

Candidate Name _____

Centre Number

Candidate

Number

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International General Certificate of Secondary Education
UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE
BIOLOGY
PAPER 2
MAY/JUNE SESSION 2000

0610/2

1 hour

Candidates answer on the question paper.
No additional materials are required.

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

FOR EXAMINER'S USE	
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	

This question paper consists of 14 printed pages and 2 blank pages.

1 Two characteristics of living organisms are nutrition and respiration.

(a) (i) List **three** other characteristics of living organisms.

1.

2.

3.[3]

(ii) Name the process by which green plants produce carbohydrates.

.....[1]

(b) Living organisms release gases into the atmosphere as a result of their various activities. Complete the table, using a tick (✓) or a cross (✗), to show which gases are released.

	carbon dioxide released into the atmosphere	oxygen released into the atmosphere
animals in bright light		
green plants in bright light		
animals in the dark		
green plants in the dark		

[4]

[Total : 8]

[Question 2 begins on page 4]

2 Fig. 2.1 shows a red blood cell and a root hair cell.

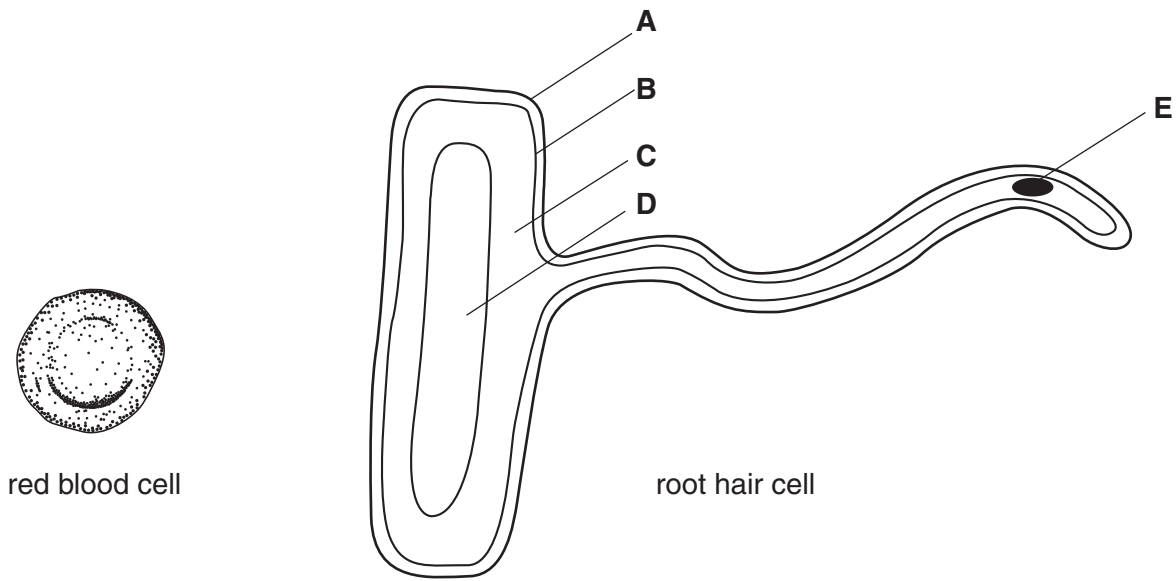


Fig. 2.1

(a) (i) Select **two** structures in the root hair cell which are also present in the red blood cell. In each case state the letter, **A** to **E**, and name the structure.

1. Letter
- Name of structure
2. Letter
- Name of structure[2]

(ii) Name **one** structure which is typical of many plant cells but which is not present in the root hair cell.

.....[1]

(b) State **one** major function of each cell and describe **one** way in which the cell is adapted to carry out this function.

(i) Red blood cell.

Function

.....

Adaptation

.....[2]

(ii) Root hair cell.

Function

.....

Adaptation

.....[2]

[Total : 7]

3 (a) Much of the food we eat has to be digested.

(i) Explain why food needs to be digested.

.....
.....
.....[2]

(ii) Describe the part played by chewing in the process of digestion.

.....
.....
.....[2]

(b) (i) Describe how food is moved along the oesophagus by peristalsis.

.....
.....
.....
.....[3]

(ii) Students sometimes wrongly suggest that food falls down into the stomach under the effect of gravity. Suggest **one** piece of evidence which would oppose this idea.

.....
.....[1]

(c) Fig. 3.1 shows the human digestive system.

