Centre No.			Pape	r Refer	ence			Surname	Initia	al(s)
Candidate No.		6 1	3	4	/	0	1	Signature	1	
	Paper Reference(s) 6134/01		•			•	•	-1	Examiner's us	se only
	Edexo	eel (GC	E					Team Leader's	use only
	Biology	•	ers-	Nu	ıffi	eld	l)			
	Advance Unit Test								Question Number	
	Tuesday 1	9 June	200	7 –	Mo	rnir	ng		2	
	Time: 1 ho	our 15	minı	ıtes					3	
									5	
	Materials require Ruler	d for exam	ination	. Ite Ni		cluded	l with	question papers	6	
	Calculator								7	
Instruction to Com	J: J - 4									
Instructions to Cane In the boxes above, wri signature. The paper reference is a Answer ALL SEVEN of If you need to use addit Show all the steps in ar Include diagrams in you	shown above. Cl questions in the s tional answer she ny calculations ar	neck that you paces provets, attach and state the	ou have ided in them lo units.	the co this b oosely Calcu	orrect ooklet but se	quest t. ecurely	ion pa	aper. de this booklet.		
Information for Car The marks for individu The total mark for this	al questions and	parts of ques 60.	estions	are sh	nown	in rou	nd br	ackets: e.g. (2).		

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 $\begin{array}{c} N26017A \\ N26017A \\ N850/R6134/57570 \end{array} \\ {}^{7/7/4/1200}$

Advice to Candidates



You will be assessed on your ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking into account your use of grammar, punctuation and spelling.

Turn over

Total



1.	A group of organisms, recently discovered in hot springs, may be classified into a new
	kingdom. Their cells have no nuclei and no membrane-bound organelles.

(a)	(i)	Name the existing	kingdom	to	which	this	group	of	organisms	is	most	closely
		related.										

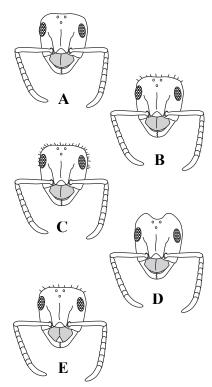
(1)

(ii) Complete the table by naming the other four kingdoms of the Five Kingdom classification system. Give **one** feature for each kingdom.

Kingdom	Feature

(4)

(b) The drawings below show the front view of the heads of ants from five different species of British wood ant.



Clypeus

2

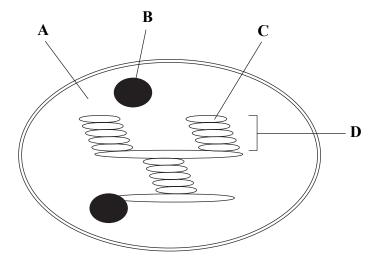
b No such notch 2 2 a Clypeus notched Formica sanguinea b No notch in clypeus 3 3 3 a Hairs on top and sides of head extend down to lower part of eyes b Hairs do not extend this far 4 4 a No hairs on top or sides of head Formica rufa b Some hairs on top of head Formica aquilonia B	(i)	1	0	Large notch on top of head	Formica exsecta
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4 a No hairs on top or sides of head Formica rufa b Some hairs on top of head Formica aquilonia B		3	a		Formica lugubris
b Some hairs on top of head Formica aquilonia B			b	Hairs do not extend this far	4
B		4	a	No hairs on top or sides of head	Formica rufa
D			b	Some hairs on top of head	Formica aquilonia
E				В	
(ii) State the genus to which all of these species of ant belong. (1				D	
(ii) State the genus to which all of these species of ant belong. (1					
(ii) State the genus to which all of these species of ant belong. (1					
(10tai o marks	(ii) Sta	te the	E	
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	(iii) Sta	te the	E	pelong.
	(ii) Sta	te the	E	pelong. (1
	(ii) Sta	te the	E	oelong. (1 (Total 8 marks)
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	(ii) Sta	te the	E	oelong. (1
	(iii) Sta	te the	E	pelong.

