

Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE  
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU  
Tystysgrif Gyffredinol Addysg Uwchradd

239/01

**ADDITIONAL SCIENCE**  
**FOUNDATION TIER (Grades G-C)**  
**BIOLOGY 2**

P. M. WEDNESDAY, 6 June 2007

(45 minutes)

<b>For Examiner's use only</b>	
<b>Total Marks</b>	

**ADDITIONAL MATERIALS**

In addition to this paper you may require a calculator.

**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 in this booklet.

**INFORMATION FOR CANDIDATES**

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

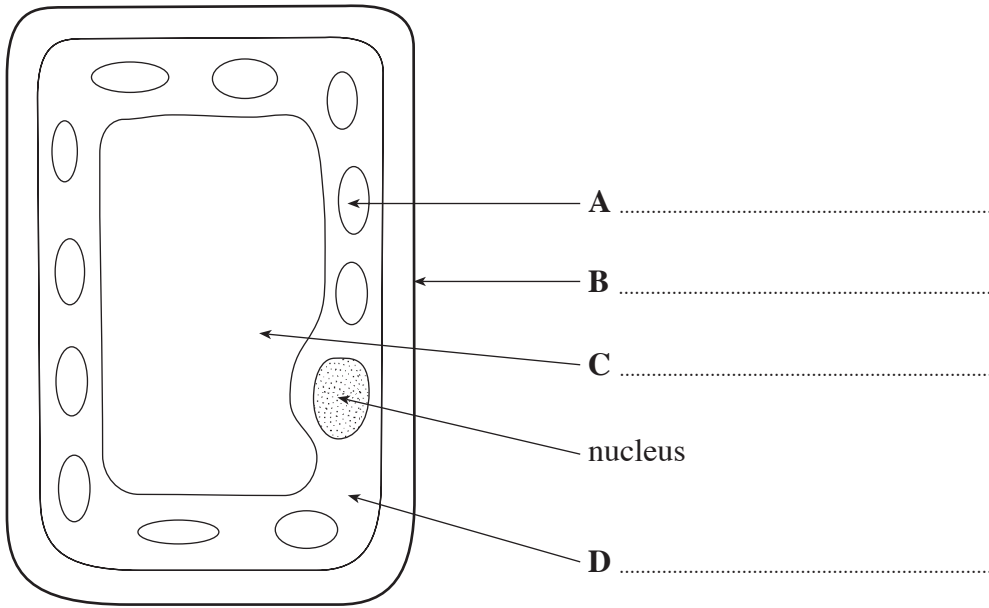
You are reminded of the necessity for good English and orderly presentation in your answers.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

