

SUPPLEMENTARY MATERIAL

INQUIRY-BASED LEARNING IN STEREOCHEMISTRY: STRENGTHENING 3D VISUALIZATION AND CONCEPTUAL UNDERSTANDING

Aleksandra Naumoska*, Jane Bogdanov, Slobotka Aleksovska

*Institute of Chemistry, Faculty of Natural Sciences and Mathematics,
Ss. Cyril and Methodius University, Arhimedova 5, 1000 Skopje, North Macedonia*

aleksandra.naumoska@pmf.ukim.mk

ANONYMOUS TEST

The test is anonymous, used solely for scientific purposes, and is not graded. Please answer the questions seriously and responsibly. Thank you for your cooperation.

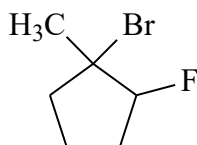
Code: _____

Gender: _____

School: _____

Date: _____

1. The structure of the following organic compound is given:



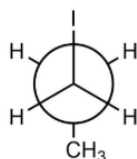
- Draw one of its skeletal isomers.

Its molecular formula is: _____

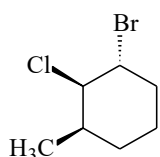
2. Draw the geometric isomers of 2-iodobut-2-ene,

3. Draw the skeletal formula of an aldehyde with the molecular formula C₅H₁₀O that is optically active. Mark the chiral center with a *.

4. The most stable conformation of 1-iodopropane is shown below. Draw the least stable conformation of this compound.



5. How many chiral centers does the following compound have? Mark them with *.



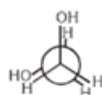
6. Which of the following compounds is not a skeletal isomer of the compound with the molecular formula $C_4H_{10}O$?

- a) $CH_3CH_2OCH_2CH_3$ b) $CH_3OCH_2CH_2CH_3$
 c) $CH_3OCH(CH_3)_2$ d) $(CH_3)_3COCH_3$

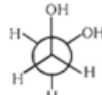
7. The four conformations of ethylene glycol are given below. Which one is the most stable?



a



b

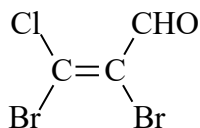


c

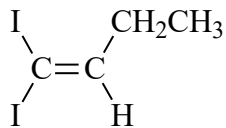


d

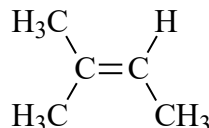
8. Which of the following compounds do not exhibit geometric isomerism?



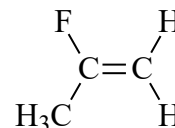
a



b

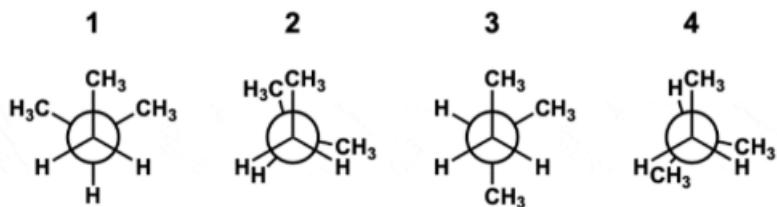


c

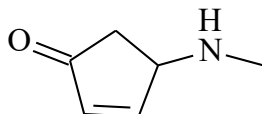


d

9. Rank the following conformations of the 2-methylbutane according to their stability, starting from the least stable to the most stable.



10. The structure of the following organic compound is given:



Its molecular formula is: _____

Draw one skeletal isomer.