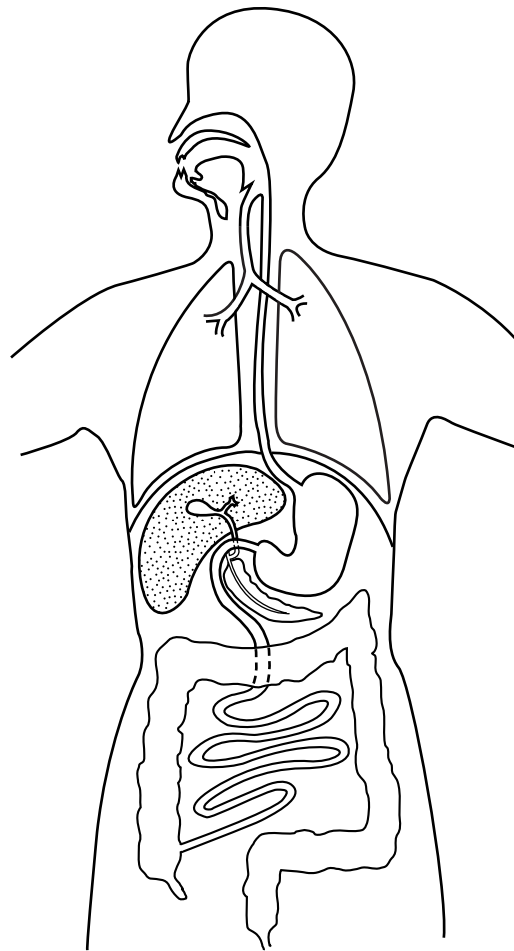


Fig. 3.1

(i) Using the appropriate letter, label on Fig. 3.1 where each of the following is produced:

an amylase, (**A**);

hydrochloric acid, (**B**);

a lipase, (**C**);

a protease, (**D**).

[4]

(ii) State the nutrient on which protease enzymes act and name the products that are formed.

Nutrient

Products[2]

[Total : 14]

4 (a) State what is meant by the term *sexual reproduction*.

.....

[3]

(b) Fig. 4.1 shows the male reproductive system.

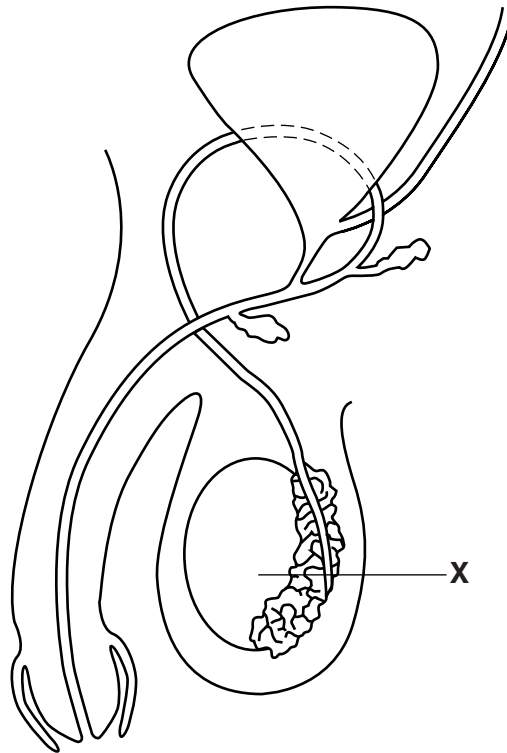


Fig. 4.1

(i) Name the part labelled **X** and state **two** of its functions.

Name

Function 1

Function 2

.....[3]

(ii) Birth control can be brought about by surgery. Mark clearly on Fig. 4.1 where such an operation would be carried out in a male. [1]

(c) The male sex hormone causes a number of changes in the body during puberty. State **two** of these changes other than changes to the reproductive system.

1.

.....

2.

.....[2]

