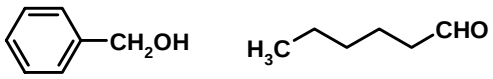
DEPARTMENT OF MEDICINAL CHEMISTRY
SCHOOL OF PHARMACY

Medicinal Chemistry I — MEDC 501
Dr. Umesh R. Desai — September 13, 2006

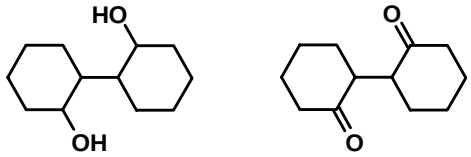
STUDENT NAME **HONOR PLEDGE**

	IV	V	VI	VII
2	C	N	O	F
3	Si	P	S	Cl
4	Ge	As	Se	Br
5	Sn	Sb	Te	I

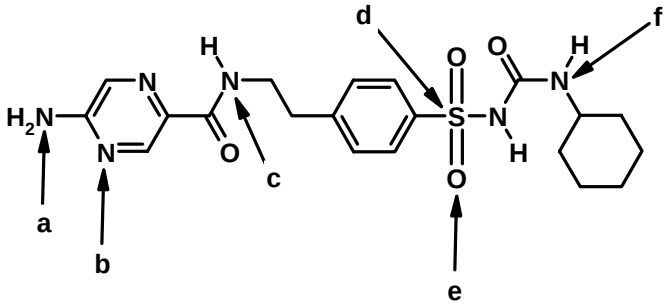
1. Circle the compound with higher boiling/melting point in the following pairs. (6 pts)

a) 

b) 

C) 

2. Glipizide (below) is an oral hypoglycemic agent. Write the Kier – Hall electronegativity value and hybridization state of each non-hydrogen atom marked '***a***' through '***f***' (6 pts)



Kier-Hall electronegativity	Hybridization State
a = _____	_____
b = _____	_____
c = _____	_____
d = _____	do not answer
e = _____	_____
f = _____	_____

3. An inductive effect is

_____

_____

_____

_____

_____.

(Define in one sentence) (4 pts)

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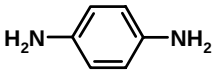
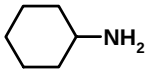
4. Rank these molecules according to their pKa values. (1 for least pKa value and 4 for highest) (8 pts)

$CH_3CH_2CH_2COOH$ **$CH_3NO_2CHCH_2COOH$** **$CH_3CH_2NO_2CHCOOH$** **$CH_3NO_2CHCH_2COOH$**

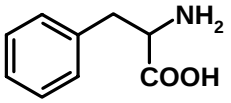
5. Two examples of electron donating groups (for resonance effect), which are electron withdrawing groups for inductive effect are _____ and _____ (4 pts)

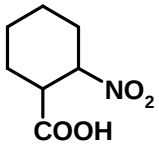
6. Rank the following molecules according to their pK_A values for the $-NH_2$ group (1 for the least pKa value and 3 for the highest) (6 pts)

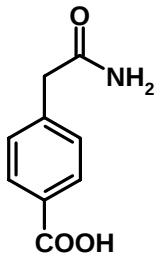


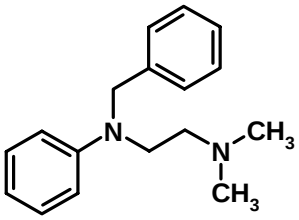


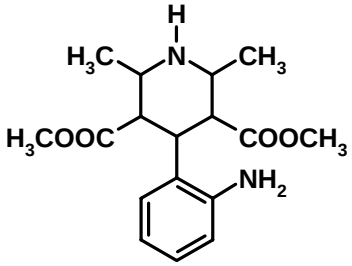
7. In the following structures, circle an ionizable functional group(s) (pH range 0 – 14) and indicate their approximate pK_A value. **Please NOTE. -1 point for every wrong answer!** (8 pts)



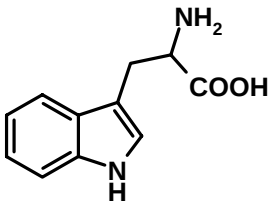


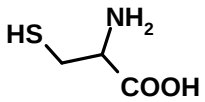






8. Identify the common name of the following natural amino acid residues. (8 pts)





_____ _____