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VCE Chemistry ½

Introduction to Organic Chemistry [2.5]

Test

25 Marks. 1 Minute Reading. 19 Minutes Writing

Results:

Quiz Questions	_____ / 20
Extension	_____ / 5

Section A: Quiz Questions (20 Marks)

Question 1 (4 marks)

Tick whether the following statements are **true** or **false**.

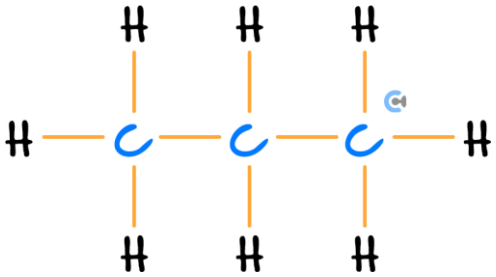
Statement	True	False
a. Organic compounds mainly involve covalent bonds as their intramolecular bonding type.		
b. Carbon can form a maximum of 5 covalent bonds.		
c. The "hept" prefix refers to the number 7 and can be used when naming organic compounds.		
d. A semi-structural formula is the same as a structural formula, with the only difference being that instead of drawing out each bond, it is compressed into one line.		
e. When naming organic compounds, we always start from left to right when choosing the longest carbon chain.		
f. 2-methylpentane is the same as 4-methylpentane.		
g. When naming alkyl side chains on a hydrocarbon, they are placed in alphabetical order.		
h. Cyclic molecules such as cyclopropane have more hydrogens than their linear equivalents, such as propane.		

Space for Personal Notes

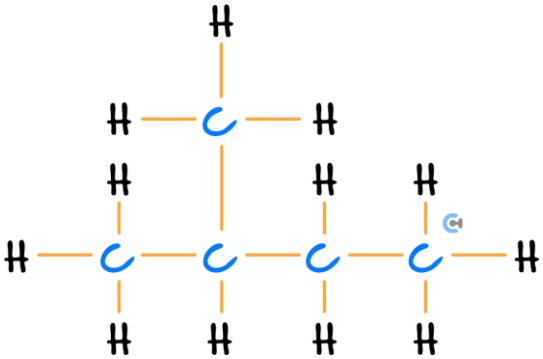
Question 2 (5 marks)

Write the semi-structural formulas, and provide the IUPAC names, for the following organic compounds:

a. (1 mark)

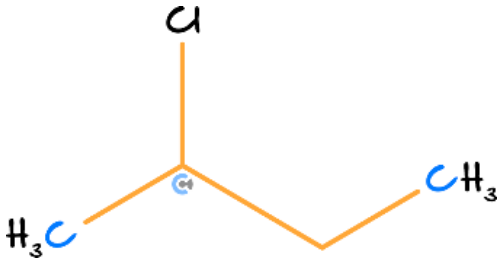


b. (1 mark)

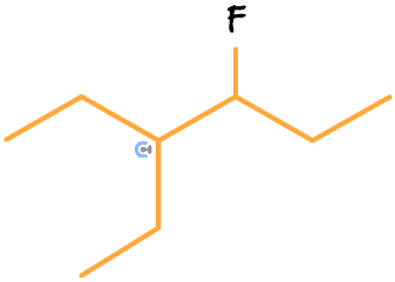


c. (1 mark)

d. (1 mark)



e. (1 mark)



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Question 3 (4 marks)

Draw the structural formula for the following compounds:

a. 2-methylbutane. (1 mark)

b. 1, 2-difluoropentane. (1 mark)

c. 2-bromo-1-fluorohexane. (1 mark)

d. 2-ethyl-3-methyldecane. (1 mark)

Question 4 (5 marks)

Harry is exploring a certain family of molecules for his project at school. These molecules fall under the category of cyclic organic compounds, also known as aromatic organic compounds.

a. What is a cyclic organic compound? (1 mark)

_____

_____

b. Would you expect cyclic organic compounds to have more or less hydrogen than their linear counterparts? Refer to relevant general formulas. (1 mark)

_____

_____

_____

c. In particular, Harry is investigating cyclopentane. Draw the structural formula of this compound. (1 mark)

d. Draw the semi-structural formula of this compound. (1 mark)

e. Draw the skeletal formula of this compound. (1 mark)

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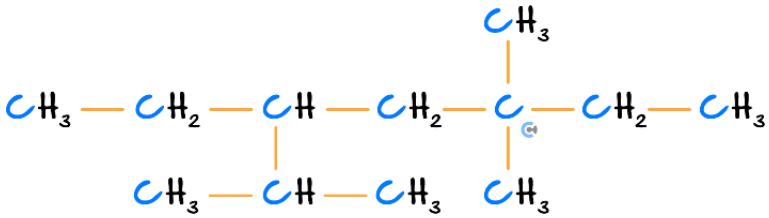
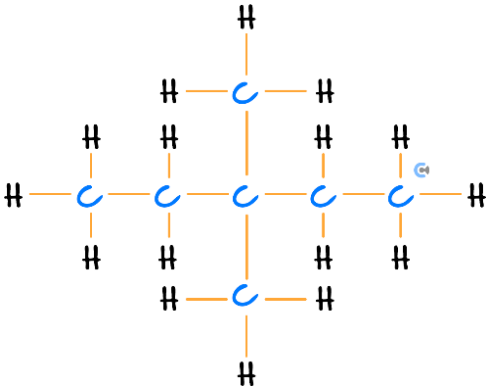
Question 5 (2 marks)

Name the two molecules shown below according to IUPAC standards:

a. (1 mark)



b. (1 mark)



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Section B: Extension (5 Marks)

Question 6 (5 marks)

In a late-night study session, Jin is having trouble remembering the rules for naming haloalkanes. In order to help him revise, Jin takes a number of haloalkanes and attempts to name them.

a. Jin observed a haloalkane that has two different halogens in it - bromine and chlorine. He gives bromine higher priority, as it comes first alphabetically. Is this method correct, and thus would Jin lose a mark for his naming? (1 mark)

_____

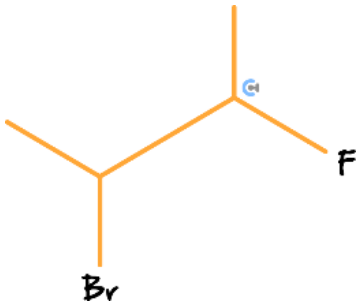
_____

b. When naming haloalkane with two halogens in it, which one of the two halogens is typically written first in the name? (1 mark)

_____

_____

c. What is the IUPAC name of the following molecule? (1 mark)



_____

d. What would the semi-structural equation for this molecule be? (1 mark)

_____

e. Given that both halogen atoms were bromine, how would this molecule now be named? (1 mark)

_____

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