				b
2.	for wh	blac ether	ea pigs, the colour of the hair in the coat is determined by a gene, where the allele is hair (B) is dominant to the allele for white hair (b). Another gene determines in the hair is short or long, with the allele for short hair (H) being dominant to the or long hair (h).	
			ea pig with the genotype BBhh was crossed with another guinea pig with the be bbHH .	
	(a)	(i)	Give the phenotypes of these two guinea pigs.	
			BBhh	
			bbHH(1)	
		(ii)	Give the genotype of the offspring of this cross.	
			Genotype(1)	
	(b)	One	e of these offspring was crossed with a guinea pig with white long hair.	
		(i)	Construct a genetic diagram, using the same symbols, to show the expected genotypes and phenotypes of the offspring of this cross.	
			(4)	
		(;;)		
		(11)	Suggest how the results of the cross in (b)(i) demonstrate that independent assortment has been involved in the production of the gametes.	
			(2)	

	(2)
(d)	Explain one reason for conserving genetic diversity in captive breeding programmes.
	(2) (Total 12 marks)
	(Total 12 marks)

(2)

3. The diagram below shows a chloroplast.



(a)	(i)	Name the parts	labelled A,	В,	C and D.
-----	-----	----------------	-------------	----	----------

A	
В	
C	
D	

(ii) State the part of the chloroplast, shown on the diagram, where oxygen is produced.

(1)	
ii) Explain how oxygen is produced in chloroplasts during photosynthesis.	

•••••	 	••••••

(3)

carbohydrate production in a chloroplast. (3) Suggest two environmental conditions which could increase the rate of oxygen production by plants. 1 2 (2) (Total 11 marks)				concentration	s of oxygen	on the rate	e of
Suggest two environmental conditions which could increase the rate of oxygen production by plants. 1	carbonydrate pi	roduction in a ch	iloroplast.				
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Suggest two environmental conditions which could increase the rate of oxygen production by plants. 1							
production by plants. 1							
(2)	e) Suggest two e	nvironmental co	onditions v	which could i	ncrease the		(3)
(2)			onditions w	hich could i	ncrease the		(3)
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	production by p	olants.					(3) gen
	production by p	olants.				rate of oxy	(3) gen (2)
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	production by p	olants.				rate of oxy	(3) gen (2)

Primary	35							
oductivity/ itrary units	30							
-	20						 GP	P
	15		<u></u>				→ NP	p
	10							
	5							
	0 +	5	10	15	20	25		
		1 11.	ne since p	ranung/u	ays			
(a) (i) Con	mpare the c	changes in	n GPP and	NPP duri	ng the tim	e perio	d shown o	on the graph.
(a) (i) Con	mpare the c	changes in	n GPP and	NPP duri	ng the tim	e perio	d shown o	
	mpare the c							(2)
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								(2)
								(2)
								(2)

(Total 6 marks)

(2)

Q4

a)	Describe and explain how negative feedback controls human body temperature.
	(5)
))	Explain how some infections interfere with the temperature regulation mechanisms of the human body.
	(2)
	(Total 7 marks)

Leave	
blank	

7.	The tolerance of plants to copper ions in the soil is under genetic control. The frequency
	of an allele, which causes a plant to be more tolerant of copper, was measured at two
	different sites A and B.

The table below shows the percentage frequencies of the tolerance and non-tolerance alleles in plant populations at the two sites.

Cita	Percentage frequencies of				
Site	Tolerance allele	Non-tolerance allele			
A	30	70			
В	80	20			

(a)	Explain what is meant by the frequency of an allele in a population.
	(2)
(b)	Describe how natural selection could have brought about the different allele frequencies at the two sites.
	(4)

Leave	
blank	(c) Suggest why bacteria often adapt to changing conditions much more quickly than plants.
Q7	(2)
	(Total 8 marks)
	TOTAL FOR PAPER: 60 MARKS
	END