Centre No.		Paper Reference Surname			Surname		Initia	ıl(s)				
Candidate No.		6	1	0	3	/	0	3	Signature		<u> </u>	
	Paper Reference(s) 6103/03							•		Exar	miner's us	e only
	Edexc	el	G	CE						Team	Leader's ι	ise only
	Biology											
	Biology	(H	un	nan	1)						Question Number	Leave Blank
	Advance	ed S	ub	sidi	iary	J					1	
	Unit 3 Pa	aper	. 03								2	
	Monday 6	Jun	ne 2	005	- N	Mor	ning	<u> </u>			3	
	Time: 1 h	our						-				

Nil

Items included with question papers

Instructions to Candidates

Ruler

In the boxes above, write your centre number, candidate number, your surname, initials and signature. The paper reference is shown above. Check that you have the correct question paper. Answer ALL THREE questions in the spaces provided in 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.

Materials required for examination

Information for Candidates

The marks for individual questions and parts of questions are shown in round brackets: e.g. (2). The total mark for this question paper is 38.

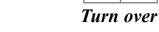
Advice to Candidates

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

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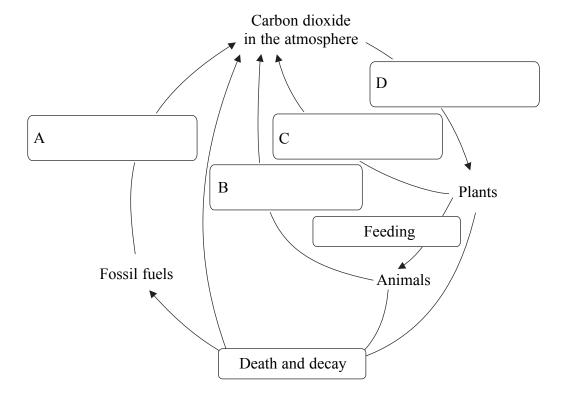




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Answer ALL of the questions in the spaces provided.

1. The diagram below shows a simplified carbon cycle.



(a) Each box represents a process. Write the name of the process in each of the boxes $A,\,B,\,C$ and D.

(2)

(b)	With reference to an example, explain what is meant by the term carbon sink.
	(2)



(ii) Name two gases, other than carbon dioxide, which are thought to contr global warming. 1	(2)
global warming. 1	
2	
	•••••
(Total 8	(2)
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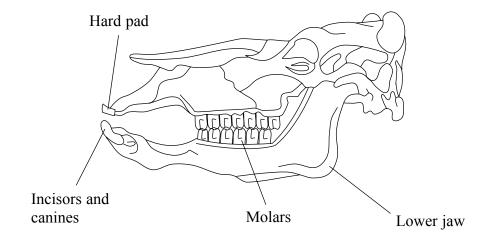


					(1)
(b)	The table below	shows the energy int	ake, usage and lo	osses for a 600 kg c	ow.
	Intake from food /kJ day ⁻¹	Incorporated into new tissues or storage /kJ day ⁻¹	Respiration losses /kJ day ⁻¹	Lost in urine or faeces /kJ day-1	
	92 000	6 000	38 000	48 000	
	ooo kg cow. She	ow your working.		Answer	
	ooo kg cow. Siic	ow your working.		Answer	(2)
	It has been sugg produce more fo	ested that an area of bood than the same a (a) and (b) support the	area used to gra	ow crops such as n	(2) naize could
	It has been sugg produce more fo	ested that an area of bood than the same a	area used to gra	ow crops such as n	(2) naize could
	It has been sugg produce more fo	ested that an area of bood than the same a	area used to gra	ow crops such as n	(2) naize could



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(d) The diagram below shows the skull of a cow showing the tooth and jaw structure.



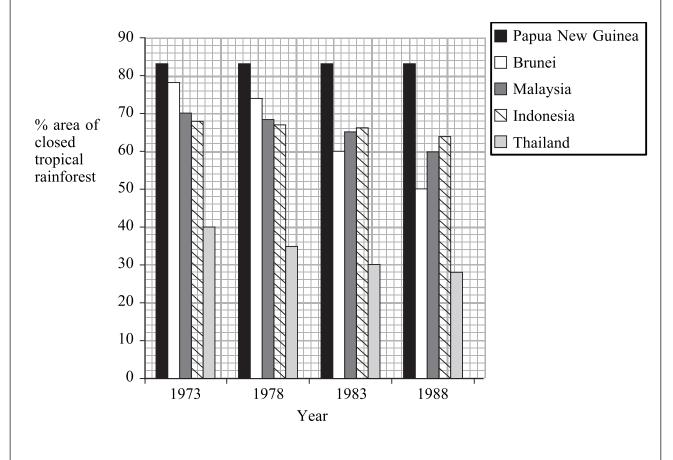
Suggest how the structures labelled in the diagram would be used by a cow grazing on grassland.
(3)

