HYDROCARBONS Mark scheme

Question 1

Question	Answer	Extra information Marks	
(a)(i)	straight line through the 'points' and extended to C ₈ H ₁₈	do not accept multiple lines	1
(a)(ii)	5500	range 5400 to 5600 1	
		accept ecf from their graph	
(a)(iii)	expected ranges for working are: (5400 to 5600) – (2800 to 2900) = (2500 to 2800)	accept correct numerical answer as evidence of working	1
	or		
	their value from (a)(ii) – a value from 2800 to 2900		
	or		
	(5400 to 5600) / their (a)(ii) divided by 2		
	or		
	a value from 2800 to 2900 × 2		
	no / not quite / almost / yes	this mark is only awarded on evidence from their correct working	1
(b)(i)	incorrect / no or partially correct	ignore references to hydrogen	1
	bio ethanol produces least energy or	mark independently	1

	bio ethanol produces 29 kJ		
(b)(ii)	any two from:	ignore incorrect / correct	
	 hydrogen produces only H₂O 	accept hydrogen does not produce harmful gases / CO ₂ / SO ₂	2
	• coal produces SO₂	allow coal causes acid rain / respiratory problems	
	coal produces smoke	allow coal causes global dimming	
	 both renewable and nonrenewable fuels produce CO₂ 	accept bio ethanol and natural gas / coal produce CO ₂ / global warming	
	• (both) the non- renewable fuels produce CO ₂	accept coal and natural gas produce CO ₂ / global warming	
	(both) renewable fuels produce no smoke	accept hydrogen and bio ethanol do not produce smoke / global dimming	
	 (both) renewable fuels produce no SO₂ 	accept hydrogen and bio ethanol do not produce SO ₂ /acid rain	
Total marks			8

Question 2

Questions	Answers	Extra information	Marks
(i)	contains a carbon-carbon double		1
	bond		
(ii)	orange		1
(iii)	decolourised		1
Total marks			3