PANEL PENGGUBAL SOALAN KERTAS PEPERIKSAAN PERTENGAHAN TAHUN TINGKATAN 5 TAHUN 2009 DAERAH MUAR.

PENGGUBAL SOALAN : EN MOHD HAFIEZ BIN TASILIM (013-797 6381)

SEKOLAH : SEK. MEN FELCRA BUKIT KEPONG.

TARIKH HANTAR : 26 MAC 2009

TAJUK SOALAN : CARBON COMPOUNDS

PENGETAHUAN = 1

KEFAHMAN = 2

APLIKASI = 2

ANALISIS = 2

SINTESIS = 3

JUMLAH = 10

NAMA:..... Tingkatan :.....

SULIT
4541/2
Chemistry
Paper 2
Tarikh
2009
2 ½ jam

Logo sekolah

BAHAGIAN SEKOLAH
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERTENGAHAN TAHUN

FORM 5 CHEMISTRY
Paper 2

Dua jam tiga puluh minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

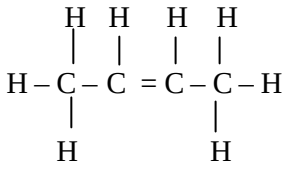
1. *Tuliskan nama dan tingkatan pada ruang yang disediakan.*
2. *Jawab **semua** soalan daripada **Bahagian A**. Tuliskan jawapan anda dalam ruang yang disediakan*
3. *Jawab **satu** soalan daripada **Bahagian B** dan **satu** soalan daripada **Bahagian C**.Jawapan kepada **bahagian B** dan **Bahagian C** hendaklah ditulis pada kertas tulis.*
4. *Anda diminta menjawab dengan lebih terperinci untuk Bahagian B dan Bahagian C. Jawapan mestilah jelas dan logik. Persamaan, gambar rajah, jadual, graf dan cara lain yang sesuai untuk menjelaskan jawapan anda boleh digunakan.*
5. *Anda hendaklah menyerahkan kertas tulis dan kertas tambahan, jika digunakan bersama-sama dengan kertas soalan.*
6. *Penggunaan kalkulator saintifik yang tidak boleh diprogramkan adalah dibenarkan.*

Bahagian	Soalan	Markah penuh	Markah diperoleh
A	1	10	
	2	10	
	3	10	
	4	10	
	5	10	
	6	10	
B	7	20	
	8	20	
C	9	20	
	10	20	
		Jumlah	

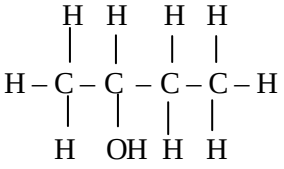
Kertas soalan ini mengandungi ___ halaman bercetak

[lihat sebelah
SULIT

1 The structure below show the structural formulae of compounds J and K.



Compound M



Compound D

(a) State the homolougous siries for compounds M and D.

Compound M .....

Compound D .....

[1mark]

(b) Name compound

(i) Compound M

.....

[1mark]

(ii) Compound D

.....

[1mark]

(c) Draw the **structural formulae** for another two isomers **of compound M**.

[2 mark]

(d) An Isomer of **compound D** is added into a test tube containing **acidified potassium manganate (VII) solution** and heated for a few minutes.

(i) State **one** observation for this experiment.

.....

[1 mark]

(ii) Write an equation for this reaction .

.

.....

[1 mark]

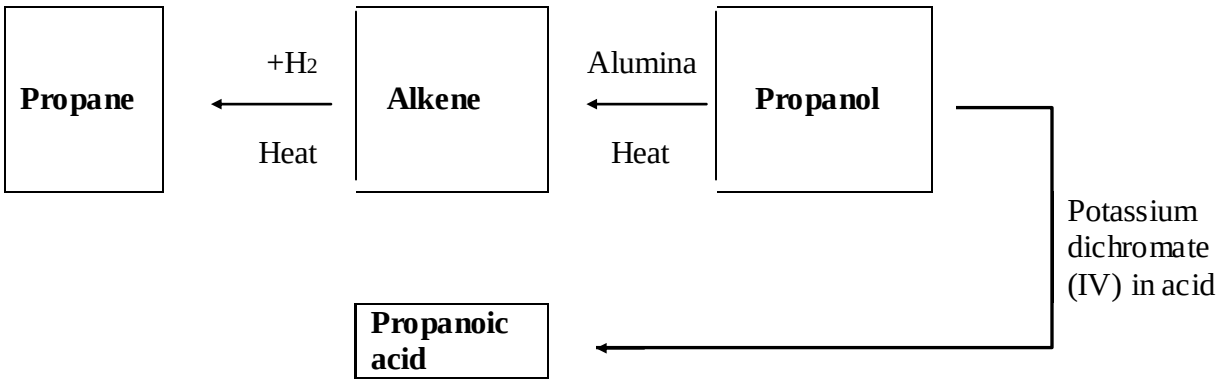
(e) Both the compounds M and D are combustible in air.
Explain the difference in the quantity of soot produced by the two compounds during combustion. (Relative atomic mass: H; 1, C; 12, O; 16)

.....

[2 mark]

Section B (10 marks)
Answer any **one** question from this section.
The suggested time to answer section B is **30** minutes.

