

CHEM 624 Fall 2012 Exam #3A (Blue)

November 1, 2012, 6:00 PM

Print Name KEY
Last First MI

Page 5 (8 pts) _____

Signature _____
 (I will follow the honor code)

Page 6 (12 pts) _____

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Page 7 (12 pts) _____

Page 8 (12 pts) _____

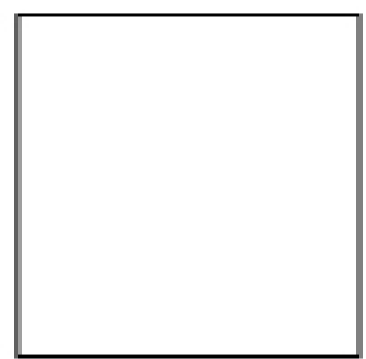
Page 9 (5 pts) _____

Periodic Table of the Elements

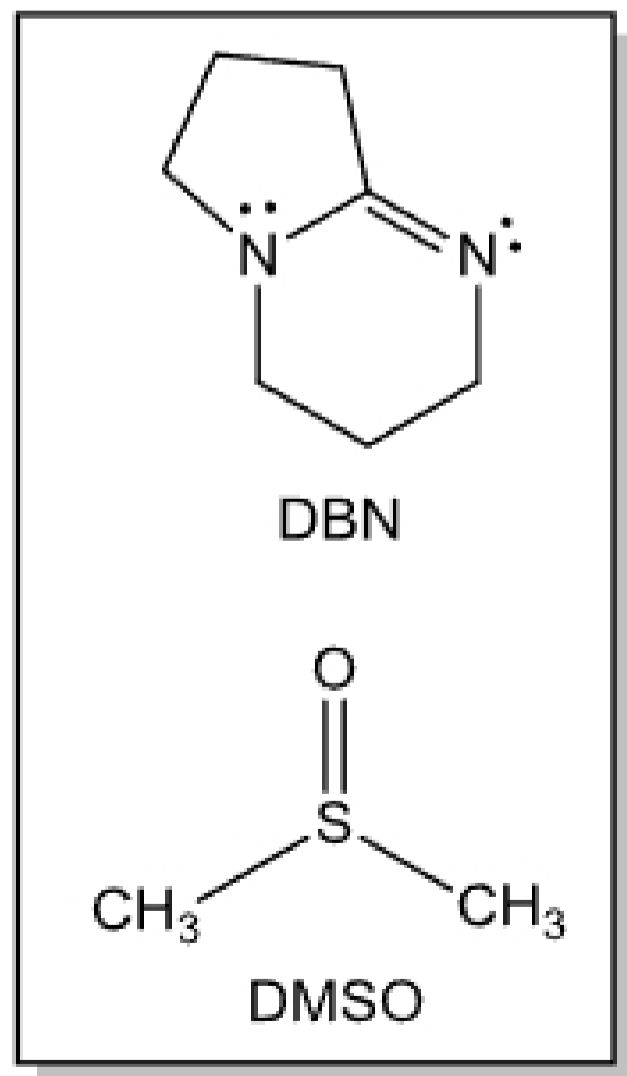
Solids
 Liquids
 Gases
 Artificially Prepared

Atomic Number: 26
 Symbol: Fe
 Name: Iron
 Atomic Weight: _____

GROUP IA													GROUP IIA																		GROUP IIIA										GROUP IVA										GROUP VA										GROUP VIA										GROUP VIIA										GROUP VIIIA										GROUP IIIB										GROUP IVB										GROUP VB										GROUP VIB										GROUP VIIB										GROUP VIII									
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Total pages 5-9
(49 possible)



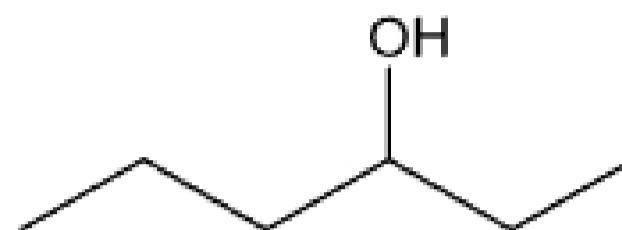
Enter your answers to Problems 1-17 on the SCANTRON SHEET

