CHEM 624 Fall 2012 Exam #3A (Blue)

November 1, 2012, 6:00 PM

Print Name_____
Last First MI

Signature_____
(I will follow the honor code)

KUID_____

Page 5 (8 pts) _____

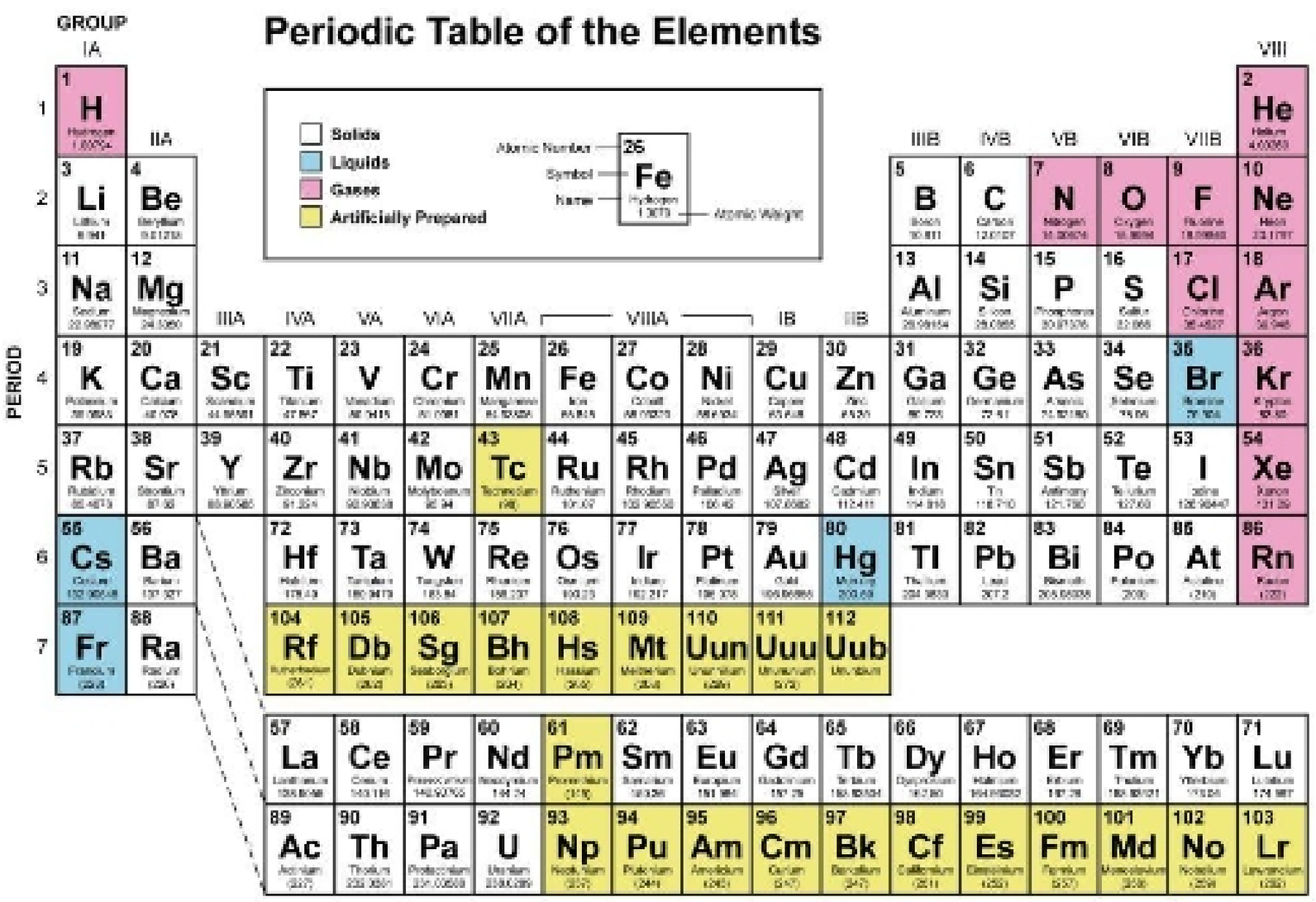
Page 6 (12 pts) _____

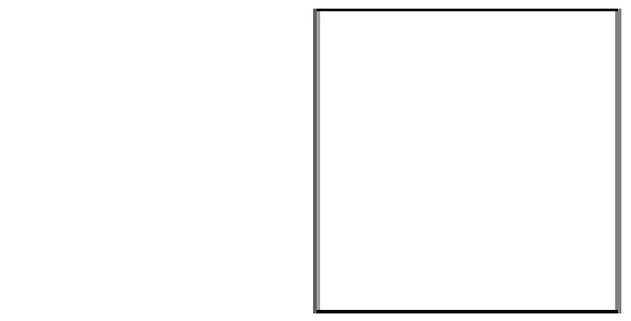
Page 7 (12 pts) _____

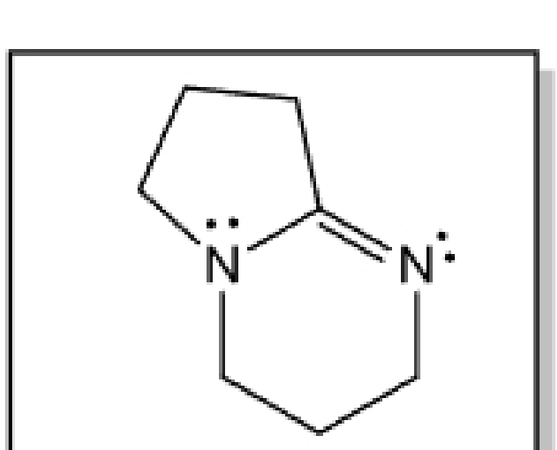
Page 8 (12 pts) _____

Page 9 (5 pts) _____

Total pages 5-9
(49 possible)







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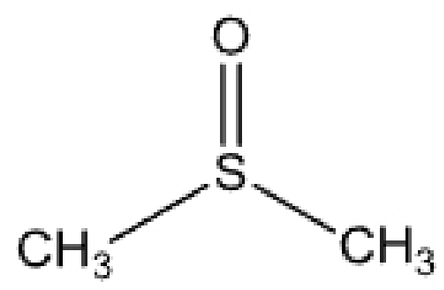
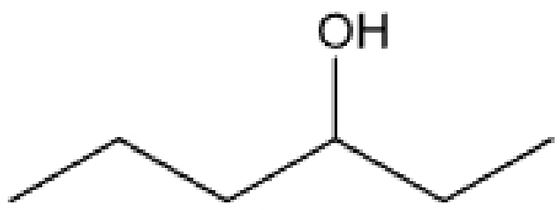


DMSO

