

Candidate Name	Centre Number	Candidate Number
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**GCSE**

239/01

**ADDITIONAL SCIENCE  
FOUNDATION TIER  
BIOLOGY 2**

P.M. THURSDAY, 19 May 2011

45 minutes

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	7	
2	10	
3	6	
4	7	
5	5	
6	4	
7	5	
8	6	
<b>Total</b>	<b>50</b>	

**ADDITIONAL MATERIALS**

In addition to this paper you may require a calculator and a ruler.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.

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.

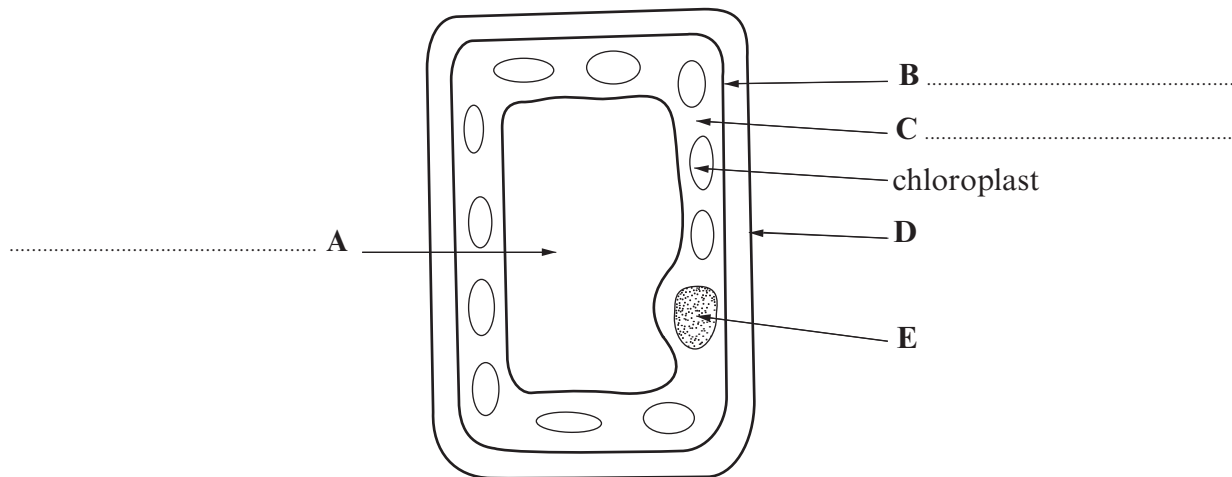
**INFORMATION FOR CANDIDATES**

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.

Answer **all** questions.

1. (a) The diagram shows a plant cell.



- (i) On the diagram, label **A**, **B** and **C** using some of the words below. [3]

vacuole	cell wall	nucleus	cell membrane	cytoplasm
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- (ii) State the function of the chloroplast. [1]

- (iii) From the diagram, give the **letters** of **two** structures, other than the chloroplast, which are **not** present in animal cells. [2]

- (b) Which process allows damaged cells and tissues to be replaced? [1]

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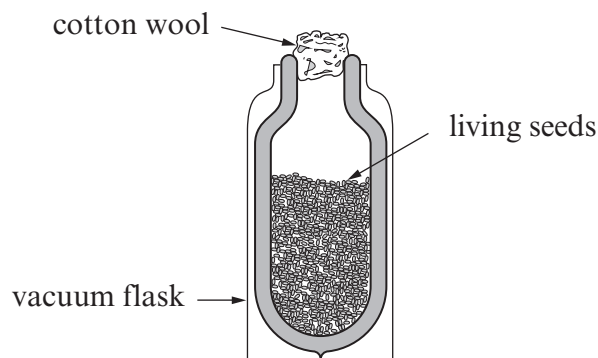
2. (a) Complete the sentence by using some of the words below.

[3]

enzymes	energy	chemical	light
---------	--------	----------	-------

During respiration in living cells ..... is released from  
..... reactions which are controlled by .....

(b) A scientist carried out an experiment. Using a thermometer, she recorded the temperature of living seeds in a flask for 9 days.



(i) Complete the diagram by drawing a thermometer in its correct place and labelling it. [1]

(ii) Why was it important that she used a vacuum (*Thermos*) flask? [1]

.....

(iii) Why was cotton wool used instead of a rubber stopper? [1]

.....