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

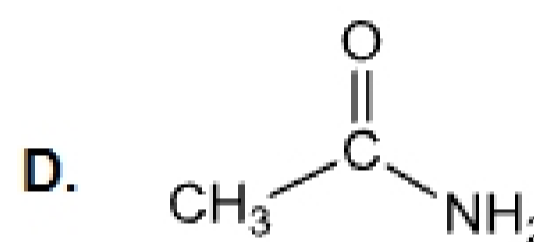


2. The compound is **classified** as a _____ alcohol:

- A. 1°
- B. 2°
- C. 3°
- D. 4°

3. The **polar aprotic** solvent

- A. H₂O
- B. CH₃CH₂OH
- C. CH₃CN



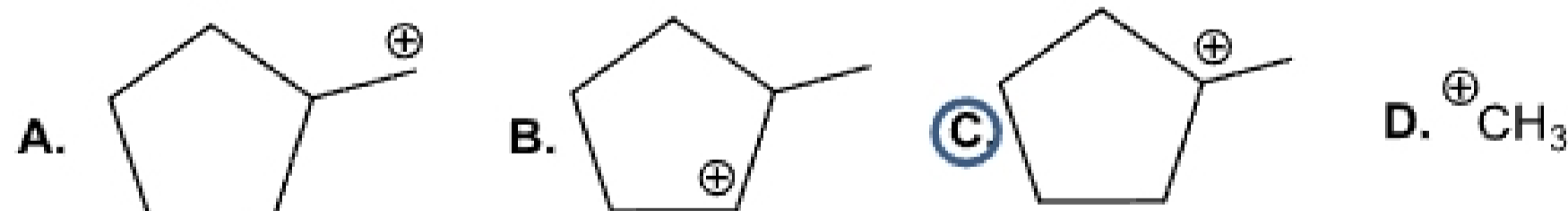
4. The **strongest nucleophile** in polar protic solvents:

- A. I[⊖]
- B. F[⊖]
- C. Br[⊖]
- D. Cl[⊖]

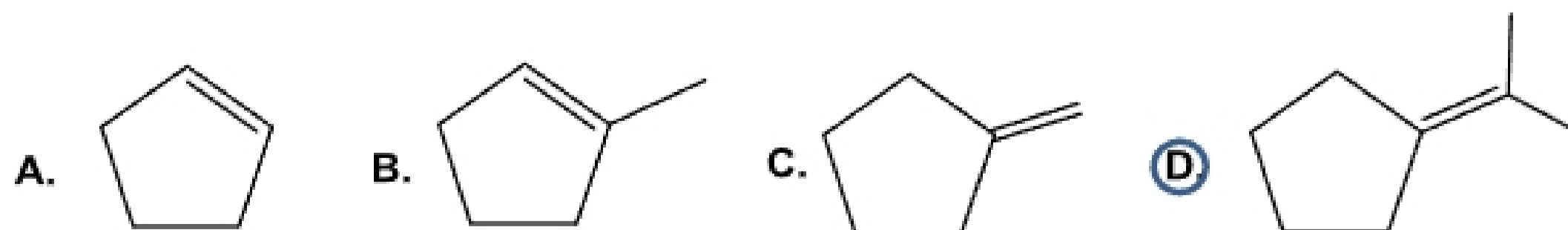
5. The **strongest nucleophile**:

- A. NH₂[⊖]
- B. HO[⊖]
- C. F[⊖]
- D. CH₃[⊖]

6. The **most stable** carbocation:



7. The **most stable** alkene:



Questions 8-13 refer to the E2 reaction below:



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

- A. True **B. False**

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

- A. rate = $k[\text{CH}_3\text{O}^\ominus]$ B. rate = $k[\text{CH}_3\text{CHBrCH}_3]$
C. rate = $k[\text{CH}_3\text{CHBrCH}_3][\text{CH}_3\text{O}^\ominus]$ D. rate = $k[\text{CH}_3\text{CH}_2=\text{CH}_2][\text{CH}_3\text{OH}][\text{Br}^\ominus]$

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

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

11. Replacing the base **$\text{CH}_3\text{O}^\ominus$** with **$\text{CH}_3\text{OH}$** 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 **$\text{CH}_3\text{O}^\ominus$** with **$(\text{CH}_3)_3\text{CO}^\ominus$** would _____ the amount of competing $\text{S}_\text{N}2$ product that is formed.

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

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

