Centre Number	Candidate Number

Candidate Name _____

UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE

General Certificate of Education Ordinary Level

BIOLOGY 5090/2

PAPER 2

MAY/JUNE SESSION 2000 1 hour 45 minutes

Additional materials:
Answer paper

TIME 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page and on any separate answer paper used.

Section A

Answer **all** questions.

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

Section B

Answer any **three** questions.

Write your answers to Section B on the separate answer paper provided.

At the end of the examination,

1. fasten any separate answer paper used securely to the question paper,
2. enter the numbers of the Section B questions you have answered in the grid below.

INFORMATION FOR CANDIDATES

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

You are advised to spend no longer than one hour on Section A and no longer than 45 minutes on Section B.

FOR EXAMINER'S USE	
Section A	
Section B	
TOTAL	

This question paper consists of 8 printed pages.

[Turn over

Section A

Answer **all** the questions in this section.

1 Fig. 1.1 shows a section through a diseased blood vessel of a middle-aged person.

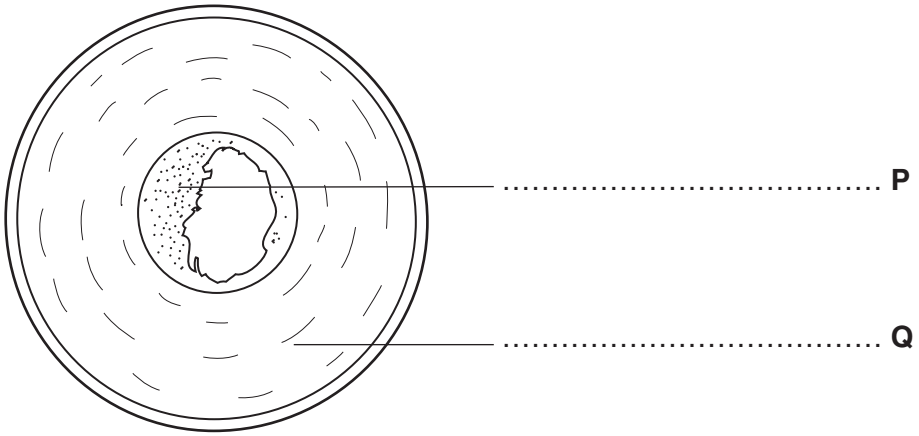

Fig. 1.1

(a) What type of blood vessel is shown?

.....[1]

(b) On the diagram, name the parts labelled **P** and **Q**. [1]

(c) Describe the possible effects of **P** on the person's health.

.....

.....

.....

.....

.....[4]

(d) Explain how the person's diet, over the previous twenty years, may have caused this blood vessel to be diseased.

.....

.....

.....[2]

[Total : 8]

2 Fig. 2.1 represents the action of an enzyme. The pin represents the enzyme.

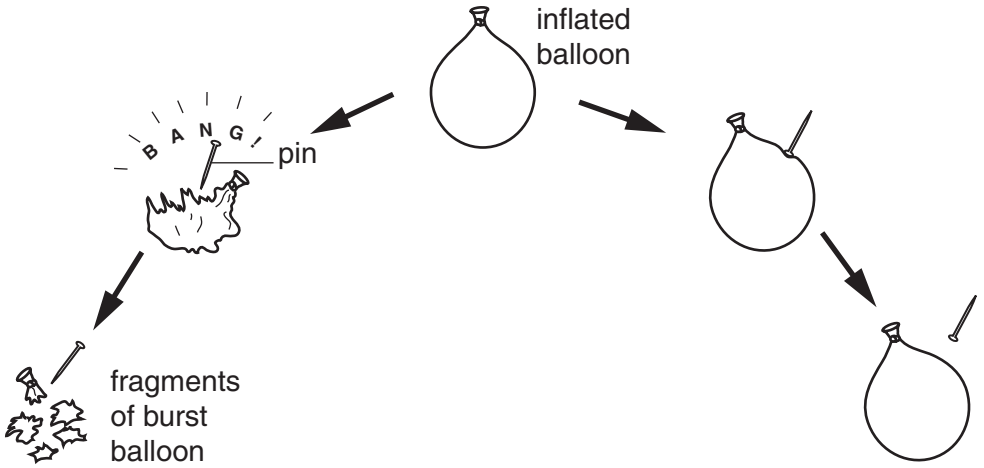

Fig. 2.1

What is represented by

(a) (i) the inflated balloons;

.....