*Answer all questions.*

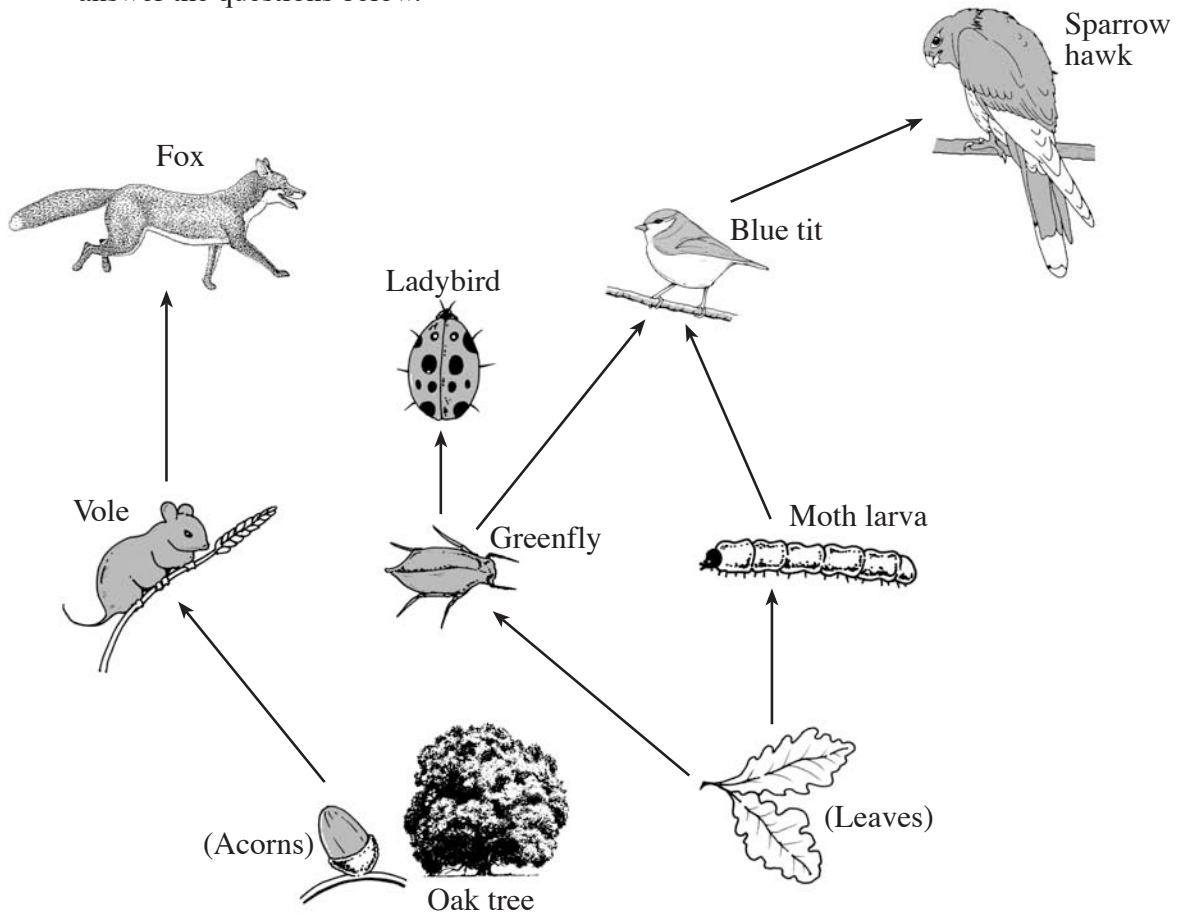
1. (a) The diagram below shows a cell from a plant. Label **A**, **B**, **C** and **D** by choosing words from the list. [4]

chloroplast, vacuole, cytoplasm, cell wall, cell membrane.



- (b) Draw and label an animal cell in the space below. [2]

2. (a) The diagram below shows a woodland food web. Use the information in this food web to answer the questions below.



(i) Give one food chain by filling in the boxes. [2]



(ii) What do the arrows in the food chain show? [1]

.....

(iii) Why is the oak tree called a *producer*? [1]

.....

(iv) Name **two** carnivores from the food web above. [2]

I ..... II .....

(v) From the diagram, give **one** herbivore and state what it eats. [2]

Herbivore .....

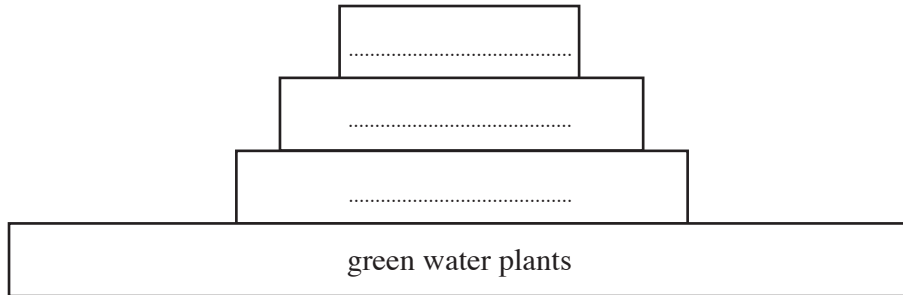
Food eaten .....

(b) The diagram below shows a food chain in a pond.

Green water plants → water beetles → leeches → fish

(i) Using this food chain, complete the pyramid of numbers shown below.