G 11: / /:	D		
Small intestine	Rumen	Omasum /	\
			•
			Oesophagus
		+++	Reticulum
M (Abon	nasum \ \ \	
	710011	masum ()	
	77		
With reference to the d	iagram suggest	why cattle are mo	ore efficient at obtaining
energy from plants than	many other mai	mmals.	
			(2)
			(3)
			(Total 12 marks)

3. South East Asia is one of the Earth's most important biodiversity "hotspots". Much of the land is covered by tropical rainforest. The tall, dense forest contains valuable timber trees such as teak and dipterocarps. Dipterocarps are hardwood trees with large, straight trunks, which reach heights of 70 m and are much desired by timber companies. As a consequence, the rainforests have been exploited at an increasing rate over the last 50 years.

Figure 1 shows the area covered by closed tropical rainforest as a percentage of the total land area in five countries from 1973 to 1988. This type of forest has trees growing close together. The crowns of the trees form a dense canopy with few gaps. There is no continuous grass cover on the forest floor. Closed tropical rainforest has not been cleared for agriculture in the past 20 to 30 years.

Figure 1. Bar chart showing the area of closed tropical rainforest in five countries as a percentage of the total land area from 1973 to 1988.



In Malaysia, large areas of rainforest are selectively logged. This means that only the high value timber trees are removed, leaving the rest of the forest intact. Figure 2 shows the effect of selective logging on the density of groups of gibbons and two species of langur. A gibbon is a type of ape and langurs are monkeys. Figure 3 is a photograph of a white-handed gibbon in the canopy of a tropical rainforest.

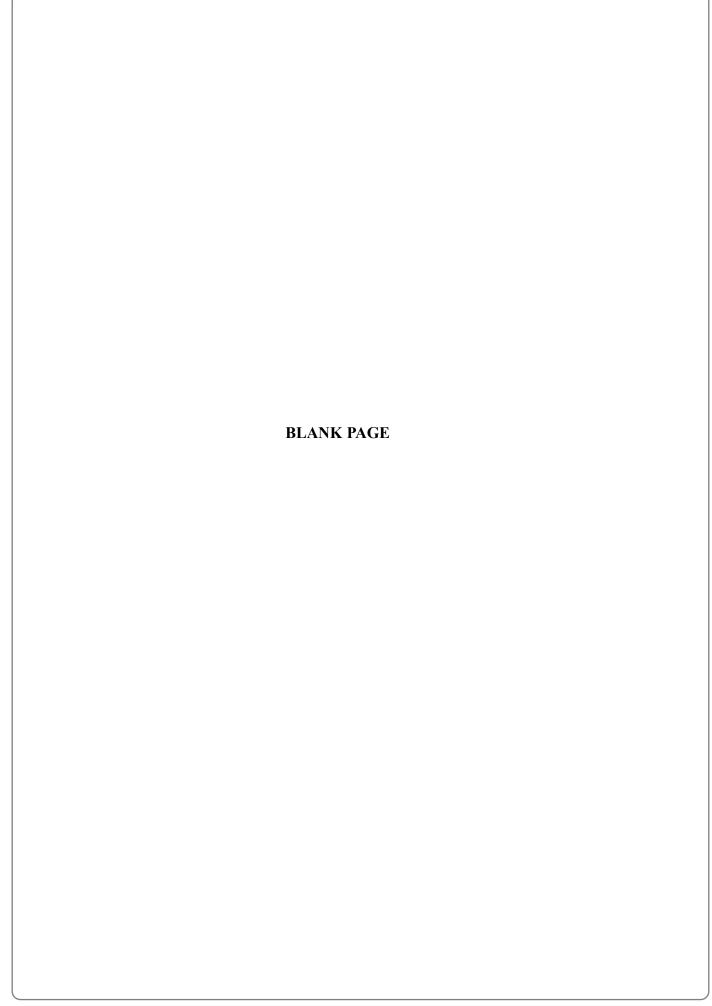
Figure 2. Table showing the density of gibbons, maroon langurs and white-fronted langurs found within a rainforest before and after selective logging.

