

Name of the Student: _____

Max. Marks : 18 Marks

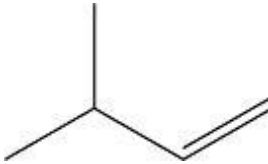
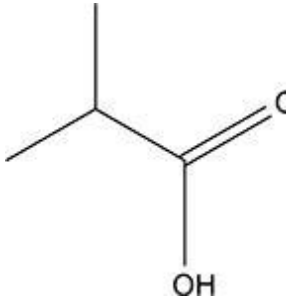
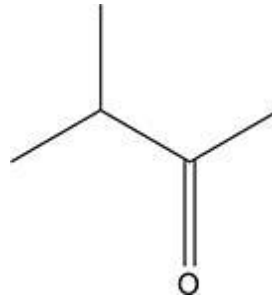
Time : 18 Minutes

Q1.

This question is about the analysis of organic compounds.

- (a) The table below shows the results of chemical tests on three organic compounds.

Complete the empty boxes in the table.

Chemical test			
Add bromine water	orange to colourless		no visible change
	no visible change	bubbles of gas	no visible change
Warm with Fehling's solution	no visible change	no visible change	

(3)

- (b) 0.500 g of a hydrocarbon is analysed.
 The hydrocarbon contains 0.450 g of carbon.

Calculate the empirical formula of this hydrocarbon.

Empirical formula _____

(3)

(Total 6 marks)

Q2.

This question is about CFCl_3

CFCl_3 used to be the propellant in most aerosol cans.

- (a) Use IUPAC rules to name CFCl_3

(1)

- (b) Give an equation for each of the **two** propagation steps in the conversion of CHFCl_2 into CFCl_3

Equation 1

Equation 2

(2)

- (c) In the presence of ultraviolet radiation, CFCl_3 breaks down in the upper atmosphere to form chlorine free radicals.

Give an equation for this reaction.

(1)

- (d) Chlorine free radicals catalyse the decomposition of ozone.

Give **two** equations to show how chlorine free radicals decompose ozone.

Equation 1

Equation 2

(2)

- (e) The production and use of CFCs have been banned in many countries because they decrease the amount of ozone in the upper atmosphere.

State why ozone in the upper atmosphere is important for life on Earth.

(1)

(Total 7 marks)

Q3.

This question is about simple test-tube reactions to identify organic liquids.

- (a) Silver nitrate solution can be used to distinguish between propanoyl chloride and 1-chloropropane.

Give the observations you would expect when a few drops of silver nitrate solution are added to separate samples of propanoyl chloride and 1-chloropropane.

Observation with propanoyl chloride _____

Observation with 1-chloropropane _____

(2)

- (b) Three unlabelled bottles are known to contain either propan-1-ol, propanal, or propanone.

A sample of each liquid is warmed with a few drops of Fehling's solution.

Identify the liquid that reacts with Fehling's solution and give the expected observation.

Suggest a further simple test-tube reaction that can be used to distinguish between the remaining two liquids.

Give the expected observation with the liquid that reacts.

Liquid that reacts with Fehling's solution _____

Observation _____

Further test _____

Observation _____

(3)

(Total 5 marks)