

Mark Scheme (Results)

March 2012

GCSE Biology
5BI1F/01

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Publications Code UG031167

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Question Number	Answer	Acceptable answers	Mark
1(a)(i)	a different form of the (same) gene	alternative / varied / type example such as Gg	(1)

Question Number	Answer	Acceptable answers	Mark
1(a)(ii)	a description including the following points <ul style="list-style-type: none"> • located on / in chromosomes (1) • in the nucleus (1) 	on / in DNA	(2)

Question Number	Answer	Acceptable answers	Mark
1(a)(iii)	C		(1)

Question Number	Answer	Acceptable answers	Mark
1(b)(i)	an explanation linking two of the following <ul style="list-style-type: none"> • David and Alexandra are heterozygous / have one dominant and one recessive allele (1) • therefore they are carriers (1) • Sickle cell disease is caused by having two recessive alleles / homozygous recessive / dd (1) 	they / both are / Dd they have one dominant allele / D	(2)

Question Number	Answer	Acceptable answers	Mark
1 (b) (ii)	an explanation linking two of the following <ul style="list-style-type: none"> • one parent will not have a recessive allele / d (1) • (therefore) no child can inherit two recessive alleles (1) • child could only be DD or Dd / the children will always have a dominant allele / D (1) 	sickle cell disease is caused by two recessive alleles / dd	(2)

Question Number	Answer	Acceptable answers	Mark
2(a)(i)	(animal) vector	vector borne vector transmission	(1)

Question Number	Answer	Acceptable answers	Mark
2(a)(ii)	parasitism / parasitic	parasite(s)	(1)

Question Number	Answer	Acceptable answers	Mark
2(a)(iii)	C		(1)

Question Number	Answer	Acceptable answers	Mark
2(b)	<p>A description including two of the following points</p> <ul style="list-style-type: none"> housefly picks up {organisms from contaminated source / dysentery organisms / disease} (1) the housefly lands on food / vomits on the food / contaminates surface /skin(1) which people then eat /touch (1) 	<p>fly lands on faeces eq</p> <p>defaecate eq on food / surface</p>	(2)

Question Number	Answer	Acceptable answers	Mark
2(c)(i)	<p>Any one of the following points</p> <ul style="list-style-type: none"> skin / scab (1) cilia (1) mucus(1) 	<p>nasal hair</p> <p>eye lids / lashes</p>	(1)

Question Number	Answer	Acceptable answers	Mark
2(c)(ii)	<p>A description linking two of the following points</p> <ul style="list-style-type: none"> • (hydrochloric) acid (1) • in the stomach (1) <p>OR</p> <ul style="list-style-type: none"> • lysozyme (1) • in tears (1) 	saliva	(2)

Question Number	Answer	Acceptable answers	Mark
3(a)(i)	D		(1)

Question Number	Answer	Acceptable answers	Mark
3(a)(ii)	substitution (1) $(163 - 99) = 64$ evaluation (1) $(64) \div 8 = 8$	give two marks for bald answer	(2)

Question Number	Answer	Acceptable answers	Mark
3(a)(iii)	A description including three of the following points <ul style="list-style-type: none"> • at age 10 as the mass of calcium increased there is little variation in height (1) • at age 18 / when older / later in life as the mass of calcium increased height increases (1) • the effect of calcium appears to be between 10-18 (rather than at a younger age) (1) • correct manipulation of data (1) 	'as calcium increases, height increases' give 1 mark	(3)

Question Number	Answer	Acceptable answers	Mark
3(a)(iv)	continuous (variation)	(Allow 'continues' as spelling error)	(1)

Question Number	Answer	Acceptable answers	Mark
3(b)	Any of the following points <ul style="list-style-type: none">• mutations (in genes) / changes in the DNA / genes (1)• sexual reproduction / inherit (genes) from both parents (1)		(2)

Question Number	Answer	Acceptable answers	Mark
4(a)(i)	C		(1)

Question Number	Answer	Acceptable answers	Mark
4(a)(ii)	<p>A description including two of the following points</p> <ul style="list-style-type: none"> • no increase between 1991 to 1993 (1) • a steady increase from 1993/4 to 2003 (1) • levelling off from 2003 to 2008(1) • decrease from 2008 (1) 	<p>other correct statement to a given date or range.</p> <p>'it increases / goes up' = 1mark</p>	(2)

Question Number	Answer	Acceptable answers	Mark
4(a)(iii)	<p>Any one of the following points</p> <ul style="list-style-type: none"> • health campaigns by the government / more aware (of dangers) (1) • reduction in advertising of alcohol (1) • increase in prices of alcohol (1) • healthcare has improved (1) 		(1)

Question Number	Answer	Acceptable answers	Mark
4(b)	<ul style="list-style-type: none"> • brain (1) • liver (1) 		(2)

