**CHM 257 Spring 2012 Exam III Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**50 pts total**

1. Show the carbocation intermediate(s) formed: 3 pts



1 pts each

1. Does this reaction occur via SN2/E2 mechanisms or SN1/E1 mechanisms? 2 pt

 SN2/E2 if wrong products: - 1 pt

1. Give the most stable product formed in this reaction: 2 pt

  wrong alkene: 1 pt; anything else: 0

1. Give the name for this compound: (R)-2-benzyl-3-buten-2-ol 5 pts

or (R)-2-methyl-1-phenyl-3-buten-2-ol or (R)-1-benzyl-1-methyl-2-propenol

if (S)- : - 1 pt or if no or unclear stereochemistry; any missing or incorrect substituents: - 1 pt/each; any missing or incorrect number: - 1 pt/each



cis/trans no charge

1. Give the name for this compound: *cis*-1-phenoxy-1-propene 5 pts

Or phenyl *cis*-1-propenyl ether or 1-propenoxybenzene



Z acceptable; Trans-: - 1 pt or no or unclear stereochemistry; any missing or incorrect substituents: - 1pt/each; any missing or incorrect number: - 1 pt /each

1. Give the oxidation product for this compound: 2 pt







1. Draw all reasonable resonance structures for this ion: 3 pts



1. pt each
2. Show the products and the mechanism for this reaction: (include ALL steps) 6 pts





One of above arrows: 1 pt correct organic product: 1 pt



Arrow: 1 pt two arrows: 2 pts correct organic product: 1 pt

Structure: 1 pt

1. Draw the structure of this compound: N-*sec*-butyl-2-phenylhexanamine 3 pts

butul/tert-butyl/isobutyl: - 1 pt; any wrong substituent: - 1 pt/each



1. Why is phenol acidic? 1 pts

Because deprotonated phenol is resonance stabilized

1. Which one(s) of the following compounds is/are aromatic? 3 pts



No yes no yes no

0.6 pt each

1. Show the products and mechanism for this reaction: 8 pts





Not necessary



Two arrows: 2 pts arrow: 1 pt two arrows: 2 pt 1 pt

Protonated water:1pt Structure: 1 pt structure 1 pt

13. Show the products of this reaction: 1 pts 

None

14. Show the products of this reaction: 1 pts



None.



15. Give all the possible products of reaction of water with this molecule: 5 pts



1 pt/each