Centre No.					Pape	er Refer	ence			Surname	Initial(s)
Candidate No.			6	1	3	5		0	1	Signature	
		r Reference									Examiner's use only

6135/01	
Edexcel GCE	
Biology (Salters-Nuffield)	
Advanced	

Unit Test 5 Paper 01 Friday 13 June 2008 – Afternoon

Time: 1 hour

Materials required for examination	Items included with question papers
Ruler	Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.

Check that you have the correct question paper.

Answer ALL the questions. Write your answers in the spaces provided in this question paper. If you need to use additional answer sheets, attach them loosely but securely inside this booklet. Show all the steps in any calculations and state the units. Calculators may be used. Include diagrams in your answers where these are helpful.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2). There are 4 questions in this question paper. The total mark for this question paper is 40. There are 12 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

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

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 $\begin{array}{c} N31060A \\ N31060A \\ N301060A \\ N350/R6135/57570 & 6/6/3/2/3700 \end{array}$





Total Turn over

Team Leader's use only

Question Number

1

2

3

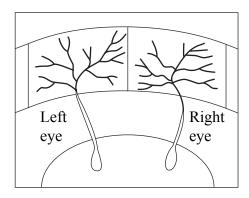


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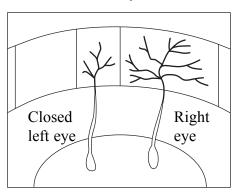
Answer ALL questions in the spaces provided.

1. Research on visual development in cats has led to knowledge of how information is processed in the visual cortex of the brain. The diagrams below show the growth of neurones in part of the visual cortex after normal visual development and when the left eye has been deprived of sensory information.

Normal Visual Development



Sensory Deprivation in the Left Eye



(a)	Use the diagrams above to describe differences in the visual cortex after sensory deprivation.
	(2)

2

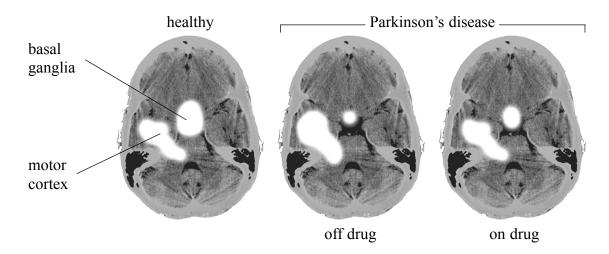


	exposure to sensory information in normal visual development.
	(2)
(c)	Describe one other piece of evidence which suggests that humans must be exposed to particular stimuli if they are to develop normal vision.
	(1)
	(Total 5 marks)
	(10th c marks)

2. People with Parkinson's disease have poor control over their skeletal muscles, caused by a lack of the neurotransmitter dopamine. Large numbers of neurones secreting dopamine are found in the basal ganglia region of the brain.

Parkinson's disease can be diagnosed and monitored using brain scans. The fMRI scans below show the results of a study where subjects did a standard finger-tapping activity to investigate the effectiveness of a new drug treatment.

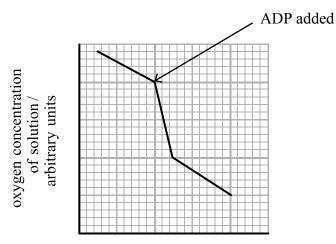
The results below are from a healthy brain, a patient with Parkinson's disease without drug treatment and a patient with Parkinson's disease taking drug treatment. The scan shows a horizontal section with the front of the head at the top. The most active areas are white.



U	Ising the fMRI scans above, discuss the effects of this new drug on brain activity.
	(3)

•••••		•••••
		•••••
		(1)
people	e with Parkinson's disease have much less dopamine in their brain than of Using the information already given in this question and your own knowlest and explain how Parkinson's disease can be treated using drugs.	
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3. Isolated mitochondria in a solution containing inorganic phosphate and an electron donor can be used to study respiration. An electrode is used to record changes in oxygen concentration while mitochondria respire. The graph below shows changes in oxygen concentration for some isolated mitochondria.



time/milliseconds

(a) (i) Describe and explain the trends shown on the graph above.

