

MOCK EXAM: "Chemical Bonding and Nomenclature" (Batx 1)

Name:

Course:

1. Examine the next molecules: H_2CO , Cl_3CH , HCN , NH_3 , H_2O determining the following characteristics:

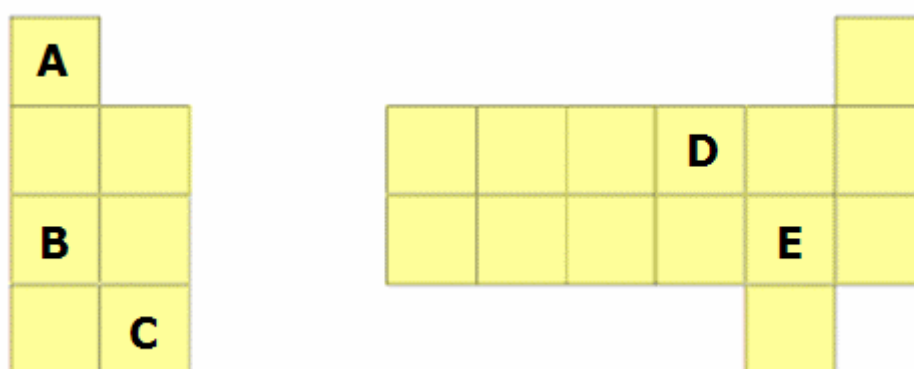
- the Lewis structure of the molecules
- the shape of the molecules
- the polarity of the molecules
- the intermolecular forces

VALUES OF ELECTRONEGATIVITIES: $\text{H}=2.1$; $\text{O}=3.5$; $\text{N}=3.0$; $\text{C}=2.5$; $\text{Cl}=3.0$

VALUE: 3 POINTS

ESTIMATED TIME: 25 MIN

2. Giving the following A, B, C, D, E elements, determine:



- the substance and electrical properties of the compound formed when B and D combine. Draw the Lewis structure and write the formula of the compound
- the substance and electrical properties of the compound formed when A and E combine. Draw the Lewis structure and write the formula of the compound
- the different compound that form when D and E combine with each other. Draw the Lewis structures and write the formulas of all possible compounds
- which ones form elements that are made of diatomic molecules. Draw the Lewis structure and write the formula of the compounds

VALUE: 2 POINTS

ESTIMATED TIME: 15 MIN

3. Fill the blanks.

VALUE: 4 POINTS

ESTIMATED TIME: 25 MIN

Formula	Lewis Structure	Name
		ammonium hydroxide
CaO		
		hydrochloric acid
HNO ₃		
		bromine (III) oxide
		nitrous acid
		silver nitrate
Ca(ClO) ₂		

Formula	Lewis Structure	Name
H_2S		
		bromous acid
$Mg(OH)_2$		
$FeCl_2$		
H_2O		
K_2CO_3		
		tin (II) oxide
		potassium dichromate
KH_2PO_4		

Formula	Lewis Structure	Name
		iron (III) hydroxide
SO ₂		
		sulfuric acid
MgSO ₄		
		sodium oxide
NaNO ₂		
NH ₃		
		phosphoric acid

3. Fill the blanks.

VALUE: 1 POINT

ESTIMATED TIME: 10 MIN

Name	Condensed formula
1,2,3-Propanetriol →	
←	$ \begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_3 \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH} - \text{CH}_3 \\ \\ \text{CH}_3 \end{array} $
←	$ \begin{array}{c} :\ddot{\text{Cl}}: \\ \\ :\ddot{\text{Cl}} - \text{C} - \text{H} \\ \\ :\ddot{\text{Cl}}: \end{array} $
Toluene →	
←	$ \begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{C} - \text{CH}_3 \\ \qquad \qquad \qquad \\ \text{CH}_3 \qquad \qquad \qquad :\text{O}: \end{array} $
←	$ \begin{array}{c} \text{CH}_2 = \text{CH} - \text{CH}_2 - \text{CH} - \text{CH}_3 \\ \\ \text{CH}_3 \end{array} $
Propyl acetate →	

Name	Condensed formula
	$\begin{array}{c} \text{:O:} \\ \parallel \\ \text{CH}_3 - \text{C} - \ddot{\text{O}}\text{H} \end{array}$
2-Butyne	
Methyl propanal	