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]

BIOLOGY 1 (NEW) HIGHER TIER

Question			Marking details	Marks Available
Q.6	(a)	(i)	Prey;	[1]
		(ii)	Predator;	[1]
		(iii)	Reproduction/ accept immigration;	[1]
	(b)		Extinction/ natural selection;	[1]
	(c)		Camouflage/ blend in/ green beads are less easily seen/ ORA;	[1]
	(d)		Prey is static/ prey is only identified on the basis of colour;	[1]
			Question Total	**[6]**

Question		Marking details	Marks Available
Q.7	(a)	Blood; Urine;	[2]
	(b)	Any three from Insulin injections/ jabs; {Metformin/ novonorm/ actose/ named correct} tablets/ take tablets for type 2 diabetes/ take tablets to control blood {glucose/ sugar} level; NOT take tablets unqualified Controlled intake of carbohydrate/ fat/ named foods rich in carbohydrate or fat; Pancreatic tissue transplant; Regular exercise;	[3]
	(c)	Not able to produce insulin; Not able to produce glucagon;	[2]
		Question Total	**[7]**

Question			Marking details	Marks Available
Q.8	(a)	(i)	(Reduced because of) lack of food/ water voles;	[1]
		(ii)	*Any two from*	[3]
			Increase Lack of/ less marbled cats;	
			high rate of reproduction/ more squirrels survive;	
			Less competition from voles and deer;	
			One from	
			Decrease they outgrow food supply/ competition for food/ not enough food for them;	
	(b)		At first, a decrease in insects leads to decrease in shrews;	[3]
			Then an increase due to lack of predators;	
			And an increase in food because insects increase due to food from decaying remains of trees;	
			Question Total	**[7]**

Question			Marking details	Marks Available
Q.9.	(a)	(i)	The {higher temperature/ increased light} in May causes greater rate of {growth/ root formation};	[1]
		(ii)	Low temperature in January slows down {bacterial growth/ enzyme action};	[1]
	(b)		urease;	[1]
	(c)	(i)	Urea is broken down by the enzyme/ urease; to {ammonia/ ammonium compounds};	[2]
		(ii)	Moist indicator paper pH7; 20cm^{3}urea at 1mol/dm^3; 5cm^3 {boiled/ denatured} (and cooled) 1% {enzyme/ urease}; NOT no enzyme	[3]
		(iii)	Leave for 1 hour/ time; at 20°C/ temperature;	[2]
			Question Total	**[10]**

Question	Marking details	Marks Available
Q.10	Indicative content Correct reference to data shows that the pesticide has been a selective pressure on a mutated gene for resistance. This results in variation and natural selection/ survival of the fittest TO BREED and the resistant genes are passed on. 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]**