Enter your answers to Problems 1-17 on the SCANTRON SHEET

Multiple Choice (51 points total; 3 points each).

Questions 1 and 2 refer to the alcohol at right:



1. The correct **name** for the compound:

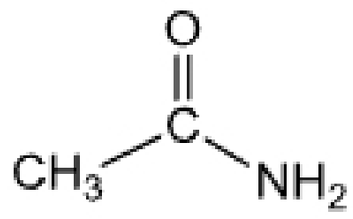
   A. 3-hydroxyhexane
   B. ethyl propyl alcohol
   C. 1-ethylbutanol
   D. 3-hexanol

2. The compound is **classified** as a _____ alcohol:

   A. 1° **B.** 2° **C.** 3° **D.** 4°

3. The **polar aprotic** solvent

   A. H_2O **B.** CH_3CH_2OH **C.** CH_3CN **D.**



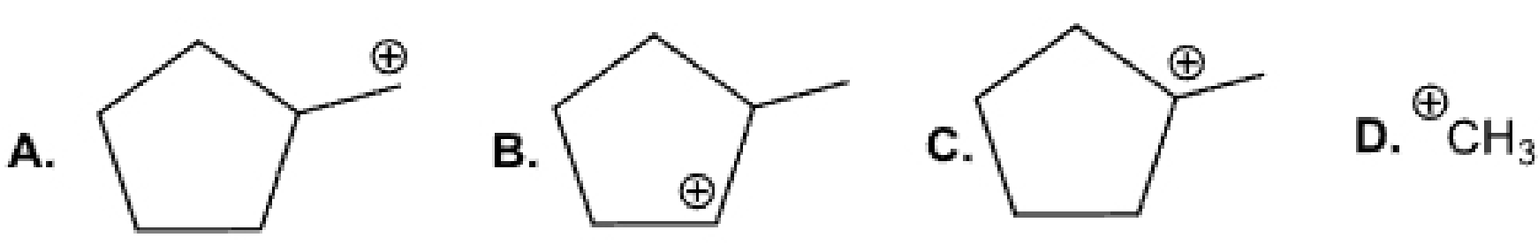
4. The **strongest nucleophile** in polar protic solvents:

   A. $I^{\ominus}$ **B.** $F^{\ominus}$ **C.** $Br^{\ominus}$ **D.** $Cl^{\ominus}$

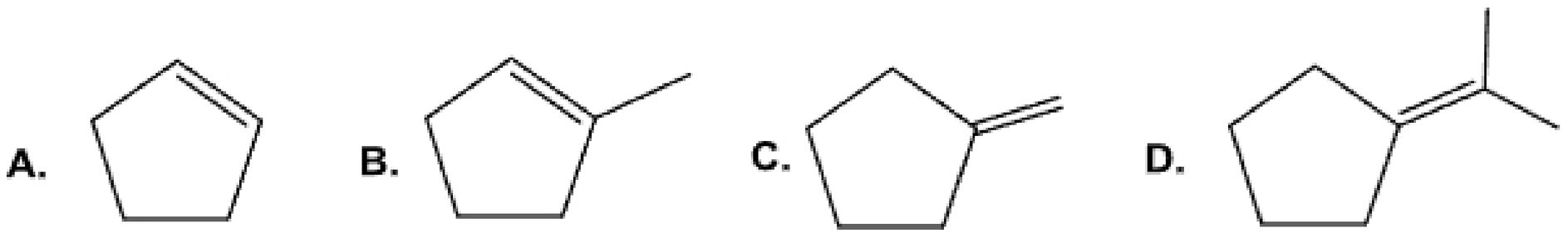
5. The **strongest nucleophile**:

   A. $NH_2^{\ominus}$ **B.** $HO^{\ominus}$ **C.** $F^{\ominus}$ **D.** $CH_3^{\ominus}$

6. The **most stable** carbocation:



7. The **most stable** alkene:



Questions 8-13 refer to the <u>E2 reaction</u> below:

8. The reaction involves a **carbocation intermediate**

   A. True **B.** False

9. The **rate law** for the reaction:

   A. rate = $k[CH_3O^{\ominus}]$ **B.** rate = $k[CH_3CHBrCH_3]$

   C. rate = $k[CH_3CHBrCH_3][CH_3O^{\ominus}]$ **D.** rate = $k[CH_3CH_2{=}CH_2][CH_3OH][Br^{\ominus}]$

10. Replacing **bromine (Br) with chlorine (Cl)** will _____ the reaction rate:

    A. Increase **B.** Decrease **C.** Not affect

11. Replacing the base **$CH_3O^{\ominus}$ with CH_3OH** will _____ the reaction rate

    A. Increase **B.** Decrease **C.** Not affect

12. Replacing the **solvent CH_3OH with DMSO** will _____ the reaction rate

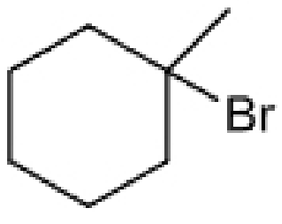
    A. Increase **B.** Decrease **C.** Not affect

13. Replacing the base **$CH_3O^{\ominus}$ with $(CH_3)_3CO^{\ominus}$** would _____the amount of competing S_N2 product that is formed.

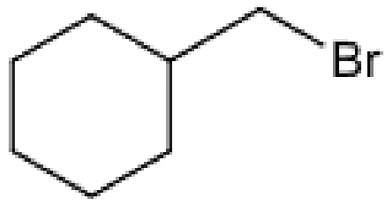
    A. Increase **B.** Decrease **C.** Not affect

14. **Most reactive** in an **E1** reaction:

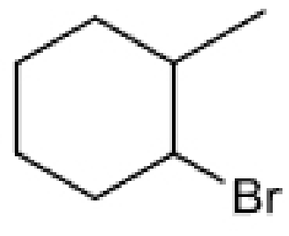
A.



B.



C.



D.