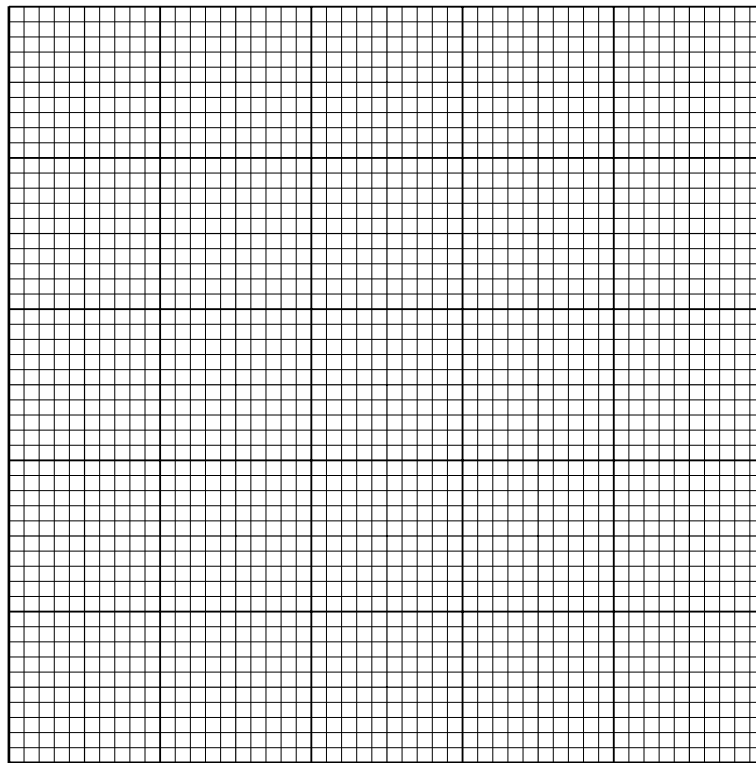
[Total : 9]

5 (a) Table 5.1 shows the frequency of human blood groups in a population.

Table 5.1

human blood group	% frequency in the population
A	46
B	9
AB	3
O	42

(i) Plot the data in the table as a bar chart on the grid below.



[3]

(ii) What type of variation is illustrated by these data? State a reason for your answer.

Type of variation

Reason

.....[2]

(b) A plant was allowed to disperse its seeds naturally. The seedlings were examined two weeks after they had started to grow. They were found to be of very different heights.

(i) Suggest **three** environmental factors which could have affected the height of the seedlings.

1.

2.

3.[3]

(ii) The seedlings all developed from the seeds of a single plant. The plants which later developed from these seedlings showed a number of inherited differences. Suggest **three** possible reasons for these inherited differences.

1.

.....

2.

.....

3.

.....[3]

[Total : 11]

