

Chapter test

Chapter 6 Classes of organic compounds

Name: _____

Class: _____

Time permitted: 50 minutes

	Section	Number of questions	Marks available	Marks achieved
A	Multiple choice	15	15	
B	Short answer	5	15	
	Total	20	30	

Grade: _____

Scale:

A+	29–30	A	26–28	B	23–25	C	19–22	D	15–18	E	9–14	UG	0–8
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Comments:

Section A Multiple choice (15 marks)

Section A consists of 15 questions, each worth one mark. Each question has only one correct answer. Circle the correct answer. Attempt all questions. Marks will not be deducted for incorrect answers. You are advised to spend no more than 15 minutes on this section.

- 1 What is the smallest member of the alkyne family?
 - A Methyne
 - B Ethyne
 - C Propyne
 - D Methelyne
- 2 Which of the following are possible combustion products for hydrocarbons?
 - A CO₂ and H₂O
 - B CO, CO₂ and H₂O
 - C CO and H₂O
 - D CO, CO₂, H₂ and H₂O
- 3 Which structure did Kekulé work out?
 - A Cyclohexene
 - B Cyclohexane
 - C Benzene
 - D Toluene
- 4 Saturated hydrocarbons:
 - A are soaked with water.
 - B have no multiple bonds.
 - C contain no side chains.
 - D do not belong to a functional group.
- 5 Name the following compound.

$$(\text{CH}_3)_3\text{C}(\text{CH}_2)_2\text{CH}(\text{CH}_3)_2$$

 - A 1, 1, 1, 5, 5-pentamethylbutane
 - B 1, 1, 5, 5-tetramethylpentane
 - C 2, 2, 5-trimethylhexane
 - D 2, 5, 5-trimethylhexane
- 6 Hydrocarbons that contain a benzene ring are:
 - A cyclic.
 - B pharmaceuticals.
 - C aromatic.
 - D aliphatic.

- 7 A carbonyl group is a functional group of:
- A a double-bonded oxygen attached to a carbon atom.
 - B an OH group attached to a single carbon.
 - C an O and an H atom attached separately to a single carbon atom.
 - D an oxygen atom shared between two carbon atoms.
- 8 Which compound exhibits hydrogen bonding?
- A $\text{CH}_3\text{CH}_2\text{OH}$
 - B $\text{CH}_3\text{CH}_2\text{CH}_3$
 - C $\text{CH}_2\text{COOCH}_3$
 - D CH_3CHO
- 9 When does oxidation of an alcohol occur?
- A When using only $\text{Cr}_2\text{O}_7^{2-}$
 - B When using only MnO_4^{2-}
 - C When using both $\text{Cr}_2\text{O}_7^{2-}$ or MnO_4^{2-}
 - D When using either $\text{Cr}_2\text{O}_7^{2-}$ or MnO_4^{2-}
- 10 Oxidation of ethanol produces:
- A ethanoic acid.
 - B ethanal.
 - C ethanal then ethanoic acid.
 - D ethanoate.
- 11 What is the major product of the reaction between propene and HCl?
- A 2-chloropropane
 - B 1-chloropropane
 - C Chloropropane
 - D Chloropropene
- 12 Which of the following is not an aromatic compound?
- A TNT
 - B Toluene
 - C Cyclohexane
 - D Phenol
- 13 Which of the following straight chain hydrocarbons has the highest melting point?
- A Decane
 - B Octane
 - C Pentane
 - D Nonane

- 14 What is methane's shape?
- A Square planar
 - B Trigonal planar
 - C Octahedral
 - D Tetrahedral
- 15 What is the major intramolecular bond in hydrocarbons?
- A Dispersion forces
 - B Ionic
 - C Covalent
 - D Polar

Section B Short answer (15 marks)

Section B consists of five questions. Write your answers in the spaces provided. You are advised to spend 20 minutes on this section.

- 1 The reaction between benzene, cyclohexane, 1-hexene and bromine water will result in one of them instantaneously decolourising the bromine water. Which one will this be, and why? What does this tell us about the other two compounds?

(3 marks)

- 2 Draw the structures of the following compounds:

a methylpropane

b cyclohexene

c but-2-ene

d 3-ethyl,2-methylhept-1-ene

e 3-chlorooct-1-ene

f 1,1-dichloropentane

(1 + 1 + 1 + 1 + 1 + 1 = 6 marks)

- 3 Describe how you would make the ester methylpropane. Describe your starting reactants and the catalyst you would use.

(1 mark)

- 4 How many isomers are there of pentane? Draw them.

(3 marks)

- 5 Show a reaction that produces ethanoic acid from an alcohol.

(2 marks)