



General Certificate of Secondary Education
2017–2018

Centre Number

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Candidate Number

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Double Award Science: Biology

Unit B1
Foundation Tier



[GSD11]

GSD11

TUESDAY 15 MAY, AFTERNOON

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Do not write outside the boxed area on each page or on blank pages.

Complete in black ink only. **Do not write with a gel pen.**

Answer **all nine** questions.

INFORMATION FOR CANDIDATES

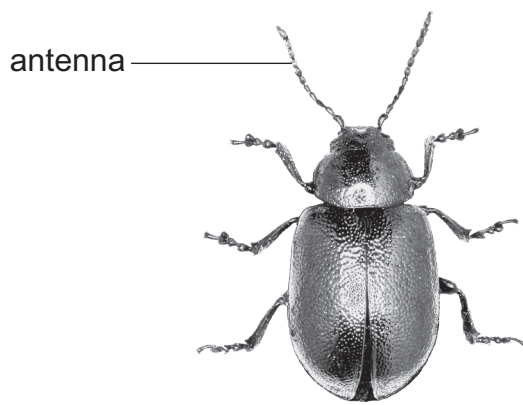
The total mark for this paper is 70.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Question **9(a)**.



1 (a) The photographs below show a beetle and an earthworm.



Beetle



Earthworm

© gstalker / iStock / Thinkstock and © bazilfoto / iStock / Thinkstock

The beetle has two antennae.

(i) Give **one** other feature of the beetle.

_____ [1]

(ii) Give **one** feature of the earthworm.

_____ [1]

(b) (i) Name the group of animals the beetle belongs to.

_____ [1]

(ii) Name the group of animals the earthworm belongs to.

_____ [1]

(c) Name the apparatus used to collect small animals that crawl along the ground.

