

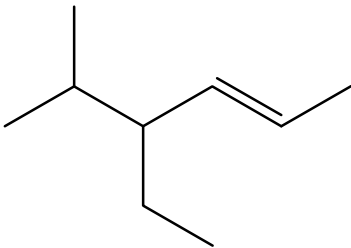
Diploma of Health Sciences
Diploma of Science
SLE155 Chemistry for the Professional Sciences

Q9 The chemistry of carbon

[3 + 1 + 6 + 4 + 6 = 20 marks]

- a) Write a condensed structural formula showing every atom but no bonds, and a molecular formula for the following alkene.
Hint: You do not need to name it!

[2 + 1 = 3 marks]

	Condensed formula
	Molecular formula

- b) Arrange the following alkanes in order of **increasing** boiling point.
2-methylbutane, 2,2-dimethylpropane and pentane

[1 mark]

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- c) i) Write structures for the following compounds:

[2 + 2 = 4 marks]

1-ethyl-3-methylcyclohexane	2-methylhex-3-yne

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Q9 (continued) The chemistry of carbon

[3 + 1 + 6 + 4 + 6 = 20 marks]

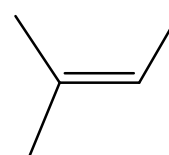
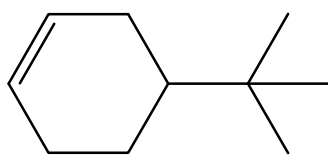
- c) ii) Write the structure for the following compound.

[2 marks]

1-bromo-2-chloro-4-ethylbenzene

- d) Write the names for each of the following compounds.

[2 + 2 = 4 marks]



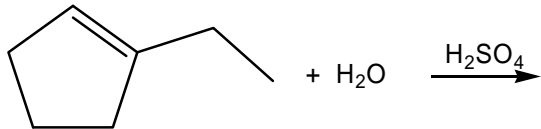
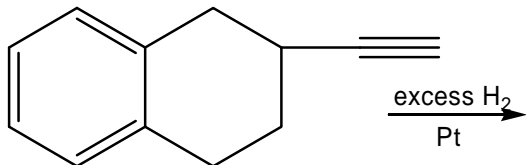
Q9 (continued) The chemistry of carbon

[3 + 1 + 6 + 4 + 6 = 20 marks]

- e) i) Complete the equations by predicting the major organic products formed in the following reactions.

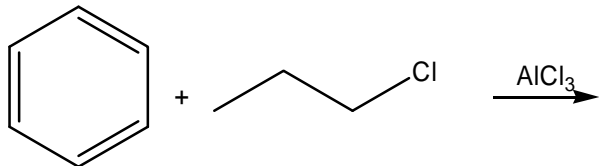
Hint: You do not need to name the products.

[2 + 2 = 4 marks]

 <p>Reaction of ethylcyclopentene with water and sulfuric acid:</p> <chem>CC1=CCCC1.O>OS(=O)(=O)O></chem>	
 <p>Reaction of 1-ethynyl-1,2,3,4,5,6-hexahydronaphthalene with excess hydrogen over platinum:</p> <chem>C#CC1=CC=CC2=CCCCC12>[Pt][H2]></chem>	

- e) ii) Complete the equations below by predicting and naming the major organic product formed in the following reactions. Hint: you have to draw and name the major organic product.

[2 marks]

 <p>Reaction of benzene with 1-chloropropane and aluminum chloride:</p> <chem>CC1=CC=CC=C1.CCCCl>Cl[Al](Cl)Cl></chem>	
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