**Exam 3: Chem 4524 Organic Chemistry II Alfred State College Spring 2017**

**The Final Boxing Match of the Season 70 pts**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 pt**

**Fill in the boxes below. One (1) point for every correct answer**

**1)**

100% anti-Markovnikoff;

>90% yield;

~ 2 minutes



**2)**



**3)**



**+**

**4)**





**5)**

**6)**

+



**main product by-product**

**7)**





**\_\_\_/14 (includes name)**

**Chem 4524 Spring 2017 exam 3 boxes (continued) 2/6**



**8)**



**9)**

**10)**





**11)**

**+H2O**

**main product (party ! party !)**

**12)**



**+ H2O**

**main product**

**13)**



**then H2O**

**14)**



**` hint: hydride**

**+ (H-) involved.**



**15)**

**+**

=PAr3

**\_\_\_/12 product by-product**

**Chem 4524 Spring 2017 exam 3 boxes (continued) 3/6**



**16) Product of problem 15**

**17)**



**hint: analogous to ozonolysis**

**18)**





**vasectomy**

**19)**

**20) 3-methyl-3-pentanol; mark. only**



**90% yield; < 2 minutes**



**21)**



**22)**



**+**

**23)**



**\_\_\_/13**

**Chem 4524 Spring 2017 exam 3 boxes (continued) 4/6**

**Main product here (enamine)**

**24)**





**25)**

**(keto-enol tautomers)**

**26)**



**27)**



intermediate product A

**28)**





**29)**



**30)**



**31)**

**alkyl sulfonate**

**intermediate A**

**A**

**\_\_\_/10**

**+ -**

**Chem 4524 Spring 2017 exam 3 boxes (continued) 5/6**

**32)**



**33)**



**+**

**product by-product**

**34)**



**35)**



**(aldol, kids!)**

**36)**



**product by-product**

**37)**



\_\_/10

**Chem 4524 Spring 2017 exam 3 boxes (continued) 6/6**

38)



2

39)



+H2O

Hint: an immine

40)



Hint: α-H reaction

41)



Hint: a poison

42)





43) hint: Brown

2-step



**44)**

**45) Cats rule, dogs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**46) Any day doing organic chemistry is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_/11**