- (c) The results of the experiment in (b) are shown in the table below. The temperature increased.

Day of experiment	Temperature °C
1	20
3	24
5	39
7	43
9	46

- (i) Between which days did the temperature increase most quickly? Circle the correct answer. [1]

Days 1–3      days 3–5      days 5–7      days 7–9

- (ii) What process in the living seeds caused the temperature to increase? [1]

.....

- (iii) At the same time, the scientist set up another identical flask containing dead seeds and some disinfectant. What was the purpose of this flask and what results would be expected? [2]

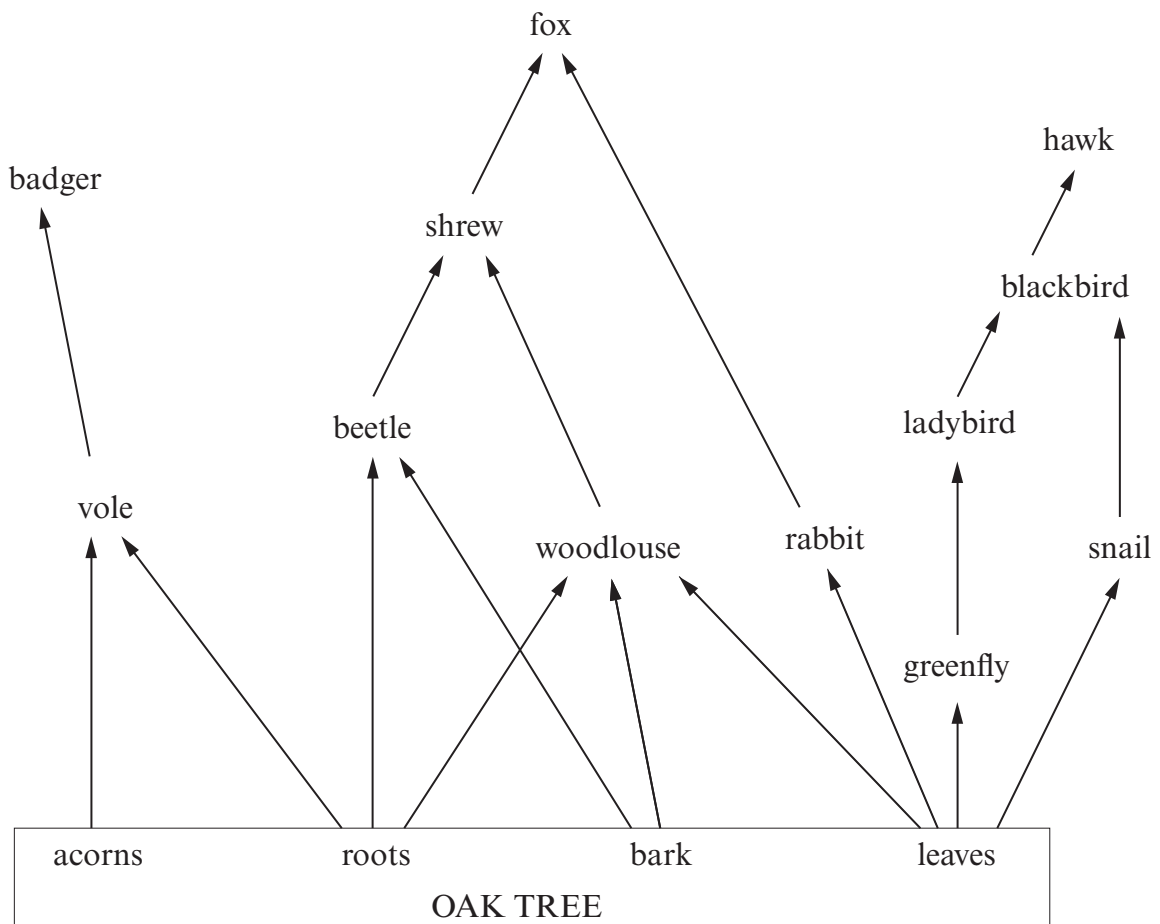
Purpose .....

.....

Expected results .....

.....

3. The diagram shows part of a food web in a woodland.



Using **this information**, answer the following questions.

(a) The producer in this food web is the oak tree.

(i) What is the source of energy for the tree?

[1]

.....

