



Mark Scheme (Results)

March 2012

GCSE Biology
5BI1F/01

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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) |

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|-----------------|--|--------------------|------------|
| 2(c)(ii) | A description linking two of the following points <ul style="list-style-type: none">• (hydrochloric) acid (1)• in the stomach (1) OR <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) |

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|-----------------|---|--------------------|------------|
| 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) |

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|-----------------|--|--|------------|
| 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">• new organ is likely to be damaged if lifestyle is continued (1)• (not enough donors so) priority should be given to non self inflicted damage (1)• 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) |

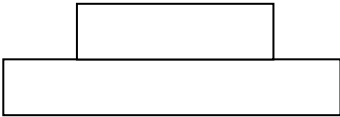
| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|------------------------------|------------|
| 5(c) | <p>An explanation linking two of the following points</p> <ul style="list-style-type: none"> • hair erector muscles contracted / hairs were raised (1) • trapping a layer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