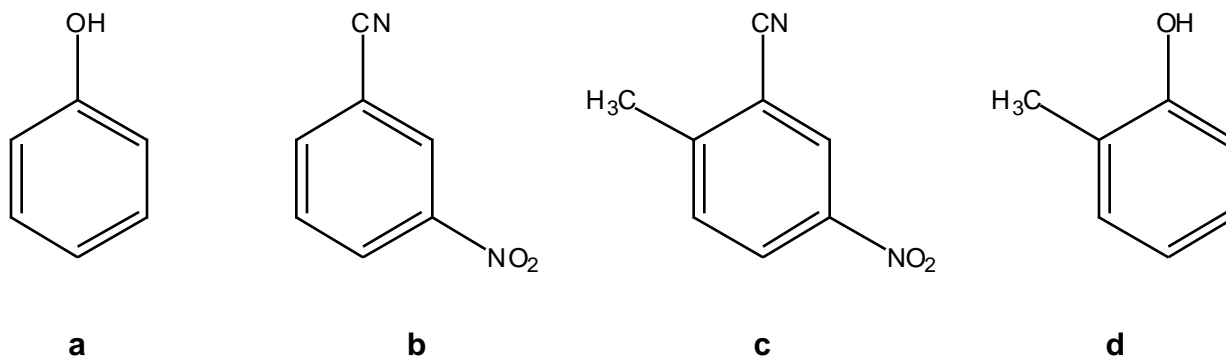
Page 7: ____ (10)

TOTAL: _____

1) Which of the following compounds are aromatic? (Circle the aromatic compounds.) **4 Pts**

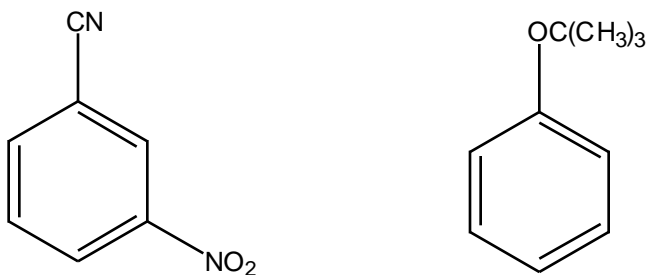


2) Rank the following compounds from **least** to **most** reactive in a nitration reaction? **4 Pts**