(ii) What do the arrows on the diagram show?

[1]

.....

(b) (i) Which part of the oak tree supports the greatest number of different first stage consumers (herbivores)? Circle your answer. [1]

acorns          roots          bark          leaves

(ii) Name a carnivore and give **one** example of what it eats. [1]

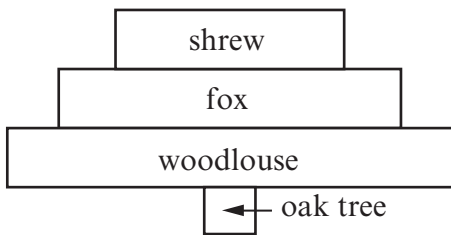
Carnivore .....

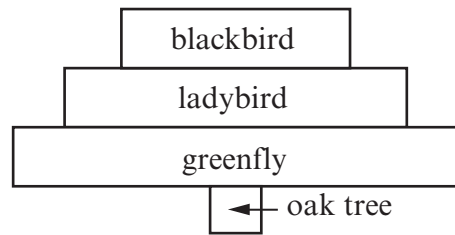
Food .....

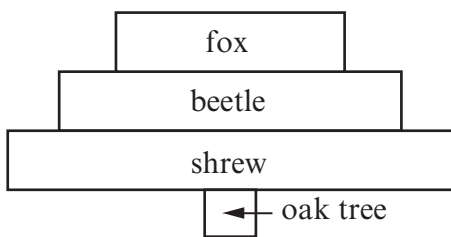
(iii) Name **one** *third stage* (tertiary) consumer. [1]

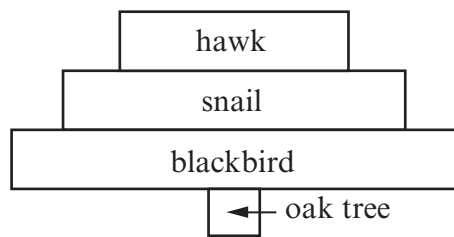
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(c) A student drew some pyramids of numbers from food chains in the food web. Place a tick (✓) in the box for the **one which is correct**. [1]