[2]



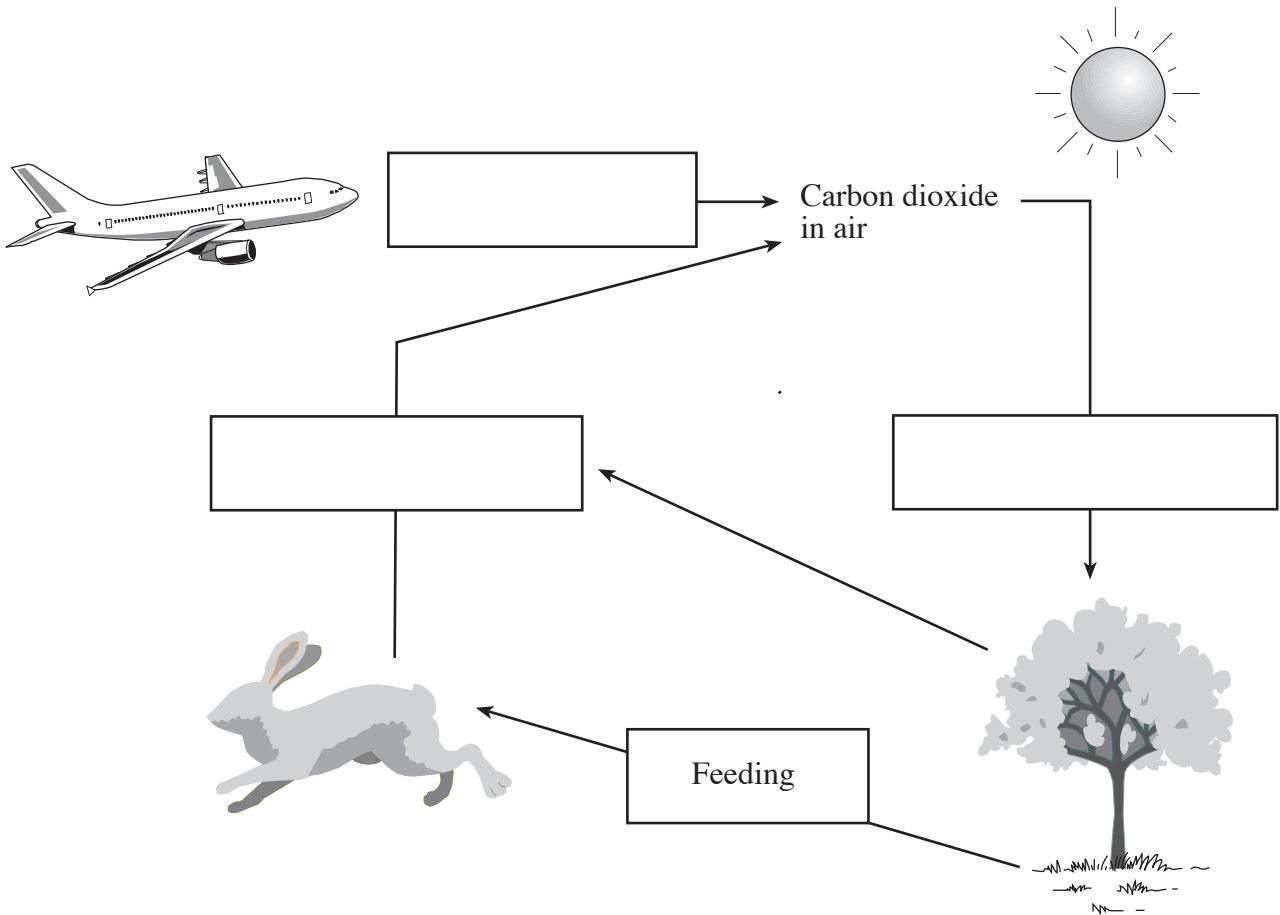
(ii) What would happen to the number of leeches if the number of water beetles decreased? [1]

.....

3. (a) Carbon dioxide gas constantly passes into and out of the air.

