



General Certificate of Secondary Education

Additional Applied Science 4863

AASC/2F Science at Work

Mark Scheme

2008 examination – June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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**ADDITIONAL APPLIED SCIENCE
GCSE**

AASC/2F

MARK SCHEME

JUNE 2008

question	answers	extra information	marks
1(a)	protein – repair body tissues carbohydrates – provide energy vitamins – protect against disease fats – insulate body / provide energy		4
1(b)(i)	B		1
1(b)(ii)	C any one from: <ul style="list-style-type: none"> • low(er) in / less fats / saturated fat / sugar / calories • <u>lower</u> / less salt 	independent marks accept use of numbers – qualified ignore grams / nutrients	1 1
1(c)(i)	Benedict’s solution		1
1(c)(ii)	heated		1
1(c)(iii)	red / orange		1
Total			10

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MARK SCHEME

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question	answers	extra information	marks
2(a)(i)	muscle D	accept E	1
2(a)(ii)	F		1
2(a)(iii)	biceps		1
2(a)(iv)	work in opposite directions	allow work in pairs	1
2(b)	heart rate increases		1
	skin becomes redder		1
	skin temperature rises		1
2(c)(i)	any three from: <ul style="list-style-type: none"> • squeeze the bar / pull the handle / lever • hold in line with arm / hanging by thigh • take reading / record maximum reading • repeat 	do not accept just 'pull' ignore averages	3
2(c)(ii)	average		1
Total			11

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question	answers	extra information	marks
3(a)	size / comparison of size shape / comparison of shape texture / surface projections / pattern / comparison of texture / type of texture	ignore colouring or smells	3
3(b)(i)	Y		1
3(b)(ii)	no – (no mark) could have been the same type of carpet in his own home / elsewhere	ignore Yes or No	1
3(b)(iii)	comparison microscope		1
3(c)	correct order – 3 ,1, 4, 2 <ul style="list-style-type: none"> • (3) pour / put (plaster of paris) into the mould • (1) make a cardboard support / box round the footprint • (4) allow to set / leave to dry • (2) mix plaster (of paris) with <u>water</u> 	all correct – 3 marks 2 or 3 correct – 2 marks 1 correct – 1 mark	1 3

**ADDITIONAL APPLIED SCIENCE
GCSE****AASC/2F****MARK SCHEME****JUNE 2008**

question	answers	extra information	marks
3(d)	owners of vehicles / vehicle registration number / police records / DNA profiles / fingerprints / medical records / dental records / blood <u>groups</u>	accept any reasonable suggestion accept DNA <i>not anything to do with shoes</i>	1
Total			11

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JUNE 2008

question	answers	extra information	marks
4(a)(i)	uses biological pest control		1
	keep pigs outdoors eating natural food		1
4(a)(ii)	uses natural fertilisers		1
	removes weeds by digging them up		1
4(b)	nitrates		1
	phosphates		1
	potassium		1
	magnesium		1
4(c)(i)	56p / £0.56	must include correct unit	1
4(c)(ii)	<ul style="list-style-type: none"> • tastier • no chemicals / pesticides • more environmentally friendly • not GM 	ignore more healthy / better quality <i>allow artificial fertilisers</i>	1
Total			10

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question	answers	extra information	marks
5(a)(i)	body mass index		1
5(a)(ii)	$65 / (1.60)^2$ = 25.39	accept 25.390025 accept 25.3 accept 25.4	2
5(b)(i)	any two from: <ul style="list-style-type: none"> • overweight / lose some weight • reduce the amount of fats / carbohydrates / energy intake / calorie intake • <u>increase</u> your exercise / exercise <u>more</u> regularly • reduce fat and replace with slow release carbohydrate 	ignore 'healthy diet' (for 2 marks)	2
5(b)(ii)	may have a lot of muscle or muscle weighs more than fat	ignore reference to bones / age	1
5(c)	record / make a diary of what he ate		1
	record how much / amount of it he ate	ignore reference to calories	1
	time line (eg 24 hours or 2 / 3 days) / period of time / every day		1
Total			9

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question	answers	extra information	marks
6(a)	any three from: <ul style="list-style-type: none"> • use a (sterile) swab / cotton wool <u>bud</u> / (knife) to scrape up (dried) samples • put in plastic bag / container • seal the bag / close • label 	ignore pipettes ignore paper bag	3
6(b)(i)	J = red (blood) cell K = white (blood) cell L = platelet	do not accept blood cell	1 1 1
6(b)(ii)	nucleus	allow mitochondria do not accept nuclear / nucleolus / nucules	1
6(b)(iii)	A, B, AB and O	all correct for 2 marks 2 correct for 1 mark ignore any reference to +ve/ -ve allow lowercase	2
Total			9