(ii) the fragments of burst balloon?

.....
[2]

(b) Suggest **two** ways in which Fig. 2.1 accurately represents an enzyme-controlled reaction.

1. .....

2. .....[2]

(c) Suggest **three** ways in which Fig. 2.1 does **not** accurately represents an enzyme-controlled reaction.

1. .....

2. .....

3. .....[3]

[Total : 7]

3 Fig. 3.1 shows an experiment on gaseous exchange in a potted plant.

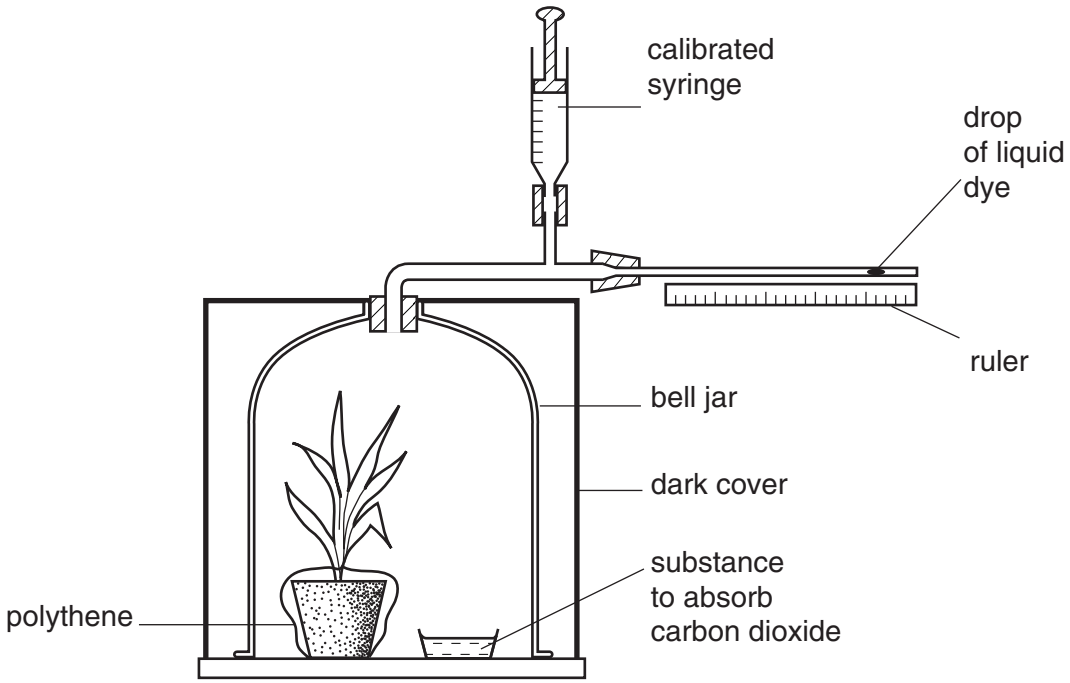

Fig. 3.1

(a) Which metabolic process is being investigated in this experiment?

.....[1]

(b) In which direction would the drop of dye move during the experiment?
Explain your answer.

Direction .....

Explanation .....

.....[3]

(c) Suggest **two** uses for the syringe in this experiment.

1. .....

2. .....[2]

The dark cover is then removed and the plant exposed to bright light.

(d) Suggest why the drop of dye might stop moving.

.....

.....

.....[2]

[Total : 8]

4 **(a)** State **two** advantages of seed dispersal.