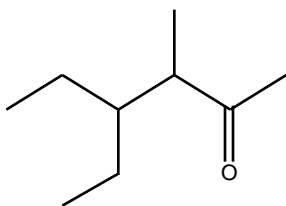


_____ < _____ < _____ < _____

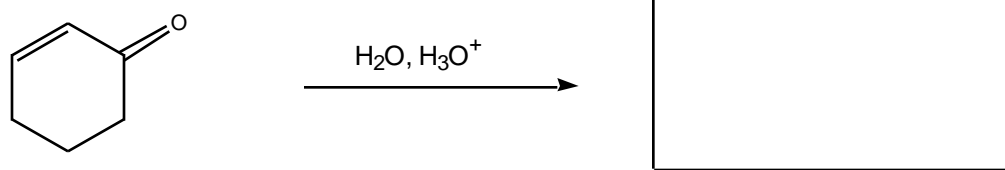
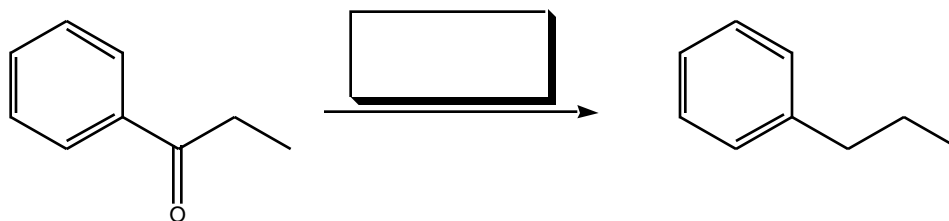
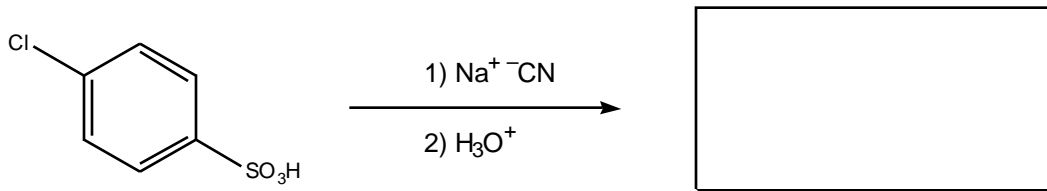
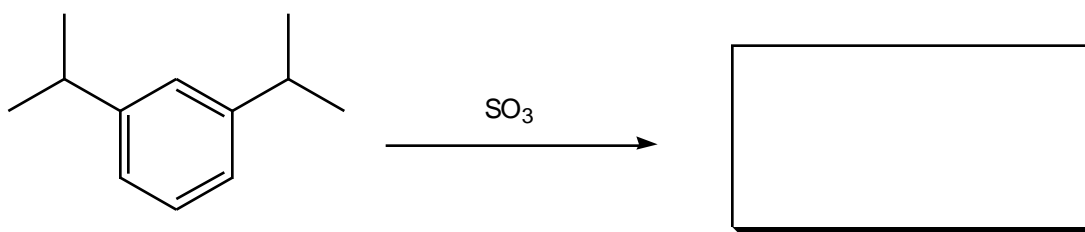
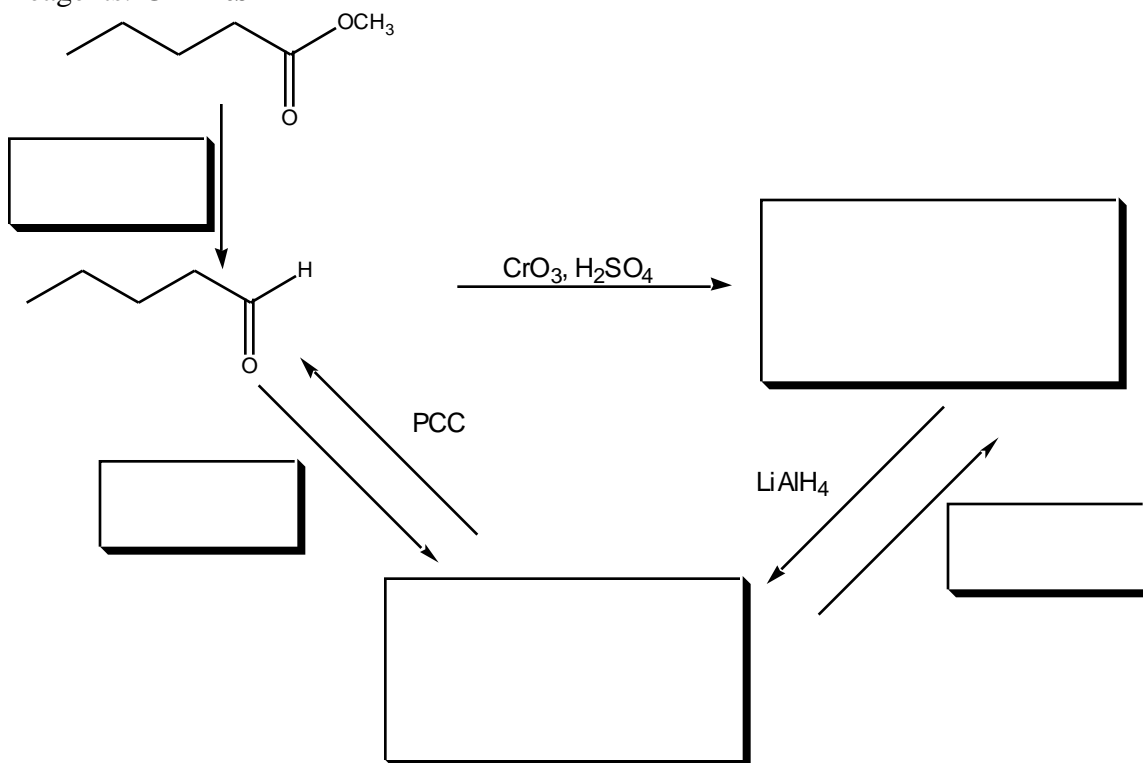
3) Use arrows to label the position or positions on the following molecules that would be substituted in a sulfonation reaction. **4 Pts**

