Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						4	4	3	7	/	1	F	Signature	

Paper Reference(s)

4437/1F

Examiner's use only

Team Leader's use only

London Examinations IGCSE

Science (Double Award)

Biology

Paper 1F

Foundation Tier

Thursday 8 November 2007 – Morning

Time: 1 hour 15 minutes

Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
Total	

Materials required for examination
Nil

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.
Some questions must be answered with a cross in a box (☒). If you change your mind about an answer, put a line through the box (~~☒~~) and then mark your new answer with a cross (☒).
The paper reference is shown at the top of this page. Check that you have the correct question paper.
Answer **ALL** the questions in the spaces provided in this question paper.
Show all the steps in any calculations and state the units.
Calculators may be used.

Information for Candidates

The total mark for this paper is 75. The marks for parts of questions are shown in round brackets: e.g. **(2)**.
There are 20 pages in this question paper. All blank pages are indicated.

Advice to Candidates

Write your answers neatly and in good English.

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Answer ALL the questions. Write your answers in the spaces provided.

1. For each question (a) to (g), choose the correct answer. Put a cross (☒) in the correct box.

(a) The picture shows the reproductive organ of a plant.

What reproductive organ does the picture show? Put a cross (☒) in the correct box.

flower ☒

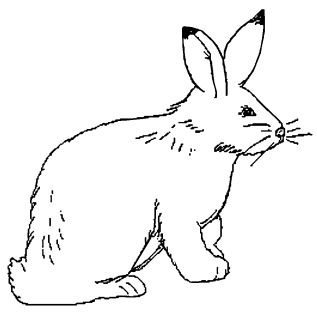
leaf ☒

stem ☒

root ☒

(1)

(b) The picture shows an organism.



What is the organism? Put a cross (☒) in the correct box.

animal ☒

bacterium ☒

fungus ☒

plant ☒

(1)

Leave blank

(c) Which process takes place only in green plants? Put a cross (☒) in the correct box.

respiration ☒

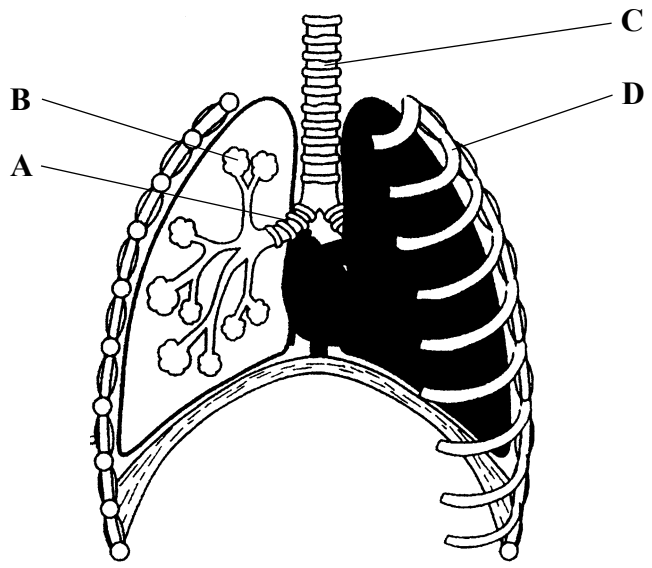
cell division ☒

growth ☒

photosynthesis ☒

(1)

(d) The diagram shows the human thorax.



Which letter, **A**, **B**, **C** or **D**, labels a bronchus? Put a cross (☒) in the correct box.

A ☒

B ☒

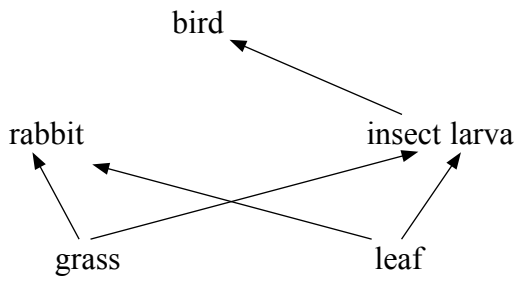
C ☒

D ☒

(1)

Leave blank

(e) How many consumers are in this food web? Put a cross (☒) in the correct box.



