**Exam 3: Chemistry 4524 Wednesday 30 April 2014 \_\_/50**

 ***The Final Boxing Match with Organic Chemistry***

**Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Supply the missing reagents, reactants or products in the indicated boxes.

There are 55 boxes. Your best score out of 50 will be recorded.

A table of o,m,p ring director character is attached.



1)

2)



3)



 most preferred only



4)

 Benzoic acid

5)



6) most preferred only



\_\_/9

7)



 **Styrene**



8)

 n

9)





10)

 +

11)



12)



13)



 Dry ether



14)

2**-methylpropene**

\_\_\_/12

15)



 Only !!



16)



17)

 Major

18)



 major minor

19)



20) Only !



 2

21)



 + +

\_\_\_/15

22)

 +



 \\\\\\\

23)



24)





25)

26)



27)



 2

28)





 +

 Major minor

\_\_\_/15

29)



30)



 **2-methylpropanal**

31)



\_\_\_/4