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Mark Scheme (Results)

November 2012

GCSE Biology
5BI1F/01

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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)	A description to include two of the following points • 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)	 allow named cells allow "takes over the cell" Ignore "illness" multiplies / reproduces	**(2)**

Question Number	Answer	Acceptable answers	Mark
1 (c) (i)	• oviparous (1) • viviparous (1) Answers MUST be in this order		**(2)**

Question Number	Answer	Acceptable answers	Mark
1 (c) (ii)	A description to include any two of the following points • oxygen absorption (1) • reproduction (1) • thermoregulation (1)	 gill use / lung use / skin use internal / external homeothermic / poikilothermic / cold blooded / warm blooded	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(a)(i)	Reading off graph 3.0, 2.5 (1) 0.5 (million tonnes) (1)	Accept for 2 marks correct answer without workings	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(a)(ii)	C -plastic		**(1)**

Question Number	Answer	Acceptable answers	Mark
2(a)(iii)	A suggestion from: • paper is easy to <u>recycle</u> (1) • people use more paper than other materials (1) • more places/recycling bins/recycling centres for paper (1) • cheaper to recycle paper (1) • reduce deforestation / less trees destroyed (1)	Accept paper used everyday Ignore: "Save trees" without deforestation / cutting down ref	**(1)**

Question Number	Answer	Acceptable answers	Mark
2(b)	A explanation to include two of the following: • carbon compounds broken down (1) • by microorganisms / detritivores /fungi (1) • <u>respiration</u> (1)	compost breaks down / decomposes / decays Accept: worms / maggots for detritivores	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(c)	A explanation linking **2** of the following: • combustion / burning (1) • (fossil) fuels / named fuel (1) OR • humans respire (1) • breathe (out carbon dioxide) (1) OR • humans are cutting down trees /deforestation (1) • less carbon dioxide being removed by photosynthesis (1)	Ignore: car driving petrol Ignore "CO2 increase"	**(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 • 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)	An explanation that links the correct child with the following: • Jacob (1) • same sex (1) • the same genotype / alleles / bb / both homozygous (1)	Ignore "same eye colour" Accept gene If candidate has mentioned another child they can still obtain mp2 and mp3. These are stand alone marks	**(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)	A suggestion including two of the following: • 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)	Ignore non specific references to 'survival of the fittest' Accept "bees are lighter" Ignore: "pollen does not stick to the bee"	**(2)**

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

Question Number	Answer	Acceptable answers	Mark
4(d)	A description including two of the following: • can be used to wash hands (1) • can be used for cleaning surfaces (1) • to kill / destroy the pathogens / bacteria (1)	Accept: cleaning equipment Ignore "get rid of bacteria" "wipes away bacteria" "prevent the spread of infections"	**(2)**

Question Number	Answer	Acceptable answers	Mark
4(e)	A explanation including three of the following: • acid (1) • (in the) stomach (1) • lysozymes (1) • (in) tears / eyes (1) • kill / destroy microorganisms / pathogens (1)	**2 marks max for listing the chemical defence method and site (mp1 – 4)** Ignore "get rid of bacteria"	**(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 • 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)	An description linking the following points: • 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	• 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	• 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	• 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 • <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: • 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	An explanation with the following points: • 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	• 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	• 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	• 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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