_____ [1]

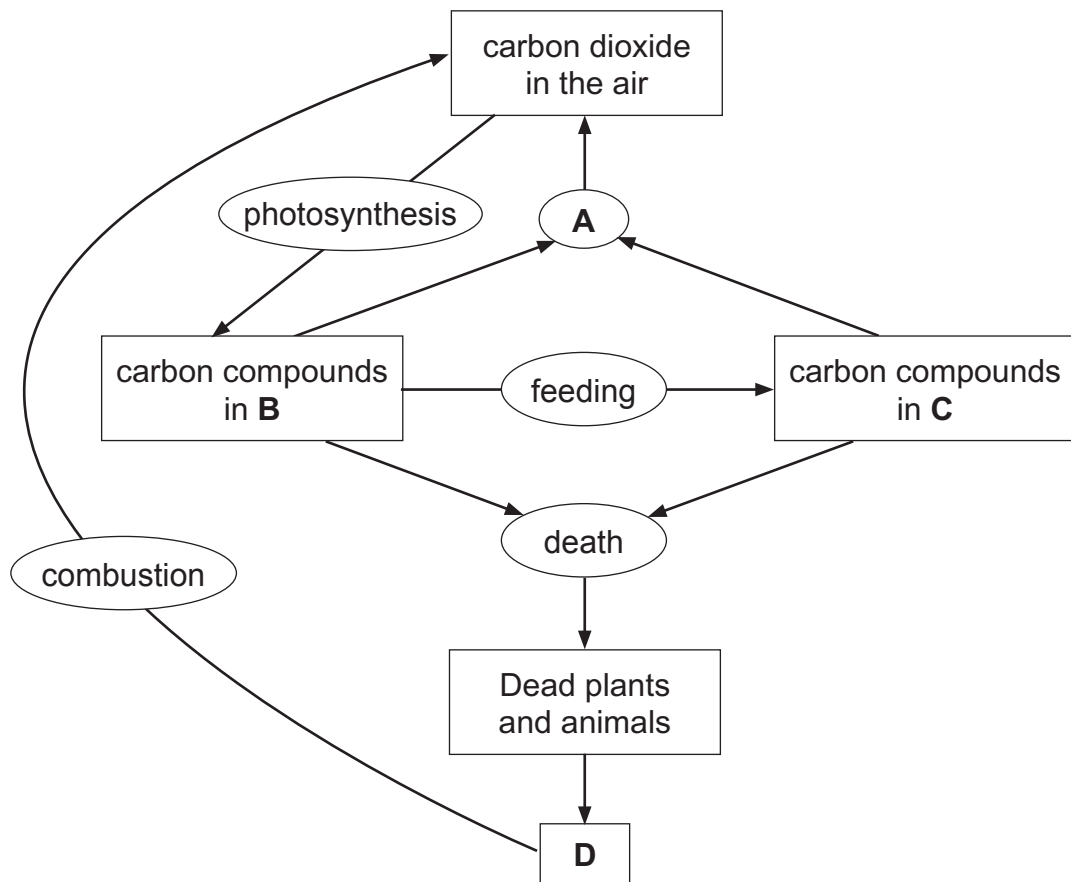




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(Questions continue overleaf)



2 (a) The diagram shows part of the carbon cycle.



(i) Name process A.

[1]

(ii) Name B, C and D.

B _____

C _____

D _____

[3]

(iii) Name the gas produced in photosynthesis.

[1]



Deforestation is the cutting down of large numbers of trees in forests.

- (b) Describe and explain how deforestation affects the level of carbon dioxide in the atmosphere.

Description _____

Explanation _____

_____ [3]

[Turn over



3 (a) Use the terms in the box below to answer the questions that follow.

ecology community classification habitat

(i) Give the term that describes the place where an organism lives.

[1]

(ii) Give the term that describes the total number of organisms of all the populations in an area.

[1]



- (b) There were **500 mice** in a woodland at the **start** of a month. The table below shows the **changes** in the population of the mice by the **end** of the month.

Number of births	121
Number of deaths	102
Number of immigrants	5
Number of emigrants	11

- (i) Use the equation below to calculate the **change** in the number of mice in the population at the **end** of the month.

$$\text{Change in the number of mice} = \text{Number of births} + \text{Number of immigrants} - \text{Number of deaths} - \text{Number of emigrants}$$

Show your working.

_____ [2]

- (ii) Give the **total number** of mice present in the woodland at the end of this month.

_____ [1]

- (c) Suggest **two** possible reasons why some mice died in the woodland.

1. _____

2. _____

_____ [2]

[Turn over



4 The table below shows some of the nutrients found in two types of crisp.

Nutrients in the crisps	Mass of nutrient in each type of crisp g/100 g	
	Type A	Type B
Carbohydrate	53.0	53.0
Salt	2.0	1.5
Fat	33.5	28.0

Type B crisp is a healthier food choice.

(a) Use data from the table to support this statement.

[2]

The maximum recommended intake of salt for an adult is 6 g per day.
An adult ate 100 g of type A crisps in one day.

(b) Calculate the percentage of the maximum daily intake of salt this adult has eaten.

Give your answer to **one** decimal place.

Show your working.

_____ % [3]

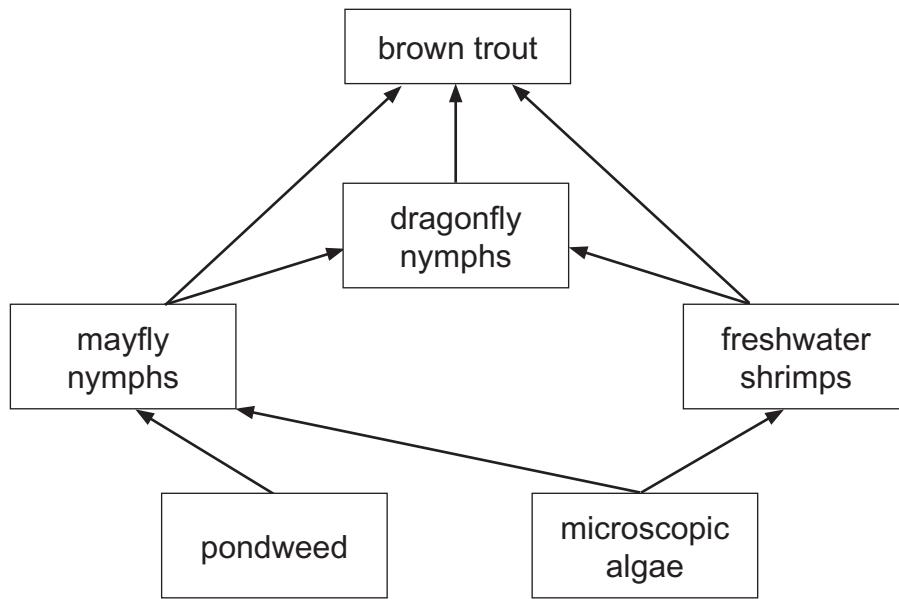
(c) Give **two** ways an unhealthy diet affects a person's health.

