



GCSE

Additional Science A

General Certificate of Secondary Education A215/01

Unit 1: Modules B4, C4, P4

Mark Scheme for June 2010

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Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

Question	Expected Answers		Marks	Additional Guidance
1 a	<p>part</p> <p>function</p>	[2]	<p>correct pattern for 2 marks one or two mistakes for 1 mark</p> <p>a mistake is:</p> <ul style="list-style-type: none"> • a missing line • an extra line • a line in the wrong place 	
b	<p>EITHER</p> <p>any two from:</p> <p>receptors send signal to brain; receptors in skin or brain; brain sends signal to effectors; effectors are sweat glands; which produce sweat; sweat evaporates;</p> <p>OR</p> <p>any two from:</p> <p>effectors dilate blood vessels in skin; allowing blood to surface (of skin); so heat (radiation) can escape;</p>	[2]	<p>ignore references to moving away from heat source</p> <p>accept processor for brain</p> <p>accept arteries/capillaries/veins for blood vessels</p> <p>not blood vessels move to surface</p>	
	Total		[4]	

Question		Expected Answers	Marks	Additional Guidance
2	a	diffusion (1)	[1]	
	b	more oxygen than; less oxygen than; carbon dioxide;	[2]	correct pattern of rings for 2 marks one mistake for 1 mark a mistake is: <ul style="list-style-type: none"> • a ring in the wrong place • an extra ring • a missing ring
	c	Molecules ... <input type="checkbox"/> Chemical reactions ... <input type="checkbox"/> Enzymes ... <input checked="" type="checkbox"/> (1) Cells change shape ... <input type="checkbox"/>	[1]	correct pattern of ticks for 1 mark
Total			[4]	

3	a	becomes more concentrated (1)	[1]	
	b	sugar – all is reabsorbed (1) urea – none is reabsorbed (1) salt – some is reabsorbed (1)	[3]	one mark for each chemical correctly matched accept almost all/most/a lot of sugar accept some urea is reabsorbed accept as much as is needed for salt accept sugar and salt reabsorbed for 1 mark
	c	greater, more (1) smaller, less (1)	[2]	one mark for each correct sentence
Total			[6]	

Question		Expected Answers	Marks	Additional Guidance
4	a	i (group) 1 (1)	[1]	
		ii	[2]	all three correct for 2 marks any two correct for 1 mark
		iii Brenda (1)	[1]	accept any unambiguous correct response
	b	one (1)	[1]	ignore signs before or after the number
	c	first product lithium oxide <input type="checkbox"/> or lithium chloride <input type="checkbox"/> + hydrogen <input checked="" type="checkbox"/> or lithium hydroxide <input checked="" type="checkbox"/> carbon dioxide <input type="checkbox"/> second product oxygen <input type="checkbox"/>	[2]	correct tick in first column for 1 mark correct tick in second column for 1 mark
	d	some movement; it gets smaller; it produces bubbles;	[2]	three columns correct for 2 marks any two columns correct for 1 mark
		Total	[9]	

Question		Expected Answers	Marks	Additional Guidance
5	a	kills bacteria/microbes/germs/microorganisms (1)	[1]	accept bugs / disease ignore dirt/impurities/chemicals accept 'disinfects/sterilises[the water]'
	b	any sensible answer which avoids the danger of inhalation (1)	[1]	e.g. ventilation/gas mask/oxygen supply/use a fume cupboard ignore clothing, goggles, gloves ... unqualified mask for 0 marks
	c	g, aq, l	[2]	all three correct for 2 marks any two correct for 1 mark must be correct symbols, not words not AQ or Aq or aQ accept L or G
	d	chlorine + sodium \rightarrow sodium chloride	[1]	accept reactants in either order accept = instead of \rightarrow watch out for chloride and chlorine in the correct places not symbol equations
		Total	[5]	

6	a	120 000 J / 120 kJ	[2]	accept 300 000 J for 1 mark accept 420 000 J for 1 mark accept 180 000 J for 1 mark accept 200×600 or 600×200 for 1 mark
	b	friction/air resistance (1) transfers kinetic energy to heat energy / some of the work energy is converted to heat (1)	[2]	accept counter/opposing force ignore sound (energy) accept becomes heat
		Total	[4]	

Question		Expected Answers	Marks	Additional Guidance
7	a	friction (1) reaction (1)	[2]	one mark for each correct response
	b	40×0.5	[1]	
	c i	The weight ... <input type="checkbox"/> The balls momentum ... <input type="checkbox"/> The ball travels a distance of ... <input checked="" type="checkbox"/> (1) The velocity ... <input type="checkbox"/>	[1]	correct pattern of ticks for 1 mark
	ii	C (1)	[1]	any unambiguous correct response
		Total	[5]	

8	a		[1]	if no response, look at the picture above
	b	the same as (1) in the opposite direction to (1)	[2]	one mark for each correct response must be in correct order
	c	gravitational (potential) (1) kinetic (1)	[2]	one mark for each correct response must be in correct order
		Total	[5]	

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

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Head office
Telephone: 01223 552552
Facsimile: 01223 552553