

**BASIC PHARMACEUTICAL SCIENCE FOR THE PRACTICING PHARMACIST**  
**MEDC 527, Fall 2008**

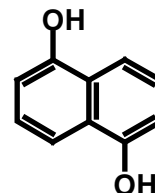
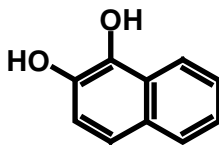
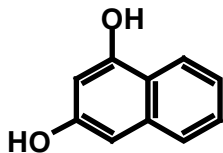
Quiz #1, Dr. Desai, 100 points; September 9, 2008

**STUDENT NAME (in CAPITAL Letters ONLY)**

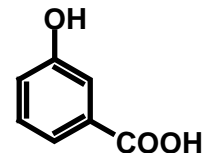
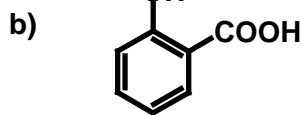
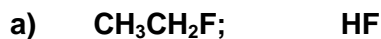
**VCU ID #**

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

1. Rank the molecules according to their expected mp/bp. Use 1 for least and 3 for highest mp/bp. (6 pts)



2. Circle the molecule in the pair that is expected to have higher boiling/melting point. (8 pts)



3. Write the Henderson – Hasselbach equation for the following equilibrium. Define the terms involved. (12 pts)




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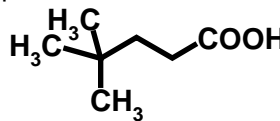
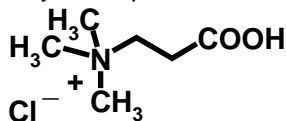


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4. In few sentences, explain why I is expected to have lower pKa than II. (6 pts)




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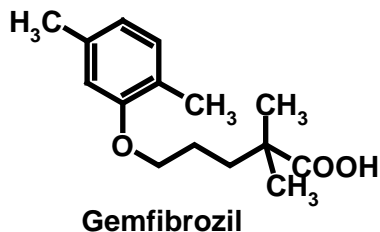


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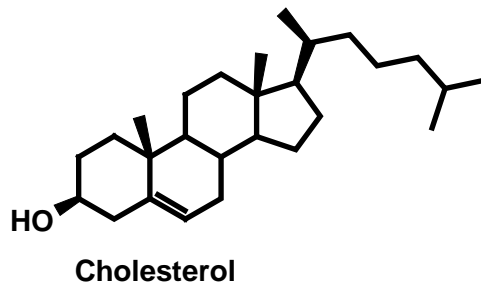


9. Indicate whether the following drugs or biological molecules will exhibit good water solubility at pH 7.2-7.4. Circle the correct answer. (16 pts)

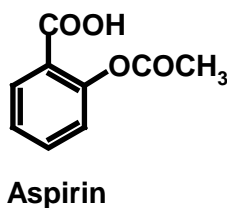
A) Soluble OR Insoluble



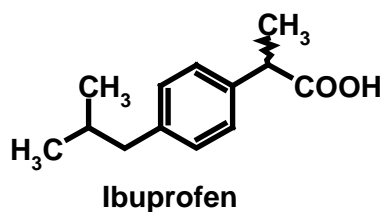
B) Soluble OR Insoluble



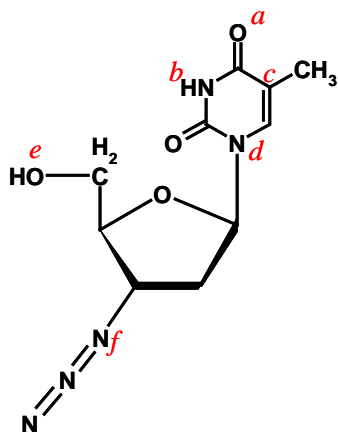
C) Soluble OR Insoluble



D) Soluble OR Insoluble



10. Azidothymidine (below) is an inhibitor of HIV reverse transcriptase enzyme. Write the hybridization state of non-hydrogen atoms marked 'a' (oxygen), 'b' (nitrogen), 'c' (carbon), 'd' (nitrogen), 'e' (oxygen) and 'f' (nitrogen). Also indicate the type of geometry corresponding to the hybridization. (12 pts)



Hybridization state

Type of Geometry

a = \_\_\_\_\_

\_\_\_\_\_

b = \_\_\_\_\_

\_\_\_\_\_

c = \_\_\_\_\_

\_\_\_\_\_

d = \_\_\_\_\_

\_\_\_\_\_

e = \_\_\_\_\_

\_\_\_\_\_

f = \_\_\_\_\_

\_\_\_\_\_