



General Certificate of Secondary Education
2016–2017

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Science: Single Award

Unit 1 (Biology)
Foundation Tier



[GSS11]

WEDNESDAY 22 FEBRUARY 2017, MORNING

TIME

1 hour, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

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

Write your answers in the spaces provided in this question paper.
Answer **all ten** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 60.

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 **10**.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Total Marks	
--------------------	--

BLANK PAGE

- 1 (a) The table below is about food tests.
Fill in the missing answers.

Choose from:

Starch Emulsion Biuret Sugar

Food type	Test solution
	Benedict's
Protein	

[2]

- (b) Some people need more energy to do things than other people.
Fill in the missing answers in the sentences below.

Choose from:

more : less : less active : very active

People who are _____ usually need more energy
than _____ people. Teenagers usually
need _____ energy than older people. [2]

- (c) What food type helps protect against constipation and bowel cancer?

Put a circle round the correct answer.

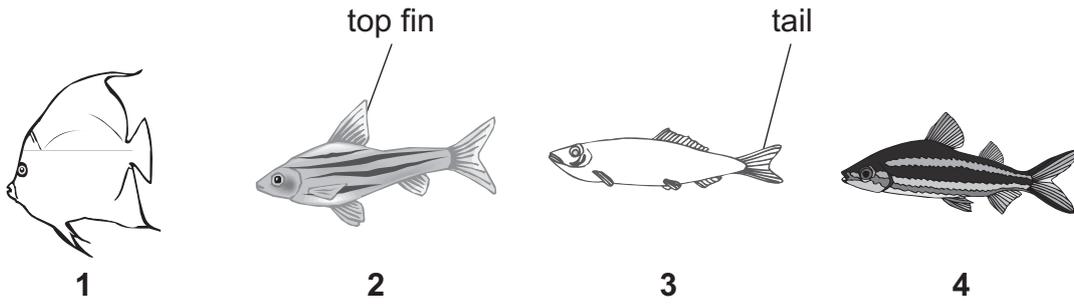
minerals fat fibre

[1]

Examiner Only

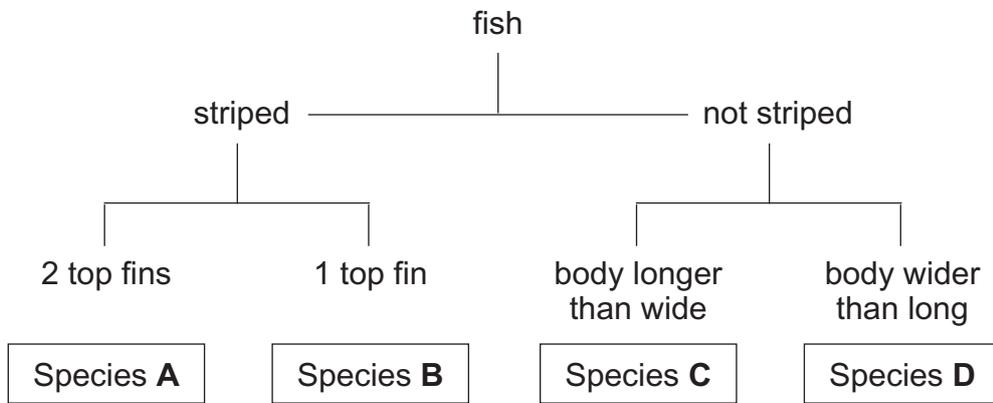
Marks Remark

2 (a) The diagram below shows four different species of fish.



Source: CCEA

(i) Match each of the fish to its species type (A, B, C or D) using the key below.



Fish 1 _____

Fish 2 _____

Fish 3 _____

Fish 4 _____

[2]

(ii) Write down **one** reason why it is important to be able to classify living organisms.

_____ [1]

Examiner Only	
Marks	Remark

(b) Some types of fish are endangered because of overfishing.

(i) What does the word 'endangered' mean?

Put a circle round the correct answer.

