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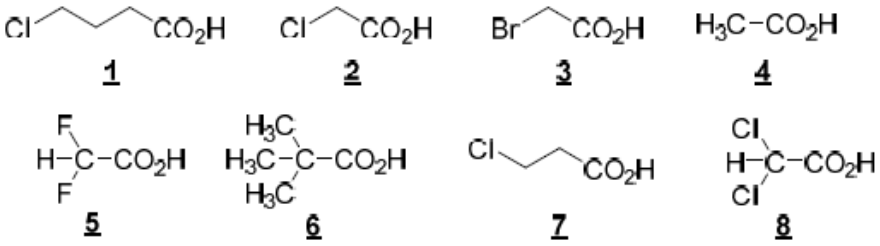
Faculty of Matter Sciences and Computer Science
Department of Chemistry

2nd year Chemistry
Organic Chemistry 2

Test N°1

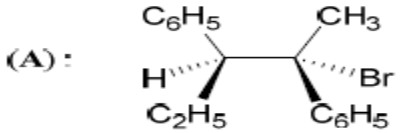
I) 1. Rank these carboxylic acids in order of decreasing pKa. Justify your answer.



2. Arrange the following molecules in order of increasing basicity, providing justification for your choice: NH_3, Cl_3CCH_2-NH_2, CH_3CH_2-NH_2, $(CH_3CH_2)_2NH$.

3. Will aniline be more or less basic than methanamine (CH_3NH_2)? Justify your answer.

II. We consider compound A, whose Cram perspective representation is as follows:



1. Determine the absolute configuration (R, S) of the asymmetric carbons in compound A.
2. Provide the complete systematic IUPAC nomenclature for compound A.
3. Compound A is treated with sodium cyanide (NaCN, Na^+ CN^-) at room temperature, and the reaction rate is V = K[A].

   a) What type of reaction is this?

   b) Detail the mechanism of this reaction, indicating the absolute configuration of the obtained products B and B'.

GOOD LUCK