1 ☒

2 ☒

3 ☒

4 ☒

(1)

(f) After leaving the stomach, what does food pass into next? Put a cross (☒) in the correct box.

the large intestine ☒

the small intestine ☒

the pancreas ☒

the mouth ☒

(1)

(g) Which shows the correct sex chromosomes for a man and a woman? Put a cross (☒) in the correct box.

XY and XX ☒

YY and XY ☒

XX and YY ☒

XY and XY ☒

(1)

Q1

(Total 7 marks)

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H 2 9 1 7 8 A 0 6 2 0

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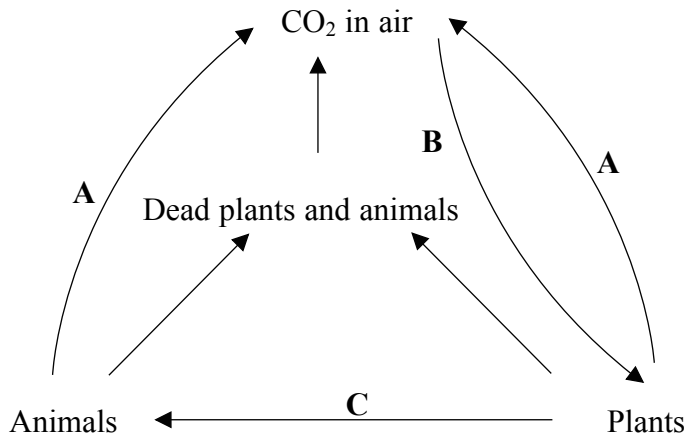
2. Part of a biological cycle is shown below.



(a) Use the words from the list to name the processes labelled **A**, **B** and **C**.

feeding **photosynthesis** **respiration** **transpiration**

A .....

B .....

C .....

(3)

(b) Name the gas used in respiration.

.....

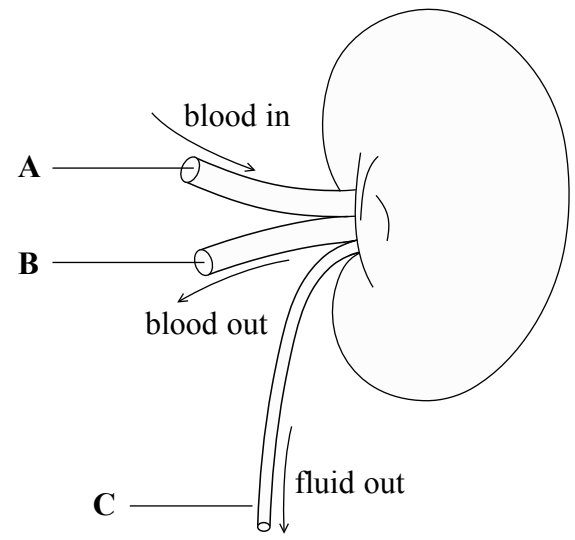
(1)

Q2

(Total 4 marks)

Leave blank

3. The human kidney controls the water content of the body.



(a) Choose words from the list to name the tubes labelled **A**, **B** and **C**.

urethra **ureter** **renal vein** **renal artery**

A .....

B .....

C .....

(3)

(b) Tube **C** carries substances to the bladder. Name **one** substance, other than water, carried in tube **C**.

.....

(1)

Leave blank

(c) Explain how the amount of water in the bladder of a person would change if each of the following occurs.

(i) The person drinks a large volume of water.

.....

.....

.....

.....

(2)

(ii) The person does some vigorous exercise.

.....

.....

.....

.....

(2)