1. _____

2. _____ [2]



5 The diagram below shows a food web from a lake.



(a) Name a producer in this foodweb.

[1]

(b) Give the **two** trophic levels the brown trout is feeding at.

_____ and _____

[2]

(c) Use the food web above to complete the food chain containing four organisms.

pondweed

[2]



- 6 (a) The photograph shows the growth response of plant seedlings growing in a tray with light coming from one direction.



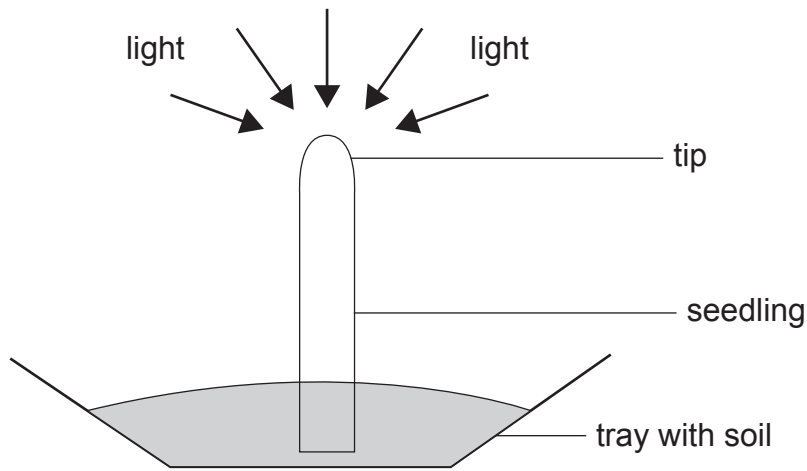
© Graham Jordan / Science Photo Library

- (i) Draw an arrow beside the photograph to show the direction of the light that has produced this growth response in the seedlings. [1]
- (ii) Name this growth response in seedlings.

_____ [1]



One other seedling was grown in a tray with light coming from all directions as shown in the diagram below.



Source: Chief Examiner

The seedling was left in the tray for four days.

(b) Describe and explain the growth response of this seedling after four days in the light.

Description _____

Explanation _____

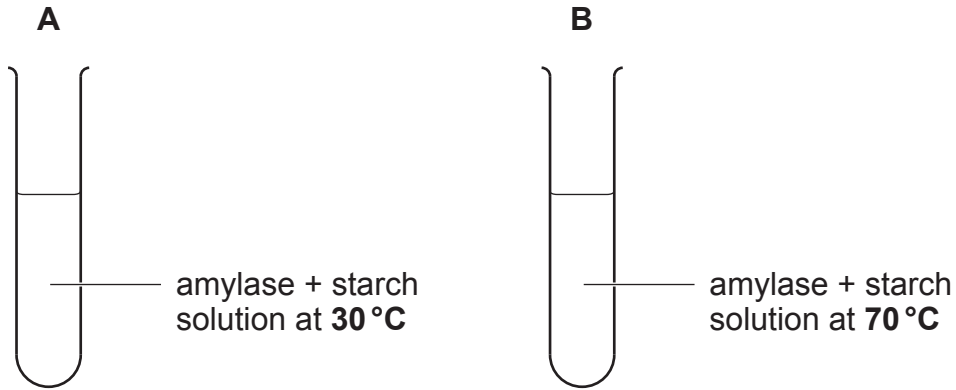
_____ [4]

[Turn over



7 A student investigated the effect of temperature on the breakdown of starch by the enzyme amylase.

The diagram below shows how the student set up the investigation.