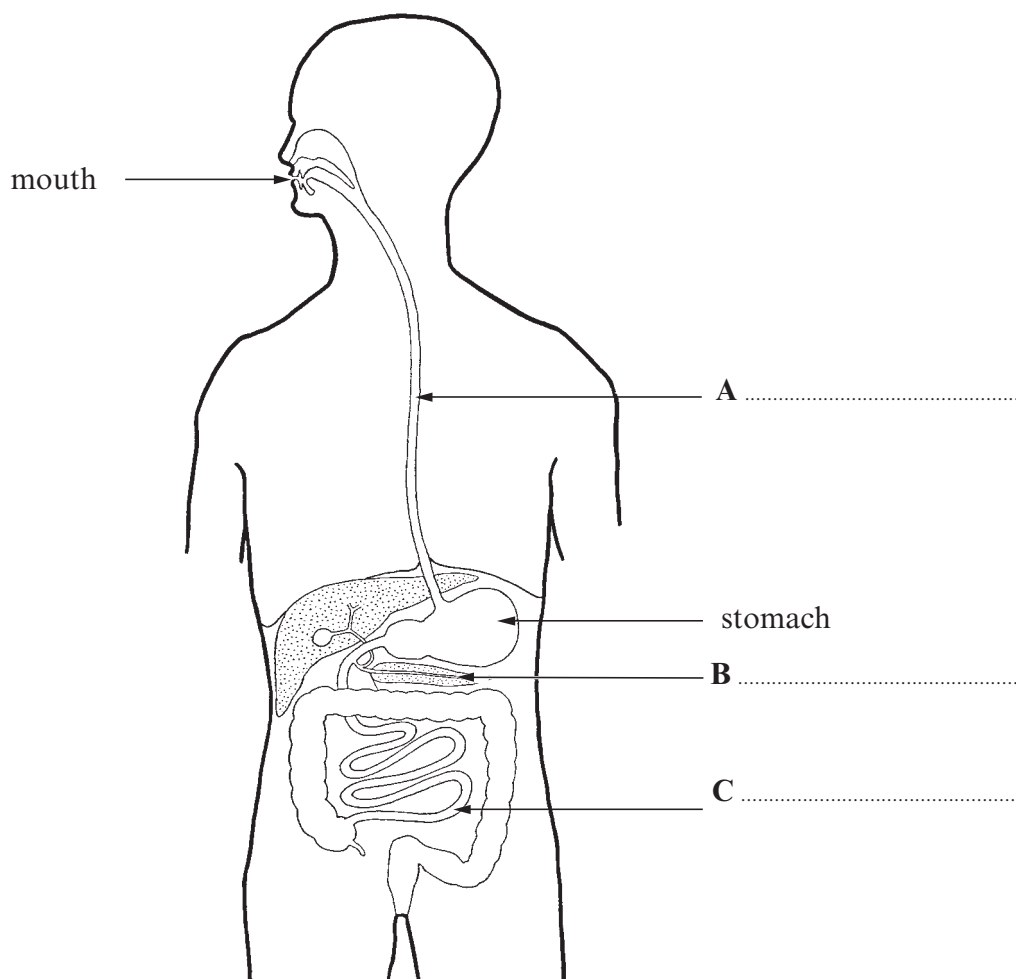








4. (a) The diagram below shows the human digestive system. Label **A**, **B** and **C** on the diagram. [3]



- (b) Complete the table below. [2]

Part of digestive system	Class of food which is digested (starch, protein or fat)
mouth	
stomach	

- (c) Amino acids and glucose are produced by digestion. State **one** use of each in the body. [2]

- (i) Amino acids .....
- (ii) Glucose .....



5. Read the following information about bird conservation.

- In 1980 the Kingfisher was an endangered species in a part of South Wales. Conservation workers set up nest places and perches near rivers. They also helped to reduce river pollution. In 2006 there were 6000 birds, five times more than 1980.
- In the North of England, the Sea Eagle had died out by 1918. Conservationists introduced a few from another country in 1950 and breeding was very successful.



Google images

Kingfisher feeding

Using **this information only**:

- (a) (i) Why is it very important for Kingfishers that their river water is not polluted? [1]

.....

- (ii) Give **one** example of conservation work, *other than* reducing pollution which helped Kingfishers. [1]

.....

- (iii) How many Kingfishers were there in 1980? Show your working. [1]

Answer .....

- (b) (i) After Sea Eagles had disappeared, how long was it before conservation work started? [1]

.....

- (ii) What evidence is there that the number of Sea Eagles has increased because of conservation? [1]

.....

- 6. Rhys, Angharad and their parents were very excited when they went whale watching from a high powered motor boat. Rhys said “We got so close to the whales that we even managed to get in between a mother and its calf”.



Google images

(a) Suggest **two** harmful effects that this type of ecotourism could have on the whales. [2]

(i) .....

(ii) .....

(b) Ecotourism also occurs in the Manu Biosphere Wildlife Reserve in Peru. This reserve is a good example of a sustainable use of wildlife.

(i) Explain the meaning of sustainable use of wildlife. [1]

.....  
.....

(ii) Suggest **one** benefit that ecotourism in the Manu Biosphere Wildlife Reserve has on the local communities. [1]

.....

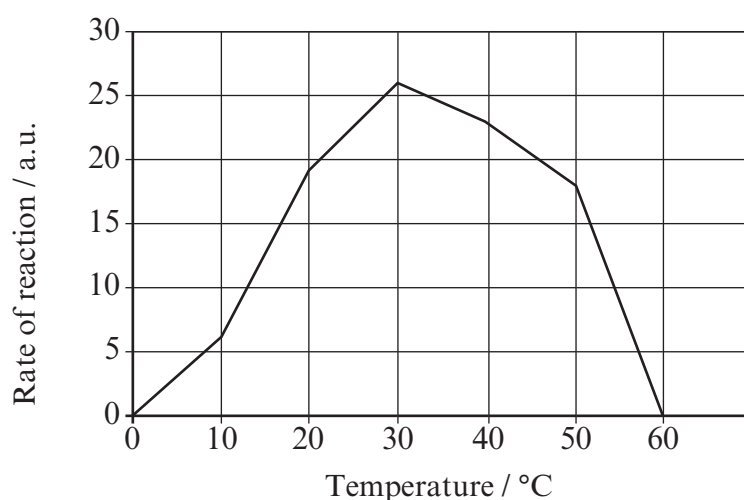
7. (a) What is an enzyme? [2]

.....