Complete the boxes in the diagram of the carbon cycle by choosing the correct terms from the list below. One has been done for you. [3]

feeding, photosynthesis, respiration, burning.



(b) Scientists think too much carbon dioxide is going into the atmosphere. Suggest how humans can help to reduce this problem. [1]

.....

.....

(c) If large numbers of trees across the world were cut down, what would happen to the level of carbon dioxide in the air? [1]

.....

4. Read the following passage very carefully.

**Desert Alert!**

Scientists think that hot deserts will get hotter and drier in the future. Some suggest that there will be 20% less rain in 50 years time and that temperatures will rise by 7°C.

Many desert plants, including cacti and mosses, may not be able to survive. The animals which depend on the plants for food may also die out.

Humans are destroying the desert soil by mining, fighting wars, building and tourism.

*From New Scientist*

Using only **this information**, answer the questions which follow.

- (a) For what reason will deserts be drier in the future? [1]

.....

- (b) Name **two** plants which may be lost from the desert. [1]

.....

.....

- (c) Desert temperatures often reach 35°C. What will the temperature be in 50 years time? [1]

.....

- (d) Why might desert animals be unable to survive? [1]

.....

- (e) State **one** way in which humans are causing damage to the desert soil. [1]

.....

5. Enzymes are important in all living cells. Temperature affects how they work.

(a) Choose the correct words from the list, to complete the sentences:

temperature, increases, decreases, destroyed, cells. [4]

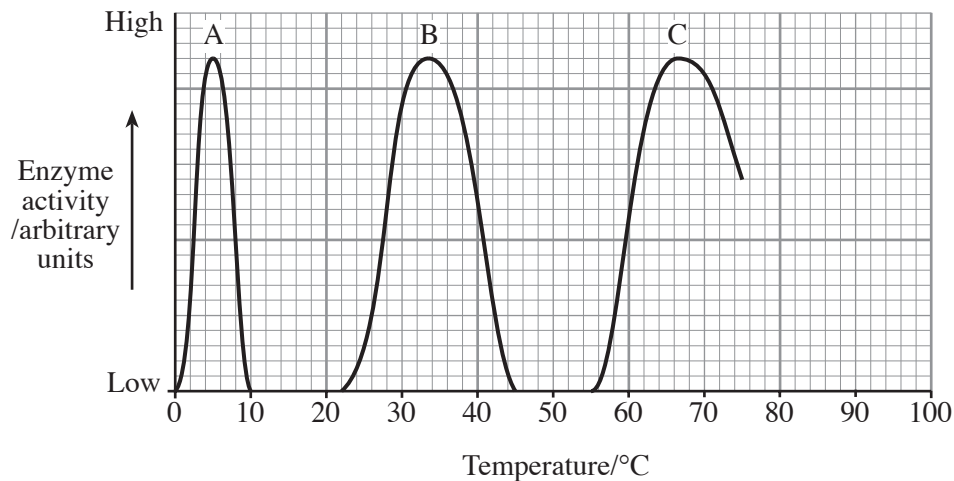
(i) All living ..... have enzymes.

(ii) Each enzyme works best at a certain .....

(iii) When the temperature rises the enzyme activity ..... up to a point and then falls.

(iv) All enzymes are ..... by boiling.

(b) The graph shows the action of three enzymes from different living organisms.



(i) From the graph, give the letter which matches each of the following:

An enzyme from:

a bacterium from hot springs which reach 75°C; .....

a plant on a cold mountain at 5°C; .....