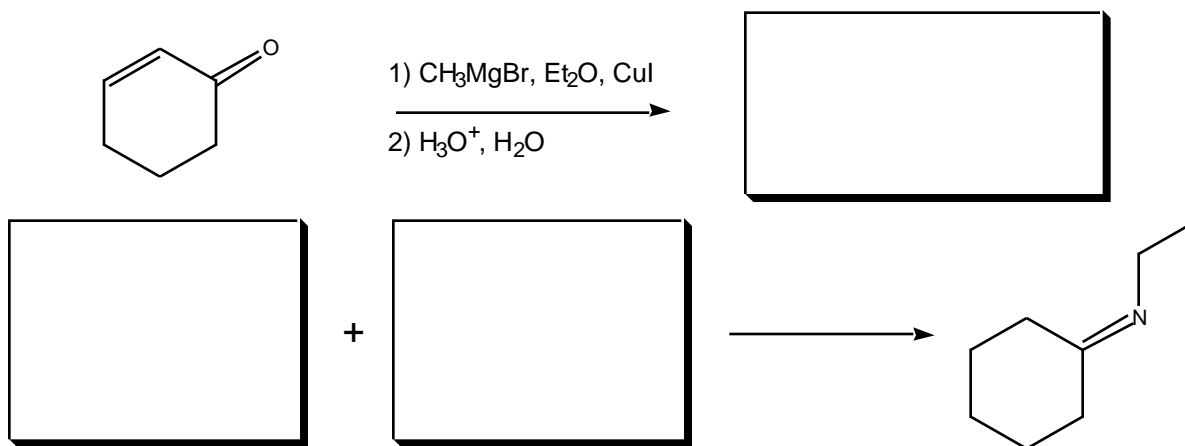


4) Name the following molecule. **4 Pts**

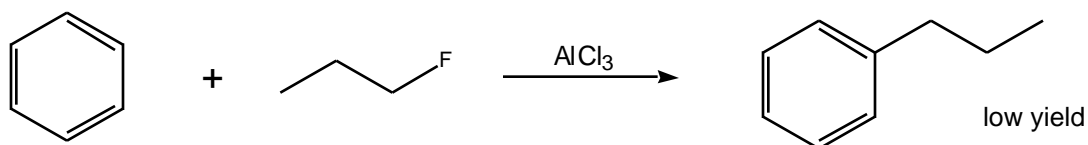


5) Complete the following reactions by filling in the missing starting material, product, or reagents. **34 Pts**



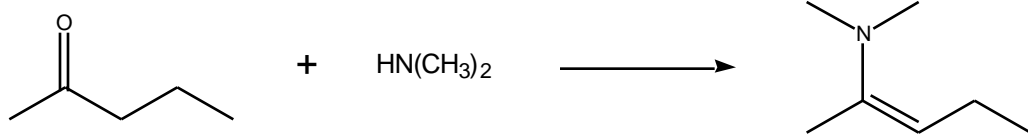


6) Show the mechanism for the following transformation. **10 Pts**

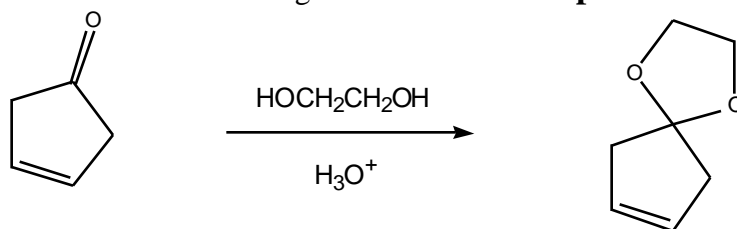


7) Why is the yield for the above reaction (question 6) low? Explain the underlying reason. **5 Bonus Pts**

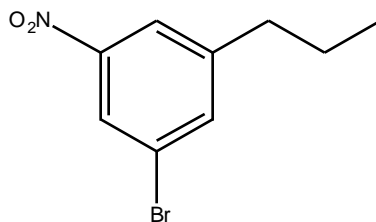
8) Show the mechanism for the following transformation. **10 pts**



9) Show the mechanism for the following transformation. **10 pts**



10) Devise a synthesis for the following molecule starting with benzene and any other reagents you would like. **10 pts**



11) Devise a synthesis for the following molecule starting with the indicated compound. You may use any alcohols of 4 carbons or less for additional sources of carbon atoms. **10 Pts**