Time of sampling	Density of gibbons and langurs/groups km ⁻²					
	Gibbon	Maroon langur	White-fronted langur			
Before logging	4.73	0.38	0.87			
Immediately after logging	1.36	0.21	0.57			
2 years after logging	2.08	1.25	Present but not seen during survey			
4 years after logging	2.00	0.05	1.50			

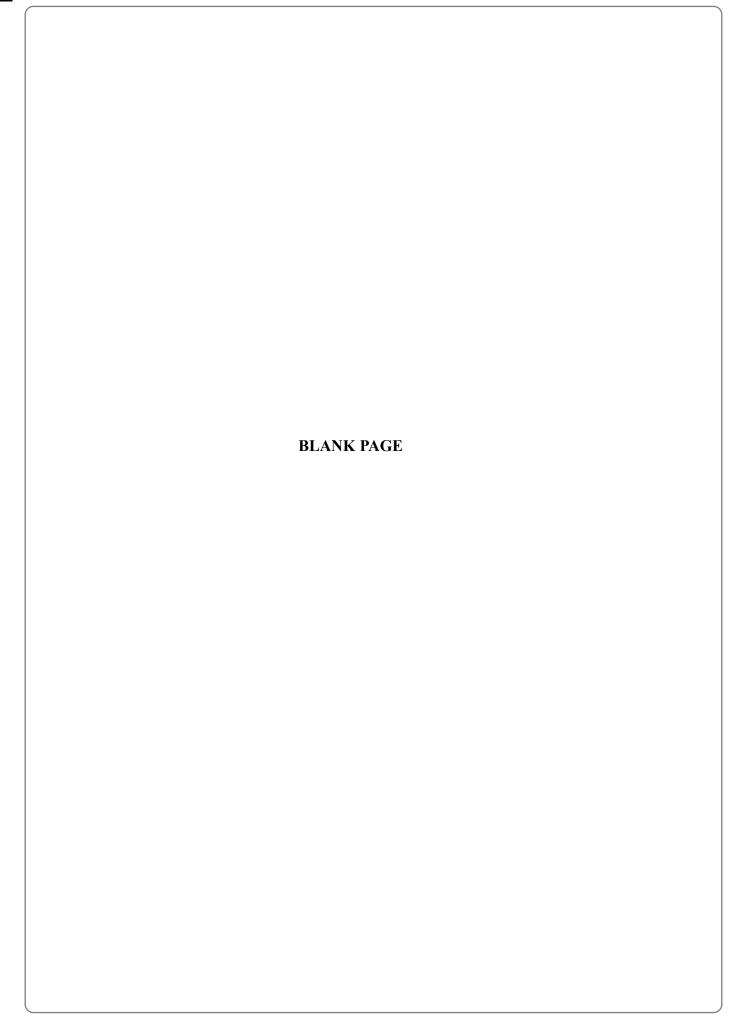
Figure 3. White-handed gibbon swinging through the canopy of a closed tropical rainforest.



