

THE ATMOSPHERE 6

MARK SCHEME

Q1.

Question	Answer	Extra information	Marks
(a)	oxygen and nitrogen 20 - 21% and 78 - 80%	accept any two correct responses in the correct space for one mark	1 1
(b)(i)	acid rain	accept toxic gas or consequence of acid rain	1
(ii)	idea of the removal or use of sulfur dioxide gas (from the waste gases)	do not accept remove sulfur from coal	1
(iii)	oxygen water	accept O ₂ accept H ₂ O accept hydrogen oxide / steam	1 1
(c)	any two from: <ul style="list-style-type: none"> • it's a 'greenhouse gas' or increase greenhouse effect • causes global warming or increase in the Earth's temperature • sea-levels rise or flooding • climate change • (polar) ice-caps melt • extension of deserts 	accept action of a 'greenhouse gas' mention of ozone / acid rain / global dimming = max 1 mark	2
(d)	idea trap / store / lock the carbon dioxide in the oil reservoir or under the sea bed	do not accept 'into the oil' / 'under the sea'	1 1
Total marks			10

Q2.

Question	Answer	Extra information	Marks
(a)	curve of best fit drawn through or close to all of the points		1
(b)(i)	313		1
(ii)	1989 +/- 1		1
(c)	concentration / amount of carbon dioxide has increased recently the rate of increase is increasing		1
Total marks			5

Q3.

Question	Answer	Extra information	Marks
(i)	any two from: <ul style="list-style-type: none"> • non-biodegradable • landfill sites are filling up / limited • waste of a resource / could be recycled / reused 	ignore gases released / burning / habitats accept remains a long time accept land / space used up accept crude oil is running out	2
(ii)	any two from: <ul style="list-style-type: none"> • renewable / sustainable • less fuel burned • biodegradable • natural resource • plants absorb carbon dioxide 	ignore recycling ignore crude oil is running out accept less energy / heat needed	2
Total marks			4

Q4.

Question	Answer	Extra information	Marks
(a)(i)	bar drawn between 84 and 86		1
(ii)	sulfur dioxide linked to acid rain carbon particles linked to global dimming		1
(b)(i)	any one from: plants / trees absorb (carbon dioxide) coal 'locks up' (carbon dioxide)		1
(ii)	it increases the amount (of CO ₂)		1

	because carbon in coal (forms carbon dioxide)	accept because carbon / coal burns / reacts with oxygen (to produce CO ₂)	1
Total marks			6

Q5.

Question	Answer	Extra information	Marks
(a)(i)	burning biodiesel releases CO ₂ CO ₂ is absorbed / used by the crops/plants (used to produce the biodiesel)	use of carbon throughout = max 1 ignore burning trees allow CO ₂ absorbed / used by trees	1 1
(ii)	increases CO ₂ / greenhouse effect OR less CO ₂ is absorbed (from atmosphere) because burning trees releases CO ₂ OR because there is less photosynthesis	allow use of carbon for carbon dioxide throughout accept causes global warming allow causes climate change ignore other correct effects accept fewer trees to absorb CO ₂ or crops / plants do not absorb as much CO ₂ as trees ignore habitats / biodiversity if no other mark awarded global dimming because of smoke / particles gains 1 mark	1 1
(b)	any one from: crude oil / fossil fuel is running out / non-renewable demand for fuels / energy is increasing new legislation / protocols	ignore carbon neutral / cost / less harmful / environmentally friendly allow biodiesel is renewable / sustainable ignore demand for biodiesel is increasing	1
(c)(i)	uses crops / land that could be used for food	allow destroys habitats or reduces biodiversity ignore cost	1
(ii)	increases the cost of food / land	ignore cost of machinery / process ignore cheaper to produce biodiesel	1
Total marks			7

Q6.

Question	Answer	Extra information	Marks
(i)	is not biodegradable	ignore gases released / burning / habitats accept remains a long time accept land / space used up accept crude oil is running out	1
(ii)	not enough landfill sites / space	accept landfill sites are filling up or plastics remain for years or plastics not broken down ignore cost / waste of resources / not biodegradable / wildlife	1
(iii)	recycle / burn	accept reduce the amount of packaging used ignore reused	1
Total marks			3

Q7.

Question	Answer	Extra information	Marks
	carbon dioxide / CO ₂ (causes) global warming / climate change / greenhouse gas or (cement) particles / smoke (1) (causes) asthma / dust / (global) dimming (1) or sulfur dioxide / SO ₂ / nitrogen oxides / NO _x (1) (causes) acid rain (1)	for a correct emission explanation must be correct for named emission ignore ozone layer accept breathing problems do not accept nitrogen or water vapour for emissions do not accept no named emission	1 1
Total marks			2

Q8.

Question	Answer	Extra information	Marks
(a)(i)	sulfur dioxide / SO ₂		1
(ii)	global dimming		1
(iii)	carbon dioxide / CO ₂	ignore ozone	1

	increases the levels (of carbon dioxide)	accept it is a greenhouse gas or causes global warming / greenhouse effect	1
(b)	gas / oil bar correct length coal bar correct length		1 1
Total marks			6

Q9.

Question	Answer	Extra information	Marks
	any three from: <ul style="list-style-type: none"> • used by plants • used for photosynthesis • dissolves in oceans / seas • used to form the shells / skeletons of marine organisms • locked up as limestone / carbonates • locked up as fossil fuels / oil / coal 	accept plants take in carbon dioxide and give out oxygen for the first two bullet points i.e. 2 marks allow absorbs into oceans / seas	3
Total marks			3