Fuels & Alkanes

Mark Scheme

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Organic Chemistry
Sub-Topic	Fuels & Alkanes
Paper Type	Alternative to Practical
Booklet	Mark Scheme

Time Allowed: **38 minutes**

Score: **/31**

Percentage: **/100**

Question	Answer	Marks	Guidance
1(a)	straight line, drawn with a ruler, missing the point at n = 3;	**1**	
1(b)	from: • measuring / recording error / anomalous result; • equal amounts not burnt; • heat losses; • incomplete combustion;	**2**	**R:** human error **I:** impurities
1(c)	reading from the graph / expected answer 4100 ± 50; indication of extrapolation from the graph;	**1** **1**	

1(d)	for butane n = 4, ethane n = 2;
	value for ethane = 1550;
	butane = 2800 / about twice value or not exactly twice value;
		1
		1
		1	

2 same / measured volume of water (1)

initial temperature (1)

mass of nut(s) (1)

ignite / burn (1)
not: heat

for suitable time < 10 minutes / to completion (1)

final temperature of water (1)

repeat with other nut(s) (1)

compare / conclusion (1) max [7]

3 **(a** heat indicated in wrong position (1)
no water in the trough (and collection tube) (1) [2]

(b) bromine/iodine (water) (1) turns colourless (1) not clear [2]

[Total: 4]

4 same volume/mass of fuel/idea of fair test (1)
initial temperature of water (1)
burn/ignite fuel (1)
record temperature of water (1)
repeat (1)
compare e.g. greatest temperature rise in specified time shows better fuel (1) [6]

5 **(a** 2 arrows in correct positions (1) each **[2]**

(b) bromine (water) (1)

goes colourless (1) **[2]**

(c) suck-back problem **[2]**