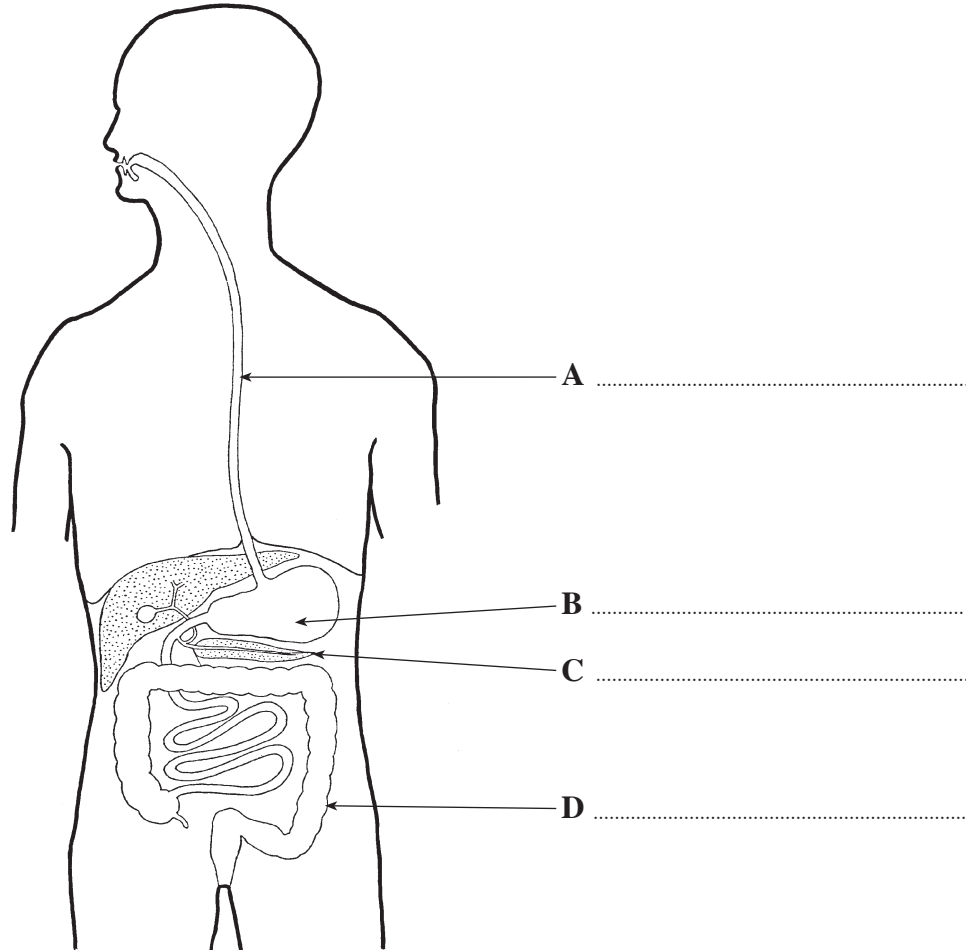
the body of a healthy human at 37°C. ....

[3]

(ii) On the graph, complete the line for enzyme C at high temperatures.

[1]

6. The diagram below shows the human digestive system.



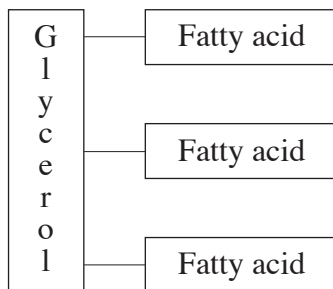
(a) Label the parts **A-D** on the diagram.

[4]

(b) (i) Name the food molecule shown in the diagram below.

