

1. (5) Arrange the following compounds in order of increasing **acidity** (put numbers 1-5 in the boxes; 1 pt each box):

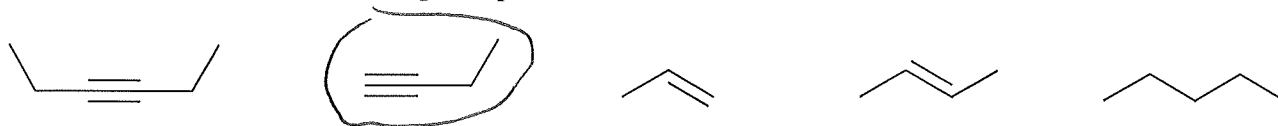
(1) $\text{FCH}_2\text{CO}_2\text{H}$ (2) CH_3OH (3) CH_3NH_2 (4) HBr (5) CH_3I

Weakest 5 < 3 < 2 < 1 < 4 Strongest

2. (2) Which one of the following compounds is the **strongest base**?

NaOH CH_3ONa NaNH_2 NaF NaCl NaBr NaI CH_4

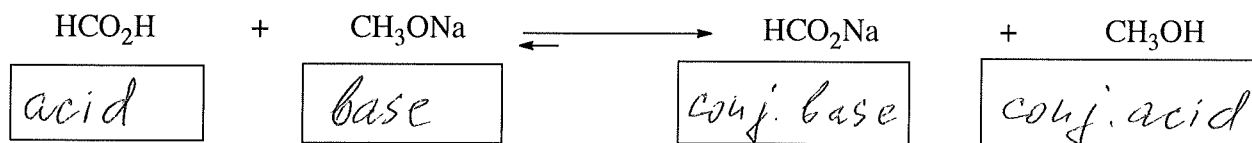
3. (2) Which one of the following compounds has the most **acidic C-H bond**?



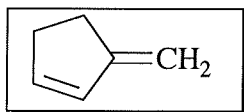
4. (2) Which one of the following compounds is likely to react as **Lewis acid**?

CH_3NH_2 NCl_3 NaAlCl_4 $\text{CH}_3\text{CH}_2\text{OCH}_3$ PCl_3 BCl_3 NaCl NaBF_4

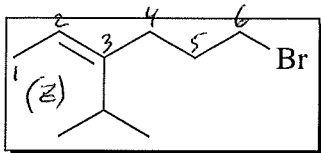
5. (4) Label the **acid**, **conjugate acid**, **base**, and **conjugate base** in the following reaction (1 pt each box):



6. (6) Circle the correct **names** of compounds shown in the boxes (3 pts each):

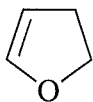


2-vinylcyclopentene 3-vinylcyclopentene (3Z)-vinylcyclopentene
 1,3-cyclopentadiene 3-methylenecyclopentene 2-methylenecyclopentene

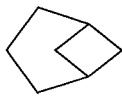


(Z)-6-bromo-3-isopropyl-2-hexene 1-bromo-4-methyl-3-vinylhexane
 (E)-6-bromo-3-isopropyl-2-hexene (Z)-1-bromo-4-isopropyl-4-hexene
 (E)-1-bromo-4-isopropyl-4-hexene (Z)-7-bromo-3-isopropyl-2-heptene

7. (4) Specify the **index of hydrogen deficiency** of the following compounds (put number in the box):



2



2

C_8H_8

5

$\text{C}_2\text{H}_3\text{OC}_2\text{H}_5$

1

Overall Score: 25