Q3

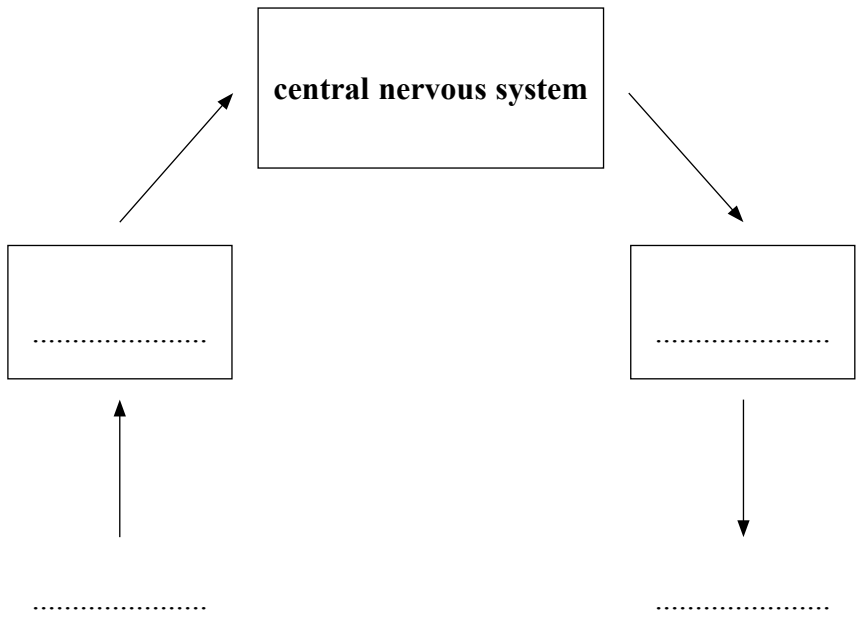
(Total 8 marks)

Leave blank

4. (a) The human body can respond to changes in the environment.

Use the words below to complete the diagram to show the pathway of a coordinated response.

effector **receptor** **response** **stimulus**



(3)

(b) Humans can respond using nerves or hormones. The way these work are different.

Complete the table by writing the word **yes** or **no** in each empty box to show the way that nerves and hormones work.

Description	Hormones	Nerves
Response is usually slow	yes	no
Response lasts a long time		
Are specialised cells		
Are carried in blood stream		

(3)

(3)

Leave blank

(c) Choose **one** hormone that you have studied to complete the sentences.

One hormone I have studied is called ..... This hormone is made in the part of the body called the ..... The effect of this hormone is to .....

.....

(3)

(d) Plants also respond to changes in their environment.

Describe how a plant shoot responds to light coming from one side.

.....

.....

.....

.....

(2)

Q4

(Total 11 marks)

Leave blank

5. Farmers want to control the number of organisms that damage their crops.
One method uses chemicals called pesticides.

(a) Suggest how pesticides help farmers to grow better crops.

.....

.....

.....

.....

.....

(3)

(b) Some farmers use biological control as a method to reduce the number of organisms that damage their crops.

(i) Give **one** example of biological control and name the organism it is used to control.

.....

.....

.....

.....

(2)

(ii) Give **two** advantages of using biological control when compared with pesticides.

1 .....

.....

2 .....

.....

(2)

(c) Give **one** example of the way that genetically modified plants could be used to improve crop yield.

.....

.....

(1)

Q5

(Total 8 marks)

Leave blank

6. (a) Substances move into and out of cells by different methods.

Three methods, **A**, **B** and **C**, are described below.

A movement of substances against a concentration gradient

B movement of water from a dilute solution to a more concentrated solution through a partially permeable membrane

C movement of substances down a concentration gradient

Complete the table by putting the correct letter for each method.

Method	Letter of description
diffusion	
osmosis	
active transport	

(3)

(b) Complete the sentences below by writing a correct word or phrase in the blank spaces.

(i) An example of diffusion in the lung of a mammal involves a substance called

oxygen, which moves from the ..... to the

..... .

(2)

(ii) An example of osmosis in the kidney of a mammal involves a substance called

..... , which moves from the nephron to the

..... .

(2) **Q6**

(Total 7 marks)

H 2 9 1 7 8 A 0 1 3 2 0

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7. A habitat is a place where organisms live. The food chains below are from different habitats.

From a seashore

seaweed → periwinkle (a mollusc) → oystercatcher (a bird)

From the edge of a field

blackberry (a fruit) → bank vole (a mammal) → tawny owl (a bird)

(a) (i) Name **one** primary consumer in these food chains.

.....

(1)

(ii) What is the original energy source for these food chains?

.....

(1)

(b) The following food chains come from a woodland environment.

leaf litter → earthworm → blackbird → sparrow hawk

dead mouse → blowfly larvae → common frog → grass snake

Other than the names of the organisms, give **two** ways in which these food chains differ from the examples in part (a).

1 .....

.....

2 .....

.....

(2)

(c) Name **two** groups of organisms that can act as decomposers in food chains.

1 .....