1. The diagram shows the changes of a carbon compound involving a series of reactions.



(a) Draw the structural formulae of **two** propanol isomers. Name both isomers.

[2 marks]

(b) The information below is given regarding an alkene Y

Carbon	85.7 %
Hydrogen	14.3 %
Relative molecular mass	42
Relative atmic mass	H=1, C=12

Based on the information of the alkene Y,

(i) Determine its **molecular formula**,

(ii) Draw its **structural formula**.

(iii) **Name** the alkene.

(iv) Write the **general formula** for its homologous series.

[8 marks]

Section C (10 marks)

Answer any **one** question from this section.

The suggested time to answer section C is **30** minutes.

1 (a) You are given four compounds

C_6H_{12}	C_6H_{14}	CH_3COOH	CH_3CH_2OH
K	L	M	N

(i) Give the name according to the IUPAC to each compound and identify homologous series for each compound. [4 *marks*]

(b) You are given the four compounds and some test tubes. All the four compounds are colourless liquid. You are also given three reagents:

(i) Bromine water.

(ii) Acidified potassium dichromate (VI) solution.

(iii) Aquoues sodium carbonate.

Using the **reagents only**, explain how you can verify the four compounds.

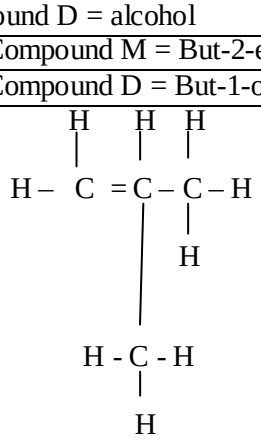
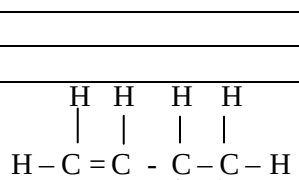
Your explaination **should include** the following:

- Simple procedure start from test tube filled with bromine.
- Diagram of the apparatus ued to conduct the tests for each reagent given.
- A table showing the results of the tests of the reagents on each compound.

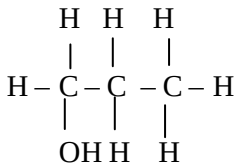
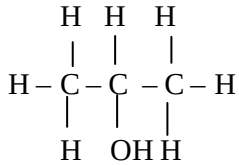
[6 *marks*]

MARKING SCHEME
CHEMISTRY PAPER 2

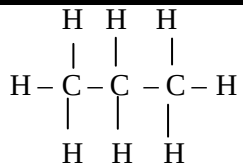
Section A

1.	(a)		Compound M = alkene Compound D = alcohol	1/2 1/2	1
	(b)	(i)	Compound M = But-2-ene	1	1
		(ii)	Compound D = But-1-ol	1	1
	(c)		 	1 1	2
	(d)	(i)	Purple to colourless		1
		(ii)	$C_4H_9OH + 2[O] \rightarrow C_3H_7COOH + H_2O$		1
	(e)		M is more sooty than D . Percentage of carbon atoms per molecule of M is more than D	1 1	2
			Total	10	10

Section B

1	(a)	 Propane -1-ol	 Propane -2 -ol	1 1	2
	(b) (i)			1 1	2

Element	Carbon	Hydrogen
Mass in 100g	85.7	14.3
Number of moles	85.7/12	4.3/1
Simplest mole ratio	1	2
$(CH_2)n=42$ $14n = 42$ $n = 3$	n = 3 C = 3	n = 3 H = 3(2) = 6
Molecular formula	C_3H_6	

		(ii)		2	2
		(iii)	Propene	2	2
		(iv)	C_nH_{2n}	2	2
			Total	10	10

Section C

1 (a) (i)

Compound	Name	Homologous Series
K	Hexene	Alkene
L	Hexane	Alkane
M	Ethanoic acid	Carboxylic acid
N	Ethanol	Alcohol

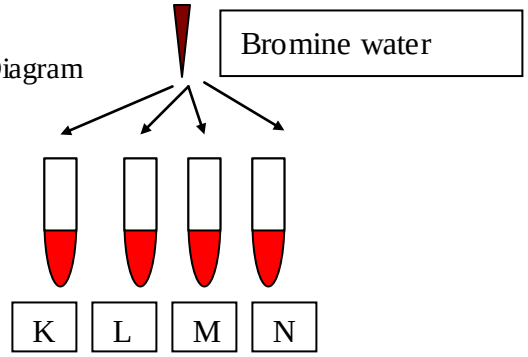
1
1
1
1

4

(b)

6

Diagram



1

Procedure

- Four test tube are filled with 2 cm/3 of compound K,L,M,N. 1
- A few drops of bromine water is dropped into each test tube. Each test tube is shaken and any changes is observed.
- The experiment is repeated with acidified potassium dichromate (VI) solution and aqueous sodium carbonate.
- Results

compounds	**Bromine water**	**acidified potassium dichromate (VI) solution**	**aqueous sodium carbonate.**
K	*Decolourisation of brown colour of bromin.*	*No reaction*	*No reaction*
L	*No reaction*	*No reaction*	*No reaction*
M	*No reaction*	*No reaction*	*Effervescence. Carbon dioxide gas turn limewater to milky.*
N	*No reaction*	*Vinegar smell.*	*No reaction*

1
1
1
1

-

			Total	10	10