

Mark Scheme (Results)

November 2012

GCSE Biology
5BI1F/01

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November 2012

Publications Code UG034035

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GCSE Biology 5BI1F/01 Mark Scheme – November 2012

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|----------------|--------------------|------------|
| 1(a)(i) | D - prokaryota | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---------------|--------------------|------------|
| 1(a)(ii) | C – a nucleus | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|---|------------|
| 1(b) | <p>A description to include two of the following points</p> <ul style="list-style-type: none"> • It enters / attaches to a <u>cell</u> (1) • causes / spreads disease / infection (1) • makes copies of itself (1) • changes the way the cell works / changes the (cell) DNA (1) | <p>allow named cells allow "takes over the cell"</p> <p>Ignore "illness"</p> <p>multiplies / reproduces</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--------------------|------------|
| 1(c)(i) | <ul style="list-style-type: none"> • oviparous (1) • viviparous (1) <p>Answers MUST be in this order</p> | | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-------------------|---|---|------------|
| 1 (c) (ii) | <p>A description to include any two of the following points</p> <ul style="list-style-type: none"> • oxygen absorption (1) • reproduction (1) • thermoregulation (1) | <p>gill use / lung use / skin use</p> <p>internal / external</p> <p>homeothermic / poikilothermic / cold blooded / warm blooded</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|---|------------|
| 3(a) | A – nucleus (1) B – chromosome (1) Answers MUST be in this order | A - nuclear membrane B – chromatid | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|----------------|--------------------|------------|
| 3(b)(i) | B - Homozygous | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|-----------|--------------------|------------|
| 3(b)(ii) | phenotype | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------|--------------------|------------|
| 3(c)(i) | C - 3 | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|--|------------|
| 3(c)(ii) | An explanation linking the following points <ul style="list-style-type: none"> Jane is homozygous recessive / bb (1) children inherit one allele from each parent (1) | children can only inherit recessive allele /gene from mother ORA regarding Jason Accept gene Ignore unqualified Punnett squares | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|------------------|--|--|------------|
| 3(c)(iii) | <p>An explanation that links the correct child with the following:</p> <ul style="list-style-type: none"> • Jacob (1) • same sex (1) • the same genotype / alleles / bb / both homozygous (1) | <p>Ignore "same eye colour" Accept gene</p> <p>If candidate has mentioned another child they can still obtain mp2 and mp3. These are stand alone marks</p> | (3) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--------------------|--------------------|------------|
| 4(a) | photosynthesis (1) | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|----------------------|--------------------|------------|
| 4(b)(i) | C - mutualism | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--|------------|
| 4(b)(ii) | <p>A suggestion including two of the following:</p> <ul style="list-style-type: none"> • bees do not have the burden of carrying pollen (1) • bees use less energy (1) • bee able to fly / move more easily / aerodynamic / quicker (1) • <u>more</u> nectar collected (1) • avoiding predators (1) | <p>Ignore non specific references to 'survival of the fittest'</p> <p>Accept "bees are lighter" Ignore: "pollen does not stick to the bee"</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|----------|--------------------|------------|
| 4(c) | skin (1) | dermis / epidermis | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|--|------------|
| 4(d) | <p>A description including two of the following:</p> <ul style="list-style-type: none"> • can be used to wash hands (1) • can be used for cleaning surfaces (1) • to kill / destroy the pathogens / bacteria (1) | <p>Accept: cleaning equipment</p> <p>Ignore "get rid of bacteria" "wipes away bacteria" "prevent the spread of infections"</p> | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|--|------------|
| 4(e) | <p>A explanation including three of the following:</p> <ul style="list-style-type: none"> • acid (1) • (in the) stomach (1) • lysozymes (1) • (in) tears / eyes (1) • kill / destroy microorganisms / pathogens (1) | <p>2 marks max for listing the chemical defence method and site (mp1 – 4)</p> <p>Ignore "get rid of bacteria"</p> | (3) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|-----------|-----------------------------|------------|
| 5(a)(i) | Increases | Accept positive correlation | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|---|------------|
| 5(a)(ii) | Reading off graph 7.5%, 4.5% (1) Evaluation: 3 (%) (1) | give 2 marks for correct answer, no working | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---------------------|--------------------|------------|
| 5(b)(i) | C – mass and height | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|--|---|------------|
| 5(b)(ii) | A suggestion including <ul style="list-style-type: none"> • eat poor diet / too much sugar in diet (1) • little exercise (1) • become insulin resistant (1) | Accept “unhealthy” / idea of an unhealthy diet Unresponsive to insulin | (2) |

| Question Number | Indicative Content | Mark |
|-----------------|--|------|
| 5(c) | <p>An description linking the following points:</p> <ul style="list-style-type: none"> • Type 1 diabetics do not produce the hormone insulin • <u>insulin</u> can be injected • into subcutaneous fat layer • insulin tablets • Type 2 diabetics are resistant to insulin • Type 2 diabetics should undertake more physical activity / exercise • this will use blood glucose and reduce it • Type 2 diabetics need a controlled diet • lower intake of carbohydrates so less digested into glucose | (6) |

| Level | 0 | No rewardable content |
|-------|-----|--|
| 1 | 1-2 | <ul style="list-style-type: none"> • a limited explanation of one type of diabetes and it's 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 explanation of both types of diabetes and their methods of control • the answer communicates ideas showing some evidence of clarity and organisation and mostly uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy |
| 3 | 5-6 | <ul style="list-style-type: none"> • a more detailed explanation of both types of diabetes and 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) | A - depressant | | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|------------------|--|------------|
| 6(a)(ii) | Increased (time) | Takes longer ORA Accept "reactions are slower" | (1) |

| Question Number | Answer | Acceptable answers | Mark |
|------------------|--|--|------------|
| 6(a)(iii) | A suggestion including two of the following <ul style="list-style-type: none"> • <u>cirrhosis</u> of the liver (1) • brain damage (1) • kidney damage (1) | Ignore "damage" / "cancer" Ignore failure | (2) |

| Question Number | Answer | Acceptable answers | Mark |
|-----------------|---|---|------------|
| 6(b) | A description linking 2 of the following: <ul style="list-style-type: none"> • Caffeine is a stimulant (1) • Stimulants speed up reactions / decrease reaction time (1) • impulses / messages / signals sent faster (1) | Ignore "more alert" or "more awake" Accept speeds up reaction time | (2) |

| Question Number | Indicative Content | Mark |
|-----------------|---|------|
| 6c | <p>An explanation with the following points:</p> <ul style="list-style-type: none"> • impulses / messages / signals are passed along the axon • the (electrical) signals are insulated • by the myelin sheath which surrounds the axon • this speeds up the signal along the neurone / axon • the dendrons at the end of the axon / neurone • allows signals to be carried onto other neurone(s) • across the synapses • motor neurones connect to other neurones • neurotransmission across • motor neurones lead to effectors | (6) |

| Level | 0 | No rewardable content |
|-------|-----|--|
| 1 | 1-2 | <ul style="list-style-type: none"> • a limited explanation of how one structure of the motor neurone relates to its function • 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 how two structures of the motor neurone relate to their functions • the answer communicates ideas showing some evidence of clarity and organisation and mostly 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 how three structures of the motor neurone relate to their function • 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 UG034035 November 2012

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