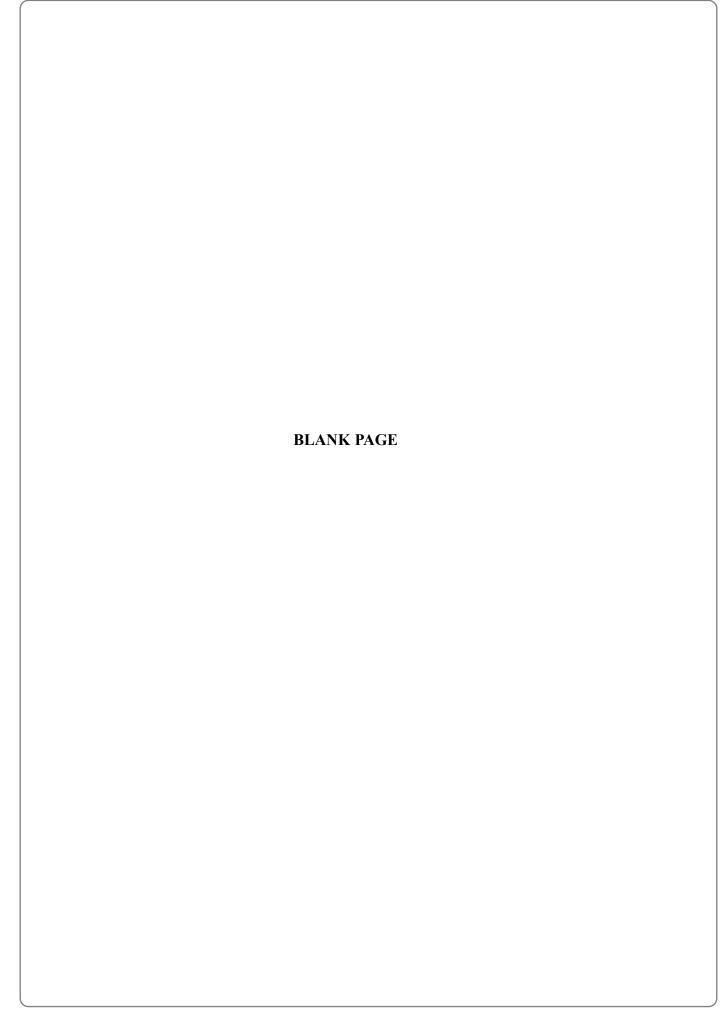
Ecoscene/Papilio Robert Pickett



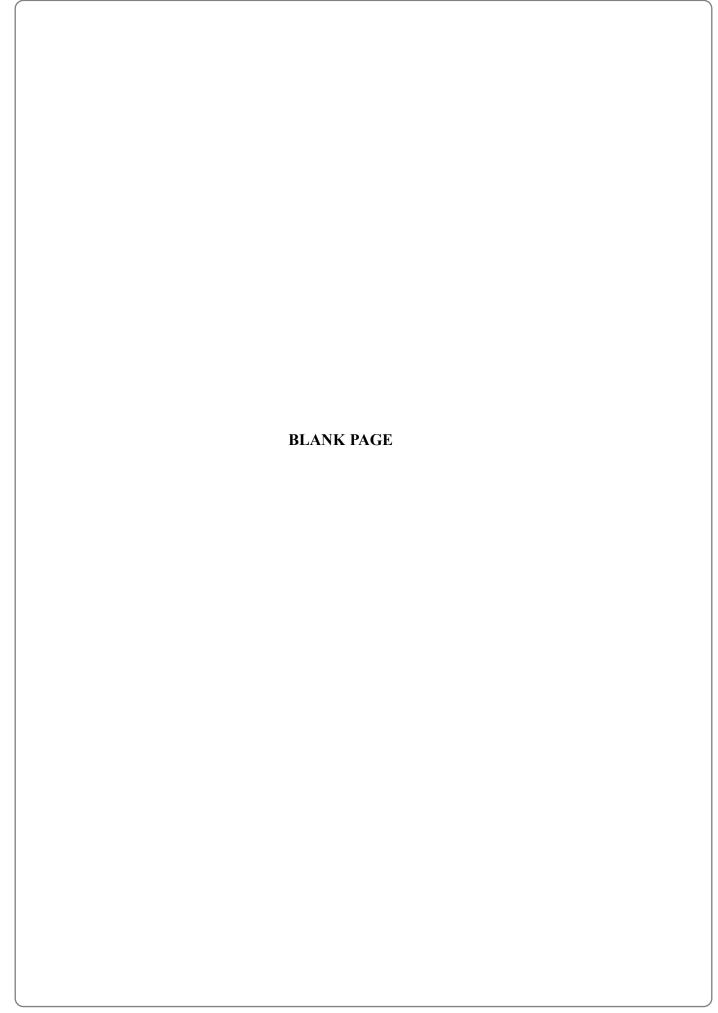
(3)
One reason for the loss of tropical rainforest is the harvesting of the timber trees. Give two other reasons for the loss of tropical rainforests.
Give two other reasons for the loss of troplear failiforests.
(2)
(2)
(2)
(2)
(2)
(2)
(2)



)	Explain how the removal of rainforest trees can lead to soil erosion.
	(3)
/L	
a)	Suggest how deforestation can affect the water cycle.
	(3)







) (i) Using the data in Figure 2, describe the effects of selective logging on the density	blan
of gibbons and the two species of langur.	
(2)	
(ii) Suggest reasons for the differences you described in (f)(i).	
(2)	Q3
(Total 18 marks)	
TOTAL FOR PAPER: 38 MARKS	
END	



