BIOLOGY 1 (NEW) MARK SCHEME - JANUARY 2013

FOUNDATION TIER

Question		Marking details	Marks Available
Q.1	(a)	copepods;	[1]
	(b)	sandeels;	[1]
	(c)	less food for sandeels/ fewer sandeels/ no food for sandeels;	[2]
		so less food for puffins/puffins starve/ puffin has nothing to feed off;	
		must make link to food and fall in numbers at least once	
		Question Total	**[4]**

Question		Marking details	Marks Available
Q.2	(a)	Animal; Mammal; Alopex; lagopus;	[4]
	(b)	*White hair:* Idea of camouflage/ blending in/ match environment; NOT hide/ disguise *Thick hair:* Insulation/ traps (warm) layer of air/ keeps heat in/ let out less body heat; NOT keep it warm/ so it doesn't get cold *Small ears:* Idea of reduced surface area/ {reduces/ less} heat loss; NOT stop heat escaping/ no heat loss/ keeps heat in (can be neutral if used with reduced surface area)	[3]
	(c)	Universal/ unique/ unchanging/ they all use the same name/ same in all languages/ international/ common name is different in different languages;	[1]
		Question Total	**[8]**

Question			Marking details	Marks Available
Q.3	(a)		(3) 2 5 1 (6) 4;;; All 4 correct = 3marks 2/3 correct = 2 marks 1 correct = 1 mark	[3]
	(b)		glucose; NOT sugar	[1]
	(c)	(i)	0.8;	[1]
		(ii)	Reference {eating/ take in / ingest/ consume} too much fat/ too much fat in diet; Reference {eating/ take in / ingest/ consume} too much sugar/ carbohydrates; NOT carbs (Alternative if first two not awarded) eat too much/ too many calories/ energy; NOT too much chocolate Sedentary/ lack of exercise/ not enough sport;	[3]
			Question Total	**[8]**

Question			Marking details	Marks Available
Q.4	(a)	(i)	Light;	[1]
		(ii)	Growth/ grows towards the light/ positive phototropism; NOT bends/ moves/ leans	[1]
	(b)		hormone	[1]
	(c)		To get more light/ for more photosynthesis;	[1]
			Question Total	**[4]**

Question		Marking details	Marks Available
Q.5	(a)	10;	[1]
	(b)	4.5; 3.2;	[2]
	(c)	Any two from: Competition for/ shortage of/ less/ running out of: light; water; nutrients/ minerals; space/ room; carbon dioxide;	[2]
		Question Total	**[5]**

Question			Marking details	Marks Available
Q.6	(a)	(i)	fewer {species/ animals} recorded (2012)/ ref to a correctly named animal (snail/ tadpole/ newt)/ biodiversity reduced/ lots of animals are no longer present; Reference to a {fall in / lowered} pH/ pH has gone from 7 to 4/ {became/ now} acidic; Must have some ref to change NOT more acidic	[2]
	(b)	(i)	annual or several years/same month/more frequent in each year;	[1]
		(ii)	quantitative data/ / count them/ tally/ find out how many;	[1]
		(iii)	longer observation period/ observe several times in the day;	[1]
	(c)	(i)	increased increased decreased; all **three** required for one mark	[1]
		(ii)	Bacteria/ fungi/ mould; NOT decomposers/ microbes/ algae	[1]
			Question Total	**[7]**

BIOLOGY 1 (NEW) FOUNDATION AND HIGHER TIER

Question		Marking details	Marks Available
Q.7/1	(a)		[2]

Gametes	A	A
a	Aa	Aa
a	Aa	Aa

Award 1 mark for all 4 gametes being correct (Must use **A** and **a**);
Award 1 mark for the mechanics of the cross; Award this mark even if the gametes are incorrect or the wrong letters are used.

(b) (i)

Gametes	A	a
A	AA	Aa
a	Aa	aa

[2]

Award 1 mark for all 4 gametes being correct;
Award 1 mark for the mechanics of the cross; Award this mark even if the gametes are incorrect
ECF- both these marks can be awarded if letters used in (a) are carried forward into (b). Also award the marks if **any** two F1 individuals are selfed.

(ii) 3 grey bodied: 1 black bodied (or correct ratio from given answer); [1]

(c) (Gregor) Mendel; [1]

Question Total **[6]**

Question			Marking details	Marks Available
Q.8/2	(a)	(i)	5	[1]
			6	
			4	
			2	
			0 (not required for mark)	
			0 (not required for mark)	
		(ii)	All bars correct height – according to candidate's tally;;	[2]
		(iii)	They are shorter than the woodland plants;	[1]
	(b)		Collect seeds from the plant growing in each locality and sow (plant) in opposite locality (Accept reference to the transplanting of seedlings)	[1]
			If plant height changes then caused by environment/ if plant height doesn't change then due to genetics;	[1]
			Question Total	**[6]**

Question		Marking details	Marks Available
Q.9/3	(a)	The analysis of the DNA of an organism/ looking at the {patterns/ bands} in DNA;	[1]
	(b)	Any 2 from : {Identifying/ finding out who is} the {culprit/ suspect} from evidence at a crime scene/ or example; NOT solving crimes/ catching criminals {Paternity/ maternity} testing/ finding out who the {father/ mother} is/ identify relatives; Comparison between species for classification purposes; Identification of genes associated with an {inherited disease/ named inherited disease}/ to find out if parents may have children with cystic fibrotic disease/ determine risk of developing breast cancer; Identification of dead bodies;	[2]
		Question Total	**[3]**

Question		Marking details	Marks Available
Q.10/4	(a)	Heat being transported around the body via the blood;	[1]
	(b)	Fan increasing the rate of <u>evaporation</u> of sweat; Therefore increased rate of cooling/ more heat removed from the {blood/ body};	[2]
		Question Total	**[3]**

Question	Marking details	Marks Available
Q.11/5	Indicative content Use the measuring cylinder to measure 20cm^3 of water into the boiling tube. (Accept any reasonable volume of water) Measure the initial temperature of the water with the thermometer and record the temperature (in a suitable results table) Choose a piece of food and find it's mass using the balance. Record the mass (in the results table). Accept measure 1g of the food sample. (Accept any reasonable mass of food sample) Impale/ attach/ stick the piece of food carefully on the mounted needle. Hold the food in the Bunsen burner flame until it catches alight/ Light the food in the Bunsen flame Hold burning food sample under the boiling tube until all the food has burnt. Measure the final temperature of the water with the thermometer and record the temperature (in a suitable results table) Calculate the rise in temperature of the water Repeat with other food sample If an equal mass of the two foods has not been used accept reference to : Energy released from food/g (J) = $\frac{\text{mass of water(g) x temperature rise (°C) x 4.2}}{\text{Mass of food sample(g)}}$	

5-6 marks
The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar

3-4 marks
The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.

1-2 marks
The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.

0 marks
The candidate does not make any attempt or give a relevant answer worthy of credit

Question Total [6]