(a) Give **two** factors the student should have controlled in the investigation.

1. _____
2. _____ [2]

After four hours starch was still present in test tube **B**.

(b) Use your knowledge of enzyme action to explain why.

_____ [3]



(c) Glucose is produced when starch is broken down by amylase.

(i) Describe the test for glucose.

[2]

(ii) Complete the following sentence by writing in the blank space.

The test reagent for glucose changes colour from

_____ to brick red when glucose is present.

[1]

(d) Complete the table below about digestive enzymes by writing in the empty boxes.

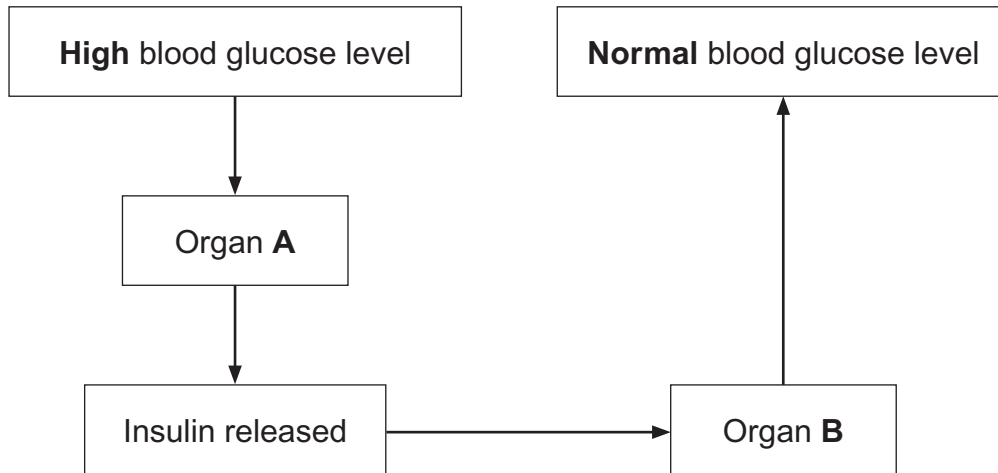
Name of digestive enzyme	Region of digestive system where the enzyme acts
Amylase	
Lipase	
	Stomach

[3]

[Turn over



- 8 (a) The diagram below shows part of the mechanism that controls blood glucose levels.



- (i) Name organ **A**.

[1]

- (ii) Name organ **B**.

[1]

- (iii) What type of substance is insulin?

[1]



(b) (i) What effect does insulin have on blood glucose levels?

_____ [1]

(ii) Give **two** ways insulin acts to produce this effect on blood glucose levels.

1. _____

2. _____

_____ [2]

Diabetes is a condition that occurs when the blood glucose control mechanism fails.

(c) Give **two** symptoms of diabetes.

1. _____

2. _____

[2]

[Turn over



- (d) The table below shows the number of people with diabetes in Northern Ireland from 2012 to 2016.

Year	Number of people with diabetes in Northern Ireland
2012	75 837
2013	79 072
2014	81 867
2015	84 836
2016	88 305

Facts & Figures: Annual diabetes prevalence figures
© The British Diabetic Association operating as Diabetes UK

- (i) Describe the overall trend in the number of people with diabetes in Northern Ireland from **2012 to 2016**.

Use data from the table to support your answer.

[2]

- (ii) Suggest **one** reason for this trend.

[1]

- (iii) Use the data in the table above to calculate the percentage change in the number of people with diabetes in Northern Ireland from 2012 to 2016.

Give your answer to **one** decimal place.

Show your working.

_____ % [3]



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For Examiner's use only	
Question Number	Marks
1	
2	
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9	

Total Marks	
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Examiner Number

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