Series 3

Exercise 1:

Identify the pairs in each set as identical, without relationship or as structural isomers (functional isomer, position isomer, chain isomer or tautomer)

Compound A	Compound B	relationship
H ₃ C C CH ₃	H ₂ OH H ₃ C C C OH	
H ₂ C CH ₃ H ₂ C CH ₂ H ₂ C CH ₂	CH ₃ CH H ₂ C CH	
CH ₃ // H ₂ C CH H ₂ C OH H ₂ C OH	CH ₃ H ₂ C CH CH ₂ CH ₂ CH OH	
H ₃ C C C CH ₃	H ₃ C C C CH ₃	

Exercise 2:

Classify the conformation forms of the n-butane, in order of decreasing energy.

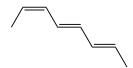
Exercise 3:

Which of the following will not show geometrical isomerism?

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Give the IUPAC name of the compound:



Exercise 4:

- 1. Mark the relationships between the following structures as either "same", "enantiomers", or "diastereomers".
- 2. Give the name and the absolute cofiguration of each of them.

Isomer 1	Isomer 2	name	relationship
Cl H	CI H		
CI H HO NH ₂	CI H H ₂ N OH		
CI H H ₂ N OH	CI H H ₂ N OH		
ОН	HO HILLING		

Exercise 5:

Represent in flying -wedge and Newman the following molecule:

- (2S,3R)-2-bromo-3-chloro butane

Represent in flying –wedge and Fischer the following molecule:

- (2S, 3S)- butane2,3-diol

Exercice 6

1. Show the direction of inductive effect amd mesomeric effect in following compounds

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2. Which of the following compounds have delocalized electrons?

1)
$$H_2C = \overset{\mathsf{H}}{=} \overset{\mathsf{H}}{=}$$

Arrange the following carbocations in decreasing order of their stability:

I	II	II	IV	Ranking
но	+	H ₃ C—C—CH ₂	H ₃ C—CH ₂ CI	
H ₃ C — C — CH ₂	H ₂ C—NO ₂	- H ₂ C—CHO	- H ₂ H C—CH ₃	

- Arrange the following in decreasing order of acidity:
- CI₂CHCOOH a.
- 2) CICH₂COOH
- 3) CH₃COOH
- 4) CI₃CCOOH

b.

- Arrange these compounds in decreasing order of basic strength
- a) CH₃CH₂NH₂ b) NH₃ c) CICH₂CH₃NH₂
- (CH₃CH₂)₂NH

b)

 NH_2

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Exercise 7:

Indicate the type and mechanism of the reactions below:

$$1 \quad CH_{3} - Br + OH^{\Theta} \longrightarrow CH_{3} - OH + Br^{\Theta}$$

$$2 \quad CH_{3} - CH_{2} - CH_{2}OH \longrightarrow CH_{3} - CH_{2} - CH_{2}OH$$

$$3 \quad CH_{2} = CH_{2} + Cl_{2} \longrightarrow ClH_{2}C - CH_{2}Cl$$

$$4 \quad CH_{3} - C - Cl + OH^{\Theta} \longrightarrow CH_{3} - CH_{2} + H_{2}O + Cl^{\Theta}$$

$$5 \quad CH_{3} - CH = CH_{2} + HBr \longrightarrow CH_{3} - CH - CH_{3}$$

Exercise 8:

- 1. Give the plane developed formulas of A, B, C, D and E
- 2. Represent the two enantiomers of E according to the wedge-dash projection

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