.....

.....

(b) An investigation was carried out in a school laboratory into the effect of temperature on the breakdown of starch by the enzyme amylase. The results of the investigation are shown in the graph below.



From the graph:

(i) **Describe** the effect of temperature, above 30°C, on the amylase. [1]

.....

.....

(ii) **Explain** the effect of temperature, above 30°C, on the amylase. [1]

.....

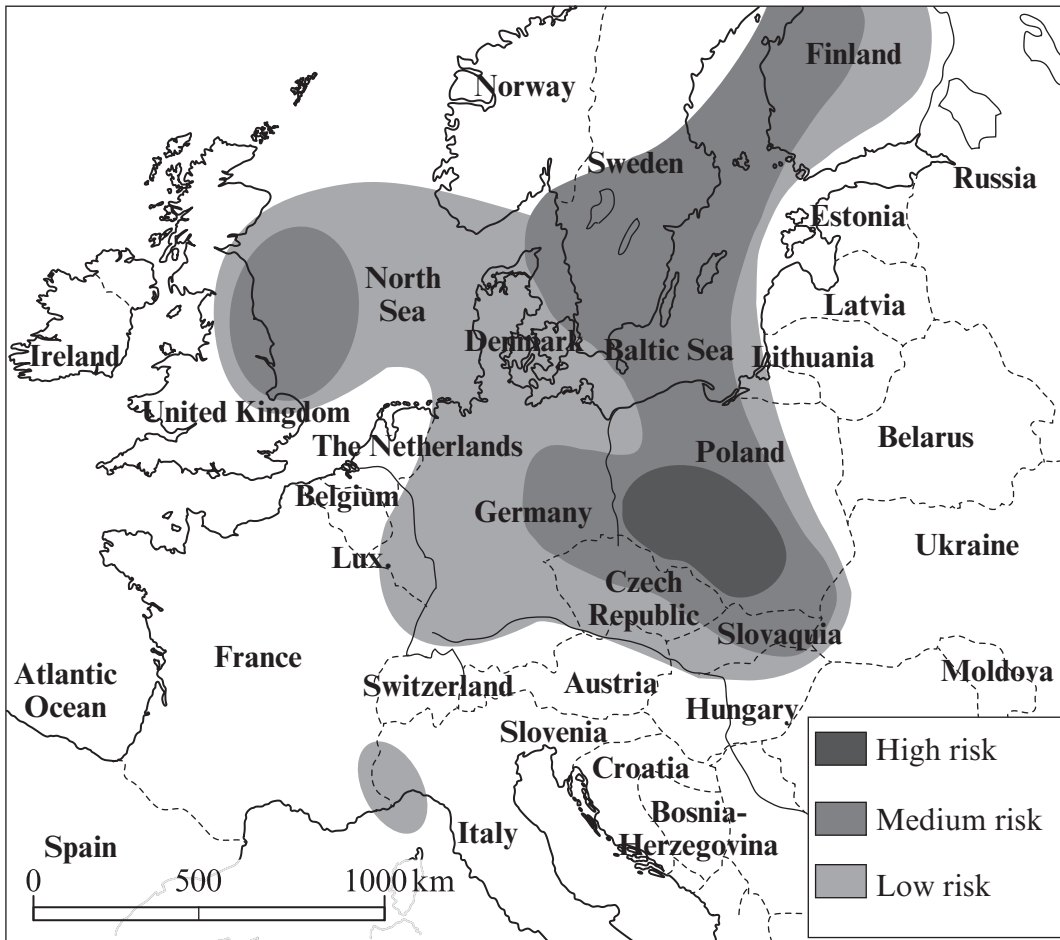
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(c) State **one** factor which should be kept constant during this investigation. [1]

.....

(Questions continue overleaf)

8. The map shows the regions of Europe which are most at risk from acid rain.



(a) Which country and sea are most at risk from acid rain? [2]

Country .....

Sea .....

(b) Acid rain forms when gases such as carbon dioxide (CO<sub>2</sub>) and sulphur dioxide (SO<sub>2</sub>) dissolve in water in the atmosphere.

(i) Name the process that releases these gases. [1]

.....

(ii) Name the source of these gases. [1]

.....

(c) State **two** effects of acid rain on the environment and living organisms. [2]

.....  
 .....  
 .....