CHEM 624 Fall 2012 Exam #4A (Blue)

November 29, 2012, 6:00 PM

Print Name_____ _____ _____
Last First MI

Signature_____
(I will follow the honor code)

KUID_____

Page 5 (14 pts) _____

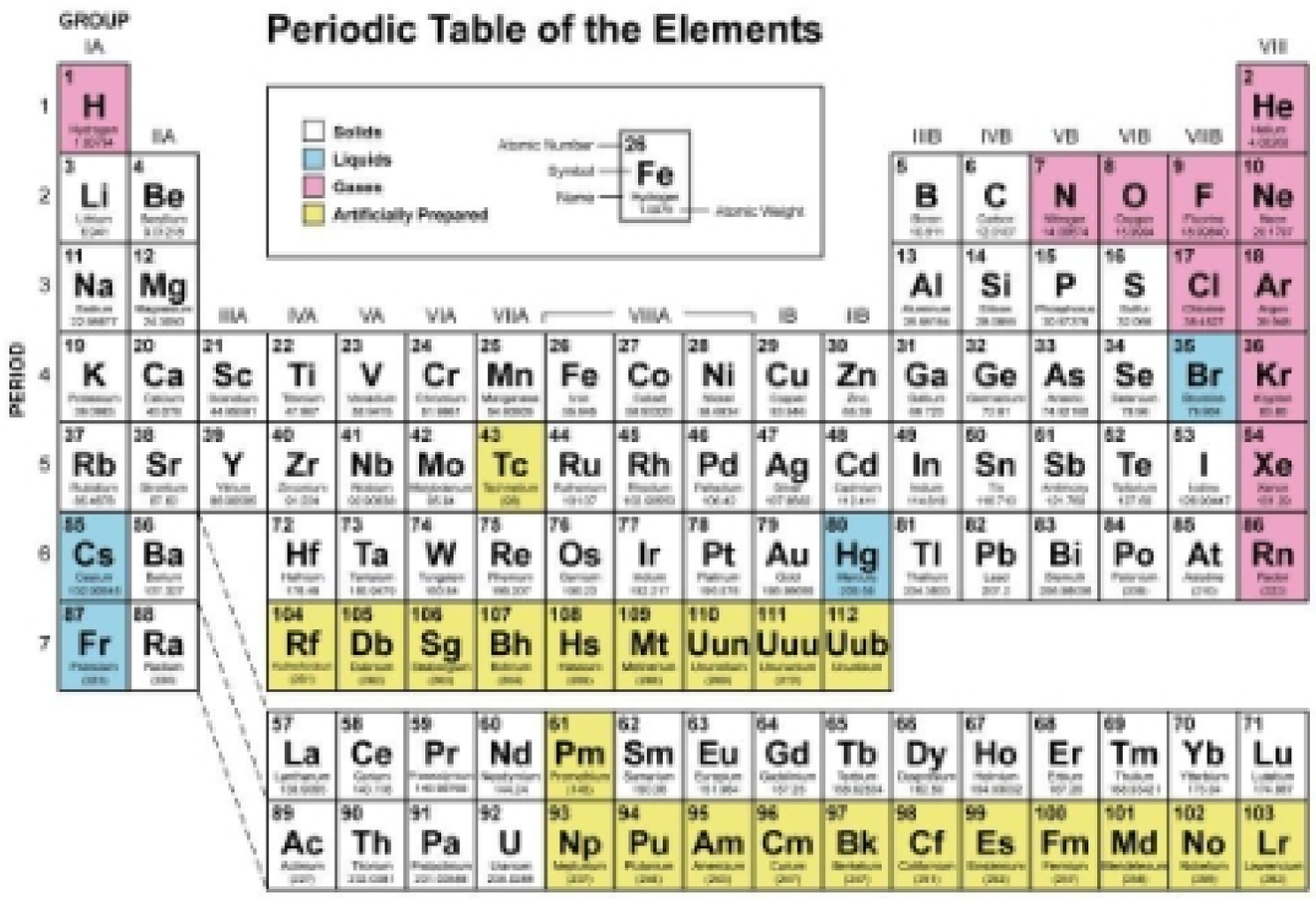
Page 6 (9 pts) _____

Page 7 (16 pts) _____

Page 8 (16 pts) _____

Page 9 (6 pts) _____

Total pages 5-9
(61 possible)