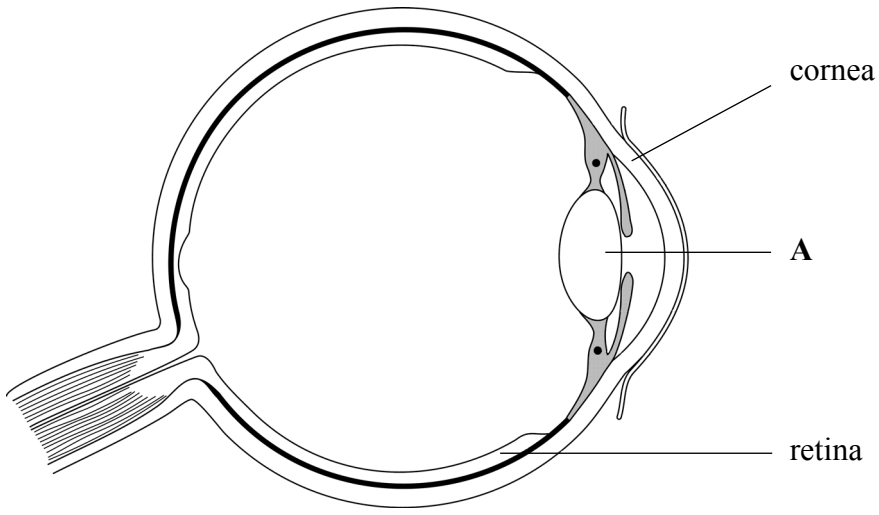
2 .....

(2) **Q7**

(Total 6 marks)

Leave blank

8. The diagram shows a section of the human eye.



(a) Name the part labelled **A**.

.....

(1)

(b) Some people have a rare genetic condition that makes the cornea become cloudy. As a result they find it difficult to see clearly and may become blind.

(i) Suggest why a cloudy cornea makes it difficult for a person to see clearly.

.....

.....

.....

.....

(2)

Leave blank

(ii) The condition for cloudy cornea is caused by a dominant allele **N**. The recessive allele, **n**, results in a clear cornea.

A couple plan to have children. The father is heterozygous for cloudy cornea and the mother is homozygous recessive.

Complete the genetic diagram to show the genotypes of the parents, the gametes and the possible genotypes and phenotypes of their children. Use **N** for the dominant allele and **n** for the recessive allele.

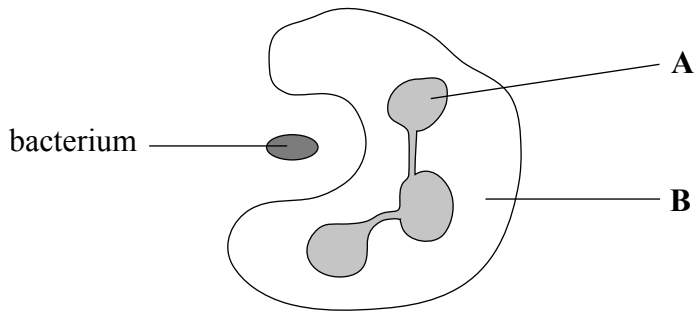
	Father		**Mother**
Genotypes of parents	.....	and	.....
Gametes			
Genotypes of children			
Phenotypes of children			

(4) **Q8**

(Total 7 marks)

Leave blank

9. The diagram shows a white blood cell ingesting a bacterium.



(a) Complete the table to give the names and functions of the parts labelled **A** and **B**.

Letter	Name	Function
A		
B		

(4)

(b) Describe what happens to the bacterium after it has been ingested by the white blood cell.

.....

.....

.....

.....

(2)

(c) Normal blood contains 7000 white blood cells per mm^3. A person with a mild infection had blood with 10 500 white blood cells per mm^3. Calculate the percentage increase in white blood cells. Show your working.

Answer .....

(2)

Q9

(Total 8 marks)

Leave blank

10. The technique of selective breeding can be used to produce a crop of tomato plants that flower early.

The table shows the steps taken to breed early-flowering tomato plants.

Complete the table by using numbers to show the correct order of the steps.

Step	Order of step
select early-flowering offspring plants	
allow seeds from early-flowering plants to grow	
select early-flowering plants	1
grow early-flowering offspring plants	5
repeat the process for several generations	
collect seeds from early-flowering plants	

(Total 4 marks)

Q10

Leave blank

11. Explain how growing crops in glasshouses can alter the yield of a crop.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Q11

(Total 5 marks)

TOTAL FOR PAPER: 75 MARKS

END