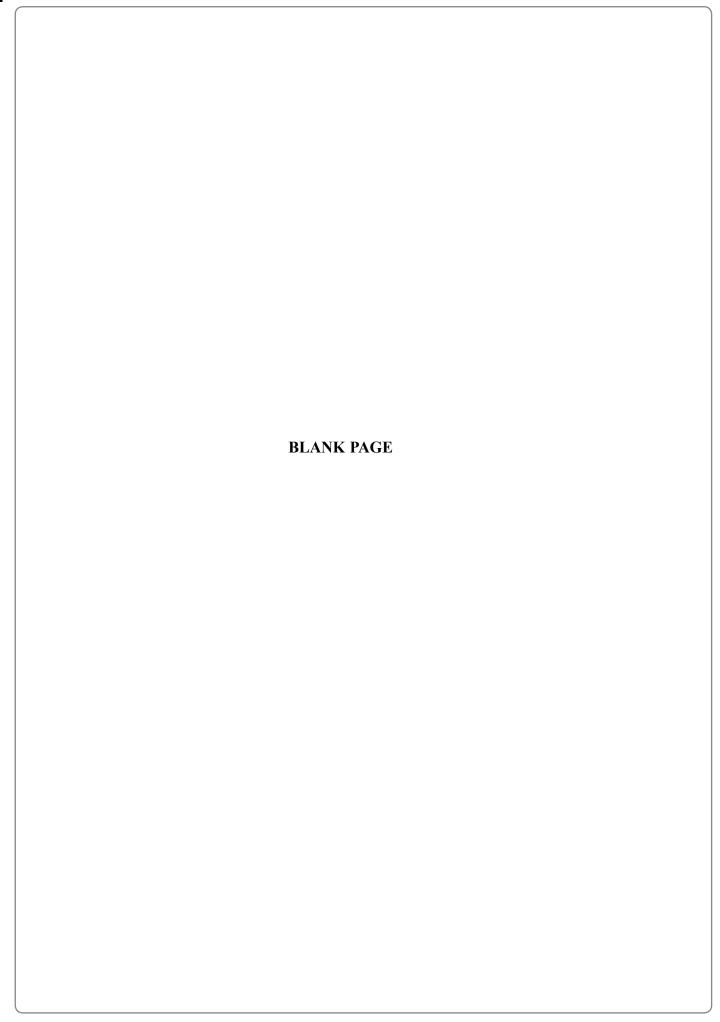
(3)

(ii) Name an electron donor used in the electron transport chain in mitochondria.

(1)

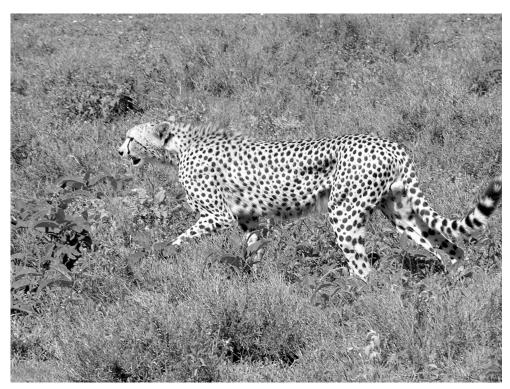
(iii) State the location of the electron transport chain in mitochondria.

		(3)
(b)	ATF Des	P is used to provide an immediate supply of energy for biological processes. cribe the role of ATP in the following processes.
	(i)	Nerve impulse transmission
		(2)
	(ii)	Hyperpolarisation of rod cells in the retina
		(2)
		(Total 12 marks)



4.	be able	s which are predators often show bursts of very fast movement. Their prey tend to to carry out sustained movement over longer periods of time. Close examination hat the muscles of predator and prey show a different composition of fast and slow libres.
	(a) (i)	Outline the differences between fast and slow twitch muscle fibres.
		(2)
	(ii)	State whether predator or prey would show a higher proportion of slow twitch fibres.
		(1)
	(iii)	Discuss why predators show different proportions of fast and slow twitch muscle fibres from their prey.
		(2)

Leave blank



A predator in pursuit of its prey

(b)	During fast movement, lactate builds up in the muscles of the predator. Explain what happens to this lactate after the chase has ended.
	(3)

Leave blank



_	Hyenas feeding on a zebra they have recently killed
]	During the chase, the core body temperature of both predator and prey rises. Describe how changes in blood circulation help to return their core body temperatures to normal.
	(4)
	(Total 12 marks)
	TOTAL FOR PAPER: 40 MARKS

