

Mohamed Khider University of Biskra
Faculty of Exact Sciences and Natural and Life Sciences

1st year LMD – SNV Biology
Subject: Chemistry 1

Academic year: 2025/2026

Applied exercises series No. 5

(Chemical bonds)

Exercise 1:

Represent the following molecules using the Lewis diagram and indicate the nature of the bonds formed:

CO₂, H₂O₂, N₂O₄, SO₂, H₃PO₃, HClO₄, H₂SO₄, NO₂⁻.

Exercise 2:

1. Give Lewis notation of the following molecules and ions:

H₃O⁺, C₂H₆, SF₆, PCl₃, PCl₅, NCl₃.

2. Which of these compounds do not comply with the Octet rule?

3. Based on the electronic structures of sulphur and phosphorus atoms, explain the formation of SF₆ and PCl₅ molecules.

4. Predict for different phosphorus valences. Both PCl₃ and PCl₅ chlorides exist. Explain why only NCl₃ is known when NCl₅ does not exist.

Exercise 3:

Using the VSEPR method, specify the geometric shape of the following molecules:

SiH₄, NH₃, BeCl₂, and COCl₂.

Mohamed Khider University of Biskra
Faculty of Exact Sciences and Natural and Life Sciences

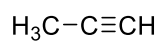
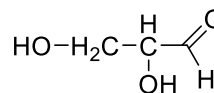
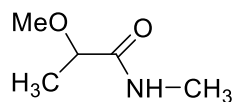
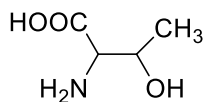
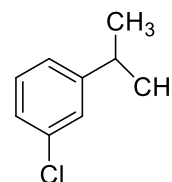
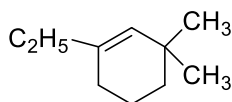
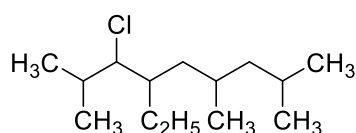
1st year LMD – SNV Biology
Subject: Chemistry 1

Academic year: 2025/2026

Applied exercises series No. 6
(Compounds nomenclature)

Exercise 1:

According to the official nomenclature, name the following compounds:



Exercise 2:

Represent the structures of the following compounds:

- 3-Ethyl-4-Methyl-2-Pentene.
- 5-Propylbenzene-1,3-diol
- Ethyl 5-oxopentanoate
- 3-Chloro-2-aminopropanoic acid
- (E)-5-methylhex-3-enal
- (E)-6-chloro-1,5-dihydroxyhex-3-en-2-one
- 4-(Dimethylamino)butan-2-ol