

CHEM 624 Fall 2012 Exam #3A (Blue)

November 1, 2012, 6:00 PM

Print Name _____
Last
First
MI

Page 5 (8 pts) _____

Signature _____
 (I will follow the honor code)

Page 6 (12 pts) _____

KUID _____

Page 7 (12 pts) _____

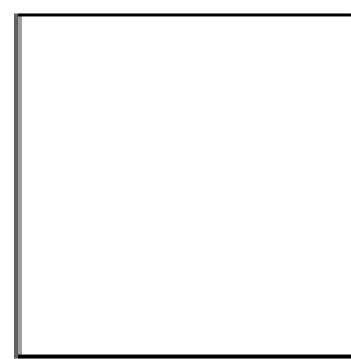
Page 8 (12 pts) _____

Page 9 (5 pts) _____

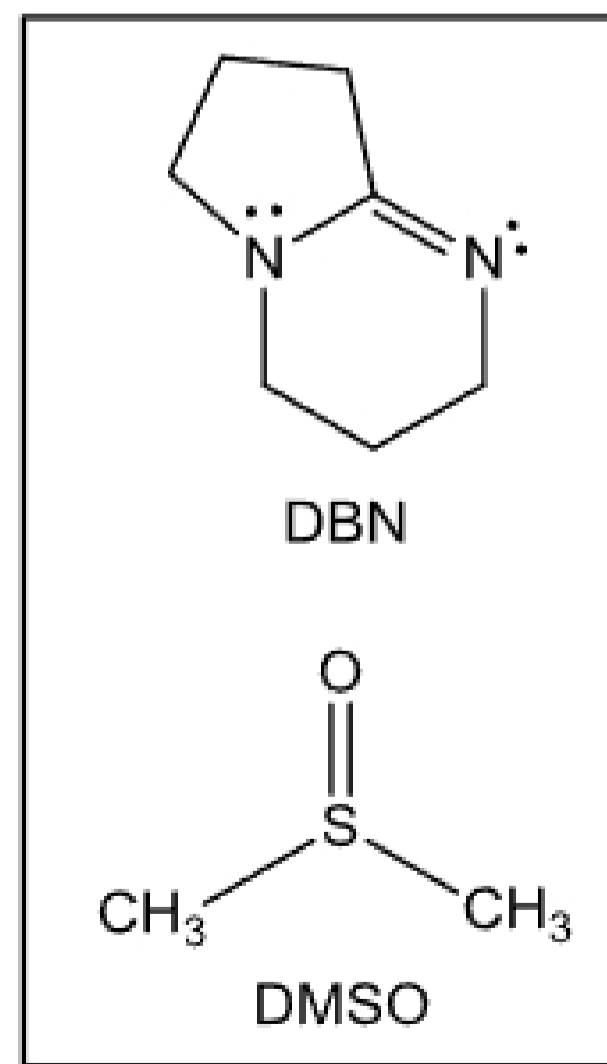
Periodic Table of the Elements

Solids
 Liquids
 Gases
 Artificially Prepared

GROUP IA																VIII															
1																		2													
H																		He													
3	4															10															
Li	Be															Ne															
11	12															18															
Na	Mg															Ar															
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36														
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr														
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54														
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe														
55	56	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86															
Cs	Ba	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn															
87	88	104	105	106	107	108	109	110	111	112																					
Fr	Ra	Rf	Db	Sg	Bh	Hs	Mt	Uun	Uuu	Uub																					
		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71															
		La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu															
		89	90	91	92	93	94	95	96	97	98	99	100	101	102	103															
		Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr															



Total pages 5-9
(49 possible)



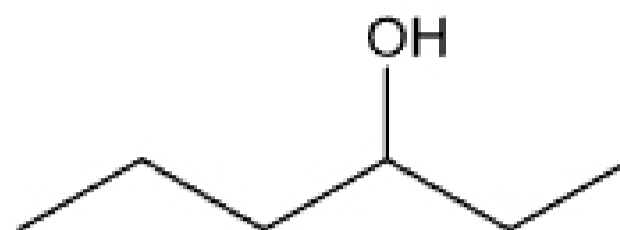
Enter your answers to Problems 1-17 on the SCANTRON SHEET

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

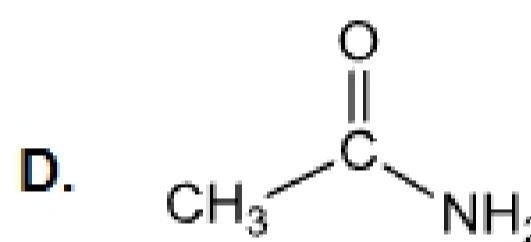


2. The compound is **classified** as a _____ alcohol:

- A. 1°
- B. 2°
- C. 3°
- D. 4°

3. The **polar aprotic** solvent

- A. H₂O
- B. CH₃CH₂OH
- C. CH₃CN



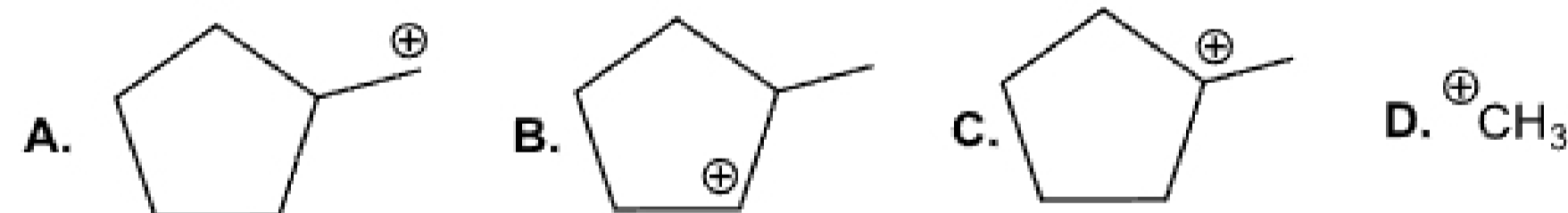
4. The **strongest nucleophile** in polar protic solvents:

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

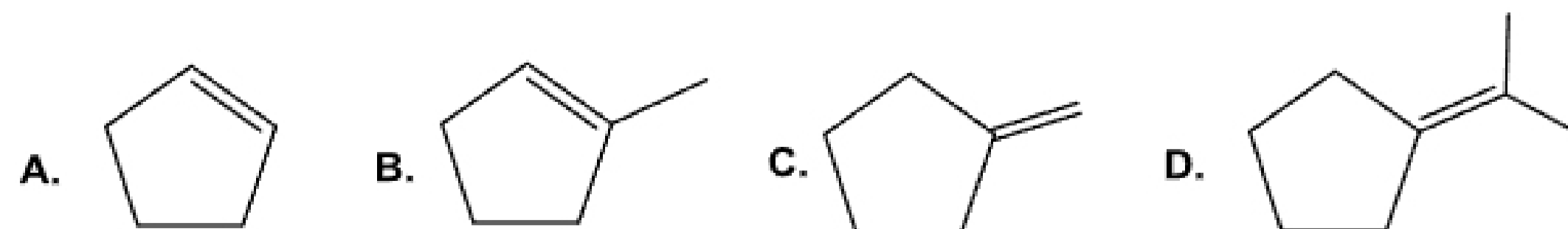
5. The **strongest nucleophile**:

- 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:

