edexcel

Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCSE in Biology (5BI1F) Paper 01 Unit B1: Influences on Life

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- For questions worth more than one mark, the answer column shows how partial credit can be allocated. This has been done by the inclusion of part marks eg (1).
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
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Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:

- Write legibly, with accurate spelling, grammar and punctuation in order to make the meaning clear
- Select and use a form and style of writing appropriate to purpose and to complex subject matter
- Organise information clearly and coherently, using specialist vocabulary when appropriate.

Question Number	Answer	Acceptable answers	Mark
1(a)	i. Plantae ii. Fungi iii. Protoctista iv. Prokaryotes	4 marks for 4 correct responses 3 marks for 3 correct responses 2 marks for 2 correct responses 1 mark for 1 correct responses	**(4)**

Question Number	Answer	Acceptable answers	Mark
1(b)(i)	**A** ☒ a supporting rod running the length of their body		**(1)**

Question Number	Answer	Acceptable answers	Mark
1(b)(ii)	**B** ☒ fish		**(1)**

Question Number	Answer	Acceptable answers	Mark
1(c)	An explanation linking the following: • 2 different / similar species (1) • who interbreed (1)	named species reproduce / mate	**(2)**

Total for Question 1 = 8 marks

Question Number	Answer	Acceptable answers	Mark
2(a)(i)	77 ÷ 1.6 x 1.6 / 2.56 (1) = 30	Accept two marks for correct answer accept 30.07 - 30.08 / 30.1	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(a)(ii)	A description to include two of the following: writing in scientific journals (1) peer review (1) attending scientific conferences (1)	 meeting / talking to other scientists	**(2)**

Question Number	Answer	Acceptable answers	Mark
2(b)(i)	Answers must be in this order. insulin pancreas		**(2)**

Question Number	Answer	Acceptable answers	Mark
2(b)(ii)	A description to include two of the following: diet carefully regulated / monitored/ less carbohydrate (1) physical activity undertaken / exercise (1) medication (to lower blood glucose) (1)	 accept sugar	**(2)**

Total for Question 2 = 8 marks

Question Number	Answer	Acceptable answers	Mark
3(a)(i)	444 and 450 (1) 6 (billion tonnes of carbon dioxide)	Accept two marks for correct answer	**(2)**

Question Number	Answer	Acceptable answers	Mark
3(a)(ii)	23 and 444 and 330 (1) 797 (billion tonnes of carbon dioxide)	Accept two marks for correct answer	**(2)**

Question Number	Answer	Acceptable answers	Mark
3(b)(i)	A suggestion from: • more heat trapped in the Earth's atmosphere (1) • (increased) greenhouse effect (1) • more photosynthesis (1)	Global warming Do not accept plants grow more	**(1)**

Question Number	Answer	Acceptable answers	Mark
3(b)(ii)	An explanation linking the following: • photosynthesis (1) • to make carbon compounds (1)	glucose / carbohydrates	**(2)**

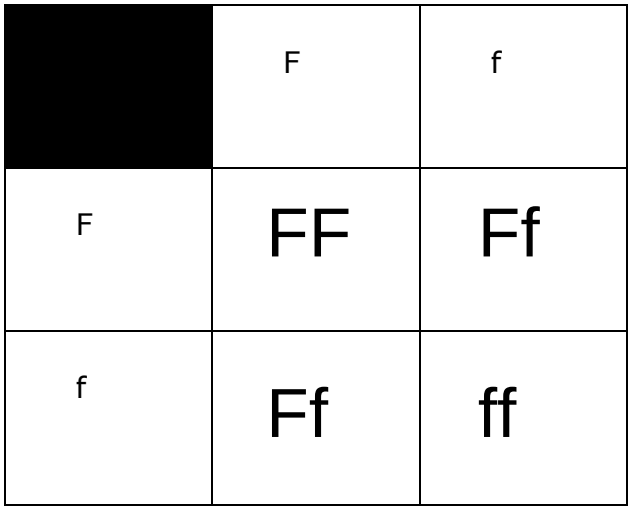
Question Number	Answer	Acceptable answers	Mark
3b(iii)	Any **two** suggestions from: • reduce deforestation (1) • reduce burning fossil fuels (1) • increase the planting of trees / plants (1)	Accept any practical example of the reduction of burning fossil fuels	**(2)**

Total for Question 3 = 9 marks

Question Number	Answer	Acceptable answers	Mark
4(a)(i)	**D** ☒ nucleus		**(1)**

Question Number	Answer	Acceptable answers	Mark
4(a)(ii)	**A** ☒ chromosome		**(1)**

Question Number	Answer	Acceptable answers	Mark
4(a)(iii)	allele		**(1)**

Question Number	Answer	Acceptable answers	Mark
4(b)(i)		Accept fF for Ff	**(1)**

Question Number	Answer	Acceptable answers	Mark
4(b)(ii)	25%, 0.25, ¼, 1 in 4	ECF from clipped table for ff Accept ratio of 1:3 Reject ratio of 1:4	**(1)**

Question Number	Answer	Acceptable answers	Mark
4(c)	An explanation to include two of the following: • build up / thick mucus / sticky mucus (1) • blocking the pancreas / pancreatic duct / blocking the release of enzymes (1) • reduction in food digestion / absorption (1)		**(2)**

Question Number	Answer	Acceptable answers	Mark
4(d)(i)	An explanation to include the following • both parents are heterozygous / carriers (1) • person X inherited both the recessive alleles (1)	 both have a recessive allele / gene accept gene	**(2)**

Question Number	Answer	Acceptable answers	Mark
4(d)(ii)	An explanation to include two of the following • red blood cells deformed / lower red blood cell count (1) • blocking of capillaries / oxygen carrying capacity of the blood is reduced (1) • muscles / joints ache (1) • less respiration by muscles / less energy released (1)	 Accept misshaped / differently shaped less oxygen carried (to muscles) Do not accept "weakening" Do not accept "tired"	**(2)**

Total for Question 4 = 11 marks

Question Number	Answer	Acceptable answers	Mark
5(a)(i)	**C** ☒ sensory neurone		**(1)**

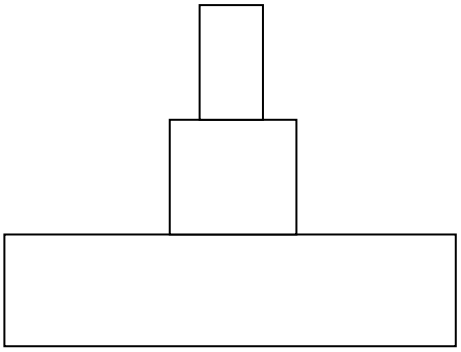
Question Number	Answer	Acceptable answers	Mark
5(a)(ii)	**A** ☒ motor neurone		**(1)**

Question Number	Answer	Acceptable answers	Mark
5(a)(iii)	An explanation linking the following: • fast (response) (1) • no (further) damage is caused (1)	automatic / immediate	**(2)**

Question Number	Answer	Acceptable answers	Mark
5(b)	A description linking **two** of the following: • brain connected to the spinal cord (1) • spinal cord is connected to the skin / finger by neurones (1)	Accept spine	**(2)**

Question Number		Indicative Content	Mark
QWC	***5(c)**	A description to include some of the following points Effect of alcohol • Alcohol is a depressant • Alcohol causes people to feel drowsy • Alcohol increases reaction times • Makes reactions slower • Impulses get to the brain slower • Neurotransmission is slower at the synapse Effect of caffeine • Caffeine is a stimulant • Caffeine causes people to be more alert • Caffeine shortens reaction time • Impulses get to the brain faster • Neurotransmission is quicker at the synapse • In extreme cases too much caffeine can have the opposite effect due to over stimulation	**(6)**
Level	**0**	No rewardable content	
1	**1 - 2**	• a limited description of either the effect of alcohol and / or caffeine • 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 description of both alcohol and caffeine and related to reaction times OR a detailed description of alcohol or caffeine related to reaction time • 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**	• a detailed description of both alcohol and caffeine on reaction including their actions as depressants and stimulants and a reference to action on nerve impulses or the synapse • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors	

Total for Question 5 = 12 marks

Question Number	Answer	Mark
6(a)(i)	lowest level should be approximately three times the size of the second level which should be approximately twice the size of the top level 	**(1)**

Question Number	Answer	Acceptable answers	Mark
6(a)(ii)	1 500 and 800 (1) 700 (g)	Accept two marks for correct answer	**(2)**

Question Number	Answer	Acceptable answers	Mark
6(a)(iii)	photosynthesis respiration limited	must be in correct order.	**(3)**

Question Number		Indicative Content	Mark
QWC	***6(b)**	A description of two examples to include some of the following points • parasites live in or on their host • parasite and host live together but only the parasite benefits headlice / ticks • live on their host • bite host • live off the blood of their host / suck blood tapeworm • live in their host • within the intestinal system • hooks and suckers attach to host intestines • flat body so tapeworm can easily absorb host's digested food molecules • outer layer has substances to ensure it is not digested by host • tapeworm eggs defecated and can also infect other vertebrates when swallowed mistletoe • grows on host • roots grow into the hosts xylem and phloem vessels • absorbs the host's water and mineral ions	**(6)**
Level	**0**	No rewardable content	
1	**1 - 2**	• a limited description of one example of parasitism and / or definition of parasitism • 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 description of at least two examples of parasitism or a detailed explanation of one • 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**	• a detailed description of two examples of parasitism with reference to blood / digested food / mineral ions and water • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors	

Total for Question 6 = 12 marks

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