Question Number	Answer	Acceptable answers	Mark
4(c)	<p>An explanation linking two of the following points</p> <ul style="list-style-type: none"> • alcohol slows speed of reaction / increases reaction times (1) • by reducing the speed at which impulses / messages can be sent (1) • acts as a depressant (1) 		(2)

Question Number	Answer	Acceptable answers	Mark
4(d)	<p>Any two of the following</p> <ul style="list-style-type: none"> • (with no 'feel good' effects there will be) less desire to drink alcohol (1) • alcoholics will drink less (alcohol) (1) • alcoholism will be reduced / reduced need for organ transplants (1) • less physical and emotional damage (1) 	Allow "people won't want to drink alcohol anymore"	(2)

Question Number	Answer	Acceptable answers	Mark
4(e)	Any one of the following points <ul style="list-style-type: none"><li>• new organ is likely to be damaged if lifestyle is continued (1)<li>• (not enough donors so) priority should be given to non self inflicted damage (1)<li>• It is an alcoholic's fault that they have a damaged liver (1)		(1)

Question Number	Answer	Acceptable answers	Mark
5(a)(i)	0.4 (°C)		(1)

Question Number	Answer	Acceptable answers	Mark
5 (a) (ii)	<p>An explanation linking two of the following points</p> <ul style="list-style-type: none"> • body temperature should be at 37 °C (1) • enzymes work best at optimum temperature (37 °C) (1) • higher temperatures will denature the enzymes / enzymes won't function / won't work (1) • (therefore) chemical reactions will stop / decrease (1) 	Increased risk of dehydration	(2)

Question Number	Answer	Acceptable answers	Mark
5 (b)	B		(1)

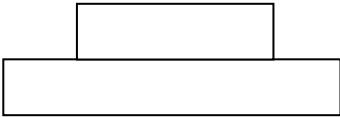
Question Number	Answer	Acceptable answers	Mark
5(c)	<p>An explanation linking two of the following points</p> <ul style="list-style-type: none"> • hair erector muscles contracted / hairs were raised (1) • trapping a layer of (insulating) air (1) • reducing heat loss (by conduction) (1) 	Ignore: trapping heat	(2)

Question Number	Indicative Content	Mark
QWC	<p>*5(d)</p> <p>A description including some of the following points</p> <ul style="list-style-type: none"> • insulin is produced and secreted by endocrine gland (pancreas) <p>Type 1 diabetes</p> <ul style="list-style-type: none"> • type 1 diabetes is caused by a lack of insulin production • type 1 diabetes can be controlled by injecting insulin into subcutaneous fat <p>Type 2 diabetes</p> <ul style="list-style-type: none"> • type 2 diabetes caused by a resistance to insulin • type 2 diabetes is controlled by balancing physical exercise • and careful consideration of diet • use of medication / drugs to control 	(6)
Level	0	No rewardable content
1	1 - 2	<ul style="list-style-type: none"> • a limited description of one type of diabetes and its' method of control • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy
2	3 - 4	<ul style="list-style-type: none"> • a simple description of both types of diabetes with their methods of control • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy
3	5 - 6	<ul style="list-style-type: none"> • a detailed description of both types of diabetes with their methods of control • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors

Question Number	Answer	Acceptable answers	Mark
6(a)(i)	B		(1)

Question Number	Answer	Acceptable answers	Mark
6(a)(ii)	<p>a suggestion including the following points</p> <ul style="list-style-type: none"> the crocodile gets the food removed from its teeth / teeth cleaned / mouth cleaned (1) (so) less chance of tooth decay, gum disease or dental caries / infection (1) 		(2)

Question Number	Answer	Acceptable answers	Mark
6(b)(i)	(green)plant / producer / plantae	any named plant	(1)

Question Number	Answer	Acceptable answers	Mark
6(b)(ii)	<p>a drawing including the following points</p> <ul style="list-style-type: none"> crocodile pyramid of biomass block larger than pyramid of number block (1) both pyramid of biomass blocks (fish and crocodile) must be the same height (+/- 1 small box) (1) 	<p>(crocodile must be on the top level)</p>  <p>Ignore: triangle shape</p>	(2)

Question Number		Indicative Content	Mark
QWC	*6(c)	<p>An explanation including some of the following</p> <ul style="list-style-type: none"> • a parasite is an organism which depends on a host for its survival • without the host benefiting • fleas and headlice • these feed on the blood of other organisms • tapeworms • their action on the human alimentary canal • mistletoe • with its parasitic effect on the trees it inhabits • how parasitic behaviour can result in the destruction of the organism they prey upon • parasite numbers depend on numbers of host 	(6)
Level	0	No rewardable content	
1	1 - 2	<ul style="list-style-type: none"> • a limited explanation of parasitism with no example provided or an example with no explanation • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy 	
2	3 - 4	<ul style="list-style-type: none"> • a simple explanation of parasitism with at least one example provided • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy 	
3	5 - 6	<ul style="list-style-type: none"> • a detailed explanation of parasitism with at least two example provided • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors 	

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Order Code UG031167 March 2012

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