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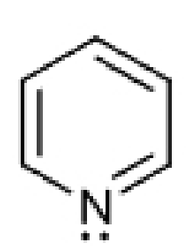
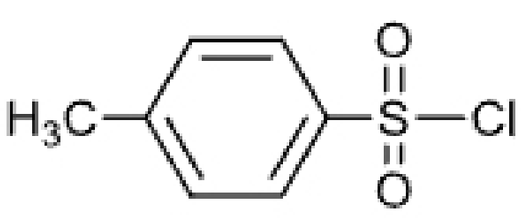
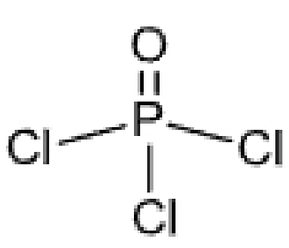


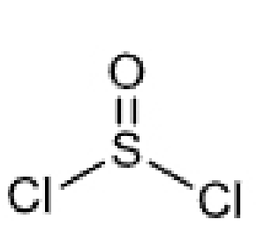
Pyridine



TsCl



$POCl_3$



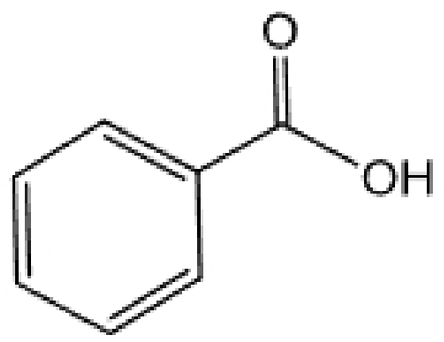
$SOCl_2$

Lindlar Catalyst: Pd on $CaCO_3$, $Pb(OAc)_2$, quinoline

Enter your answers to Problems 1-13 on the SCANTRON SHEET

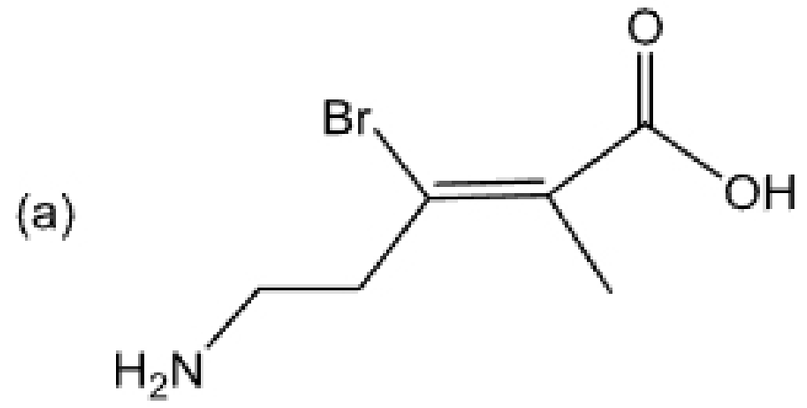
Multiple Choice (39 points total; 3 points each).

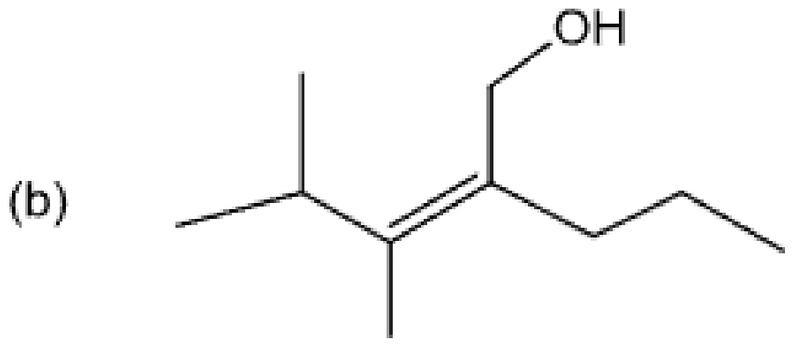
1. **Degrees of unsaturation** for the compound at right:



A. 3 **B.** 4 **C.** 5 **D.** 6

2. The **stereochemistry** of the alkenes below:





A. (a) *E*; (b) *E* **B.** (a) *E*; (b) *Z* **C.** (a) *Z*; (b) *E* **D.** (a) *Z*; (b) *Z*

3. The **reaction, or sequence of reactions**, that will accomplish the transformation below:

A. H_2SO_4/H_2O, then HBr **B.** BH_3, then H_2O_2 and HO^-, then HBr

C. HBr **D.** H_2 and Pd/C, then Br_2

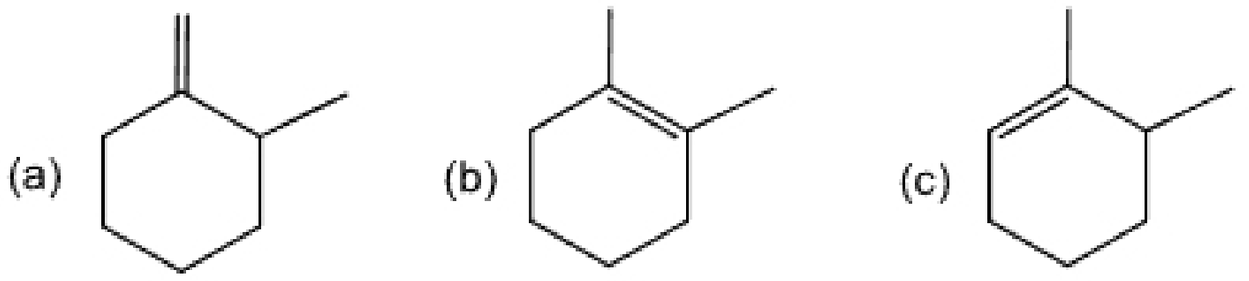
4. The **transformation above** is:

A. an oxidation **B.** a reduction **C.** neither an oxidation nor a reduction

5. The **weakest bond:**

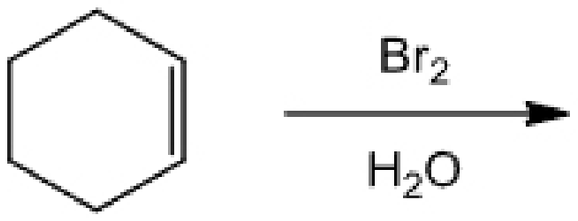
A. C-C σ-bond in ethane **B.** π-bond in ethylene **C.** π-bond in acetylene

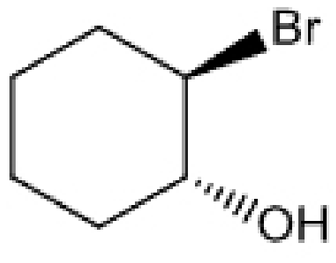
6. Rank the alkenes below in order of **decreasing heat of hydrogenation** (most exothermic to least exothermic):

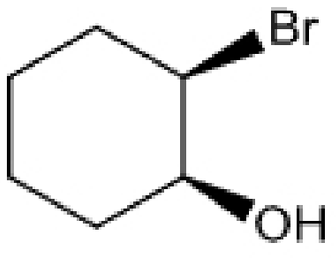


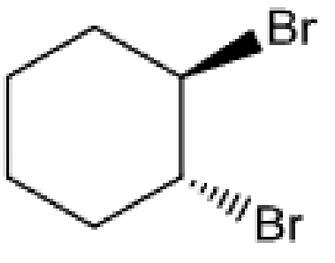
A. b > c > a **B.** c > b > a **C.** b > a > c **D.** a > c > b

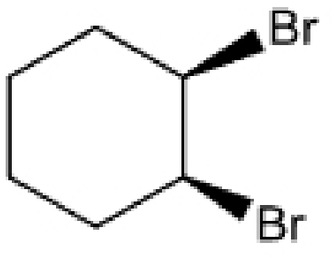
7. The **product of the reaction** below:

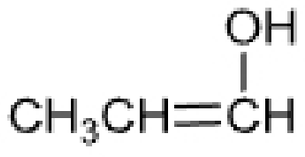


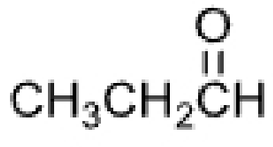
A. 

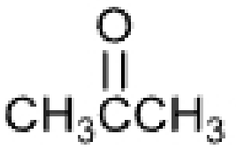
B. 

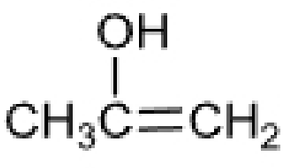
C. 

D. 

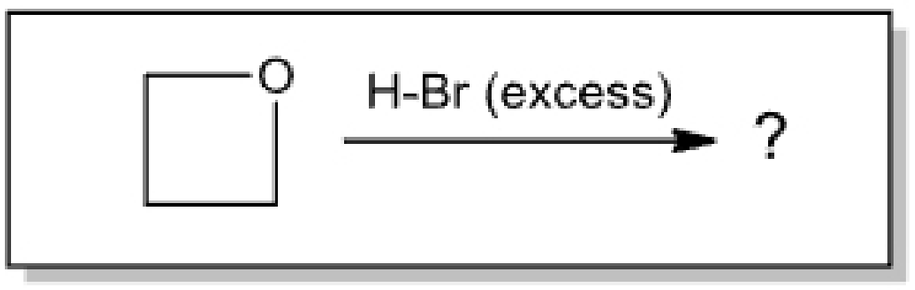
8. The **tautomer** of 

A. $CH_2{=}CHCH_2OH$ **B.** 

C. 

D. 

9. Compound that is **not a product or intermediate** in the reaction below (*think mechanistically!*):



A. 

B. 

C. 

D. H_2O