1. .....

2. .....[2]

Fig. 4.1 shows two fruits, **W** and **X**, in longitudinal section.

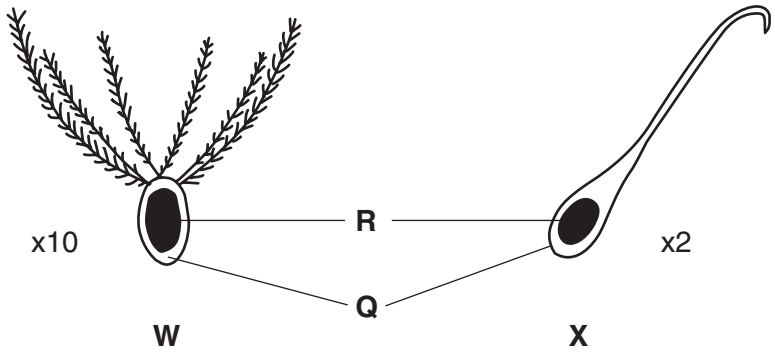

Fig. 4.1

(b) **(i)** Name the structure **R** in the two fruits. .....

(ii) From which part of the parent plants have the structures labelled **Q** developed?

.....
[2]

(c) Suggest and explain how each of the fruits might be dispersed.

Fruit **W**

Method of dispersal .....

Explanation .....

.....

Fruit **X**

Method of dispersal .....

Explanation .....

.....[4]

(d) Suggest **three** reasons why a dispersed fruit may **not** produce a new plant.

1. .....

2. .....

3. .....[3]

[Total : 11]

[Turn over

5 Fig. 5.1 shows a container in which a gardener has put garden refuse. Temperature sensor **T** was placed on top of the refuse and temperature sensor **U** was placed in the middle of the refuse.

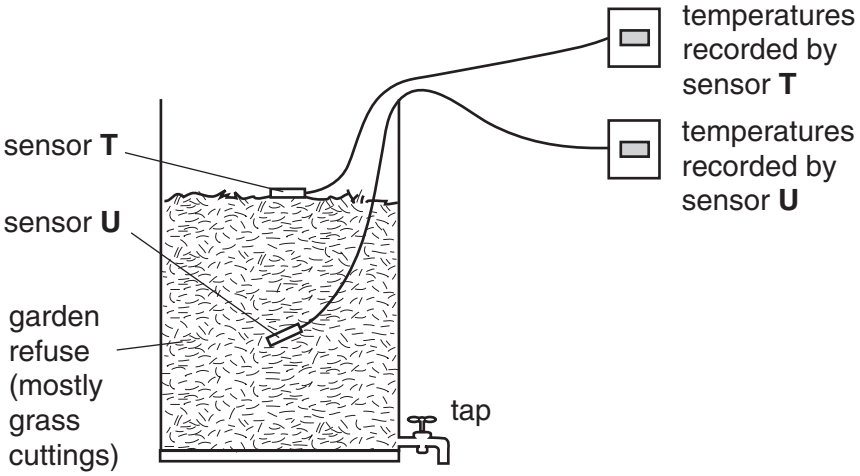

Fig. 5.1

Fig. 5.2 shows the temperatures recorded by the sensors over the following 12 days.

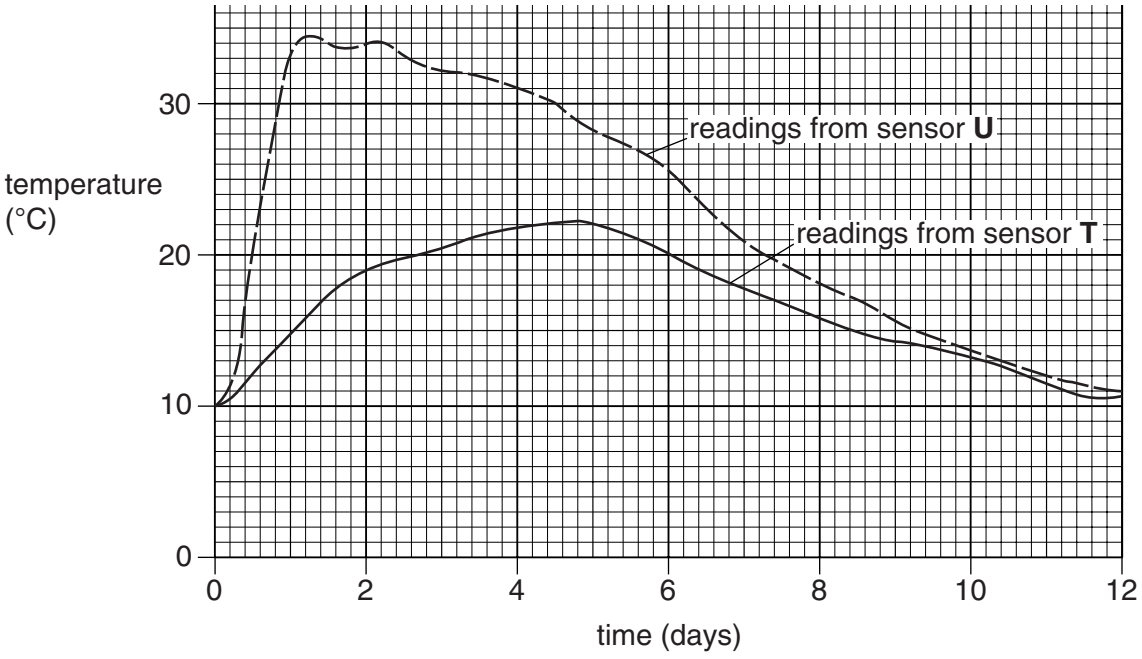

Fig. 5.2

(a) State the difference between the temperatures recorded by the sensors at the beginning of day 5. Show your working.

.....[1]

(b) (i) Explain the change in temperature recorded by sensor **U** during the first two days.

.....

.....

.....

(ii) Explain why the temperatures recorded by sensor **T** are lower than those recorded by sensor **U**.

.....

.....

.....

[5]

After 12 days, the gardener poured some water into the container, then opened the tap. The water he collected in this way was used on the plants in his garden.

(c) (i) State **two** nutrients which might be present in the water from the container that could improve the growth of his plants.

1. .....

2. .....[2]

(ii) For each nutrient in **(c)(i)**, explain why it is important to a growing plant.

Nutrient 1 .....

Nutrient 2 .....[2]

[Total : 10]

Section B

Answer **three** questions from this section on separate answer paper.

6 **(a)** Show, by means of a table, how red and white blood cells differ in structure and function. [6]

(b) What changes are made to the blood as it flows through

(i) the lungs;

(ii) the kidneys?

[4]

(c) Describe how the blood clots to seal a wound in the skin. [2]

7 **(a)** Explain how, in a healthy person, **(i)** the body temperature and **(ii)** the blood sugar, are returned to normal after they have risen above normal levels. [10]

(b) Explain why it is important for Man to maintain a constant body temperature of 37 °C. [2]

8 **(a)** Draw labelled diagrams to show the positions of xylem and phloem tissues in

(i) a root;

(ii) a stem.

[5]

(b) Describe an experiment to show which tissue in a stem conducts water from roots to leaves. [4]

(c) Explain how a plant stem is able to support the leaves, flowers and fruits. [3]

9 **(a)** List the main parts of the human female reproductive system and describe the function of each part listed. [8]

(b) **(i)** Describe the signs and symptoms of a **named** sexually-transmitted disease.

(ii) How can the spread of this disease be controlled?

[4]

10 **(a)** Describe the difference in the type of movement found in a ball and socket joint and in a hinge joint. [3]

(b) A small insect lands on your nose and you remove the insect with your hand. Explain what happens in your nervous, muscular and skeletal systems from the moment the insect lands to the moment it is removed. [9]