6 Fig. 6.1 shows a nitrogen cycle for open grassland.

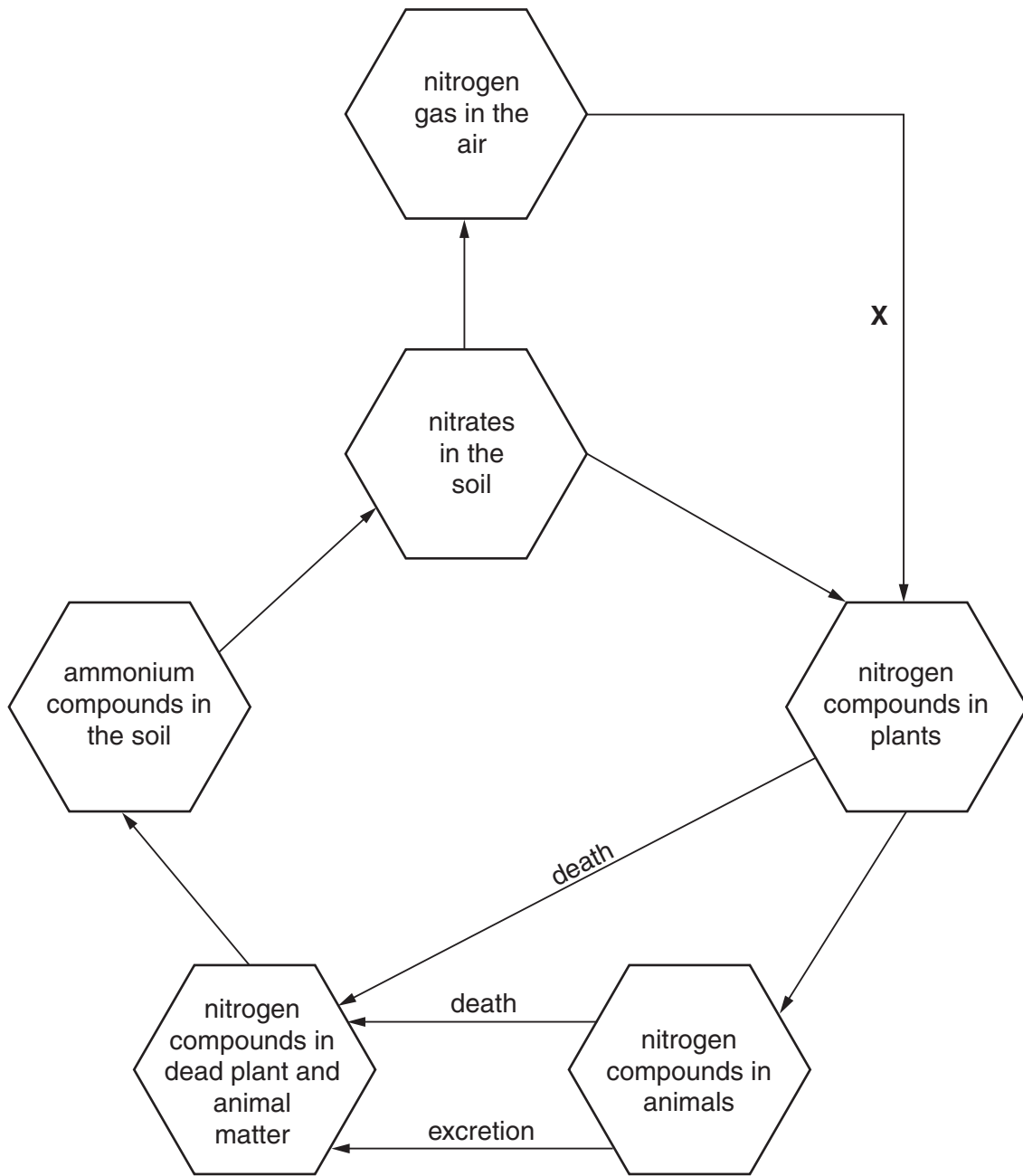


Fig. 6.1

(a) (i) Name **one** nitrogen compound found in plants.

.....[1]

(ii) Name an example of a nitrogen compound which is excreted by mammals.

.....[1]

- (iii) Process X can only occur in certain plants. Which group of organisms carry out this process and where in a plant are they found?

Organism

Where found[2]

- (b) The grassland is ploughed up and turned into farmland. Crops of maize are grown on it year after year.

- (i) Predict and explain the effect of this change on the nitrogen cycle and on the crop yield.

Effect on the nitrogen cycle

.....

.....

Effect on crop yield

.....

.....[4]

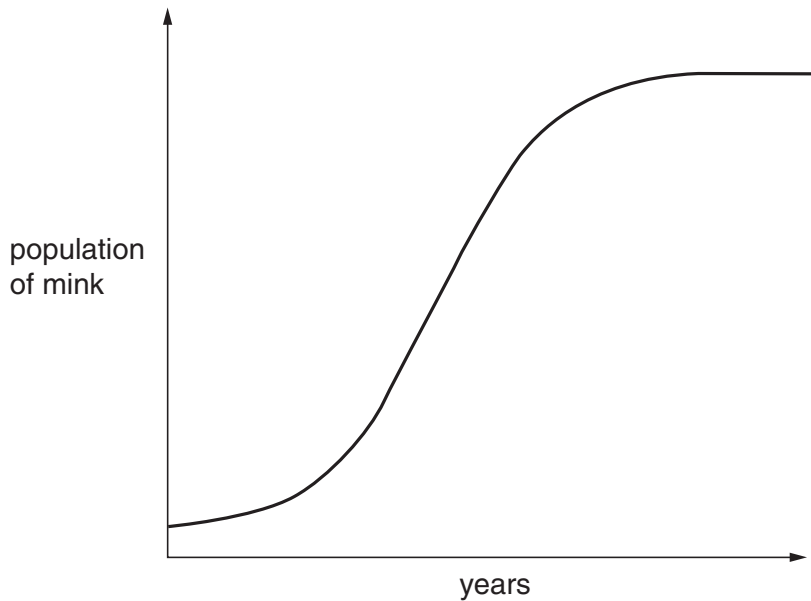
- (ii) Suggest **one** way in which the farmer could prevent the effect on crop yield.

.....

.....[1]

[Total : 9]

- 7 In the summer of 1998 about 2000 mink were released from captivity into one area of forest in southern Britain. Mink are aggressive carnivorous mammals. The graph shows how the population of mink might change over a few years if there were no human interference.



(a) State **three** factors which would cause the mink population to become constant.

1.
.....
 2.
.....
 3.
.....
- [3]

(b) It might be expected that a graph for human world population would show a similar pattern. However, it is now thought that the human population will continue to grow steadily. Suggest **three** reasons why this might happen.

1.
.....
 2.
.....
 3.
.....
- [3]

[Total : 6]

- 8 (a) State the term which is used to describe the maintenance of a constant internal environment in the human body.

.....[1]

- (b) Describe how each of the following processes helps to maintain the temperature of the body:

- (i) sweating;

.....

.....

.....[2]

- (ii) vasodilation.

.....

.....

.....

.....[3]

[Total : 6]