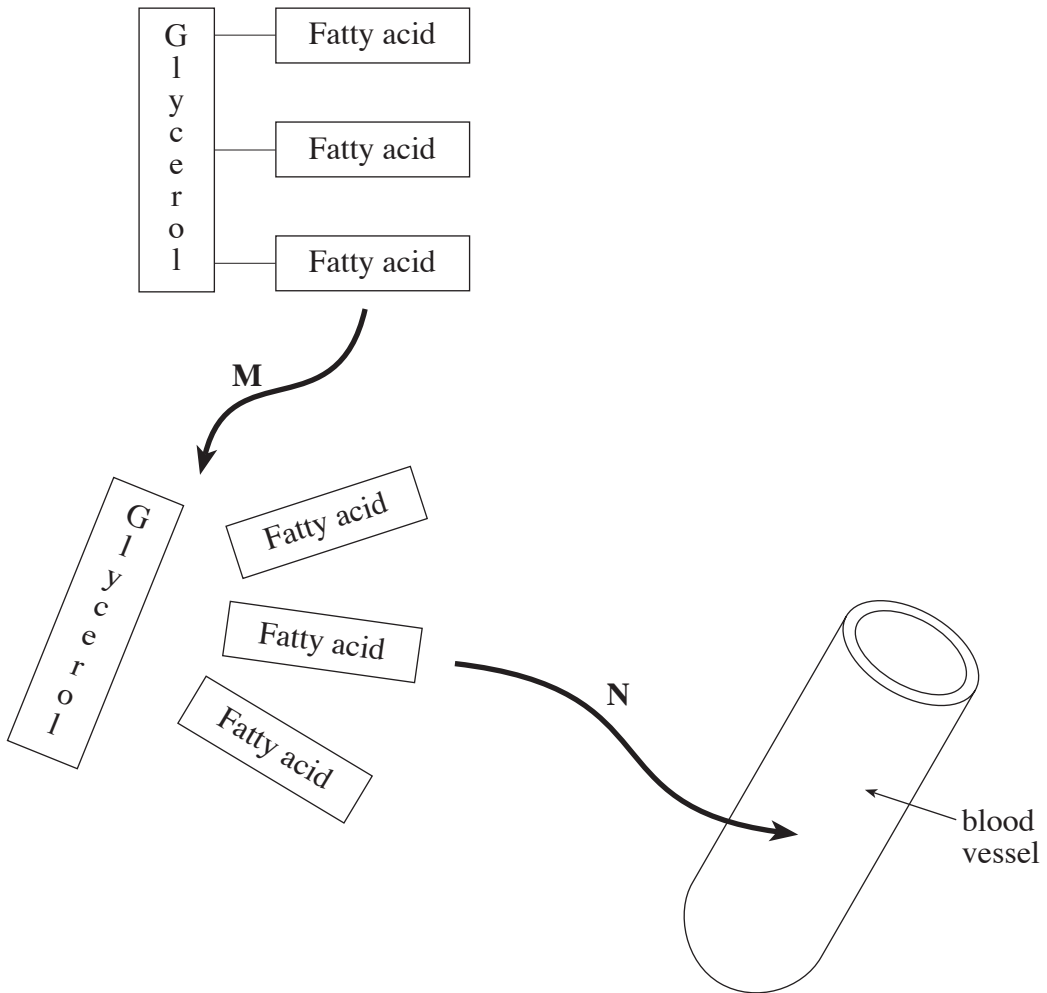
[1]

.....





(ii) The diagram below shows two processes, **M** and **N**, that occur in the small intestine.



Name processes **M** and **N**.

[2]

**M** .....

**N** .....

7. The following article appeared on BBC news on-line (5 Feb, 2003).

### **Alien species 'costing Africa billions'**

Plants and animals introduced from other continents are placing a huge burden on Africa. One of these alien species is the water hyacinth, a native of South America brought to Africa as an ornamental plant.



It has now spread to most of the continent's lakes and rivers, and can form huge mats of floating vegetation. These deprive life beneath the surface of light and oxygen, and reduce biodiversity, particularly fish species.



*Lake covered by water hyacinth*

*(BBC news on-line)*

The hyacinth can make fishing impossible and seriously affect water supplies, shipping and power generation. Able to double its mass in 12 days, it grows faster than mechanical cutters can clear it. The best option is biological control using species of beetles, moths, mites and fungi.

(a) Use the information on page 10 to help you answer the following questions.

(i) What is meant by an *alien* species? [1]

.....  
.....

(ii) Give **two** ways in which the water hyacinth affects the lives of people living near where it grows. [2]

(I) .....

(II) .....

(iii) State what is meant by *biological control*. [1]

.....  
.....

(iv) Why must biological control be used with care? [1]

.....  
.....

(b) Suggest why herbicides (weedkillers) are not used to destroy the water hyacinth. [1]

.....  
.....

(c) Suggest **two** ways in which governments could prevent the release of alien species into the wild. [2]

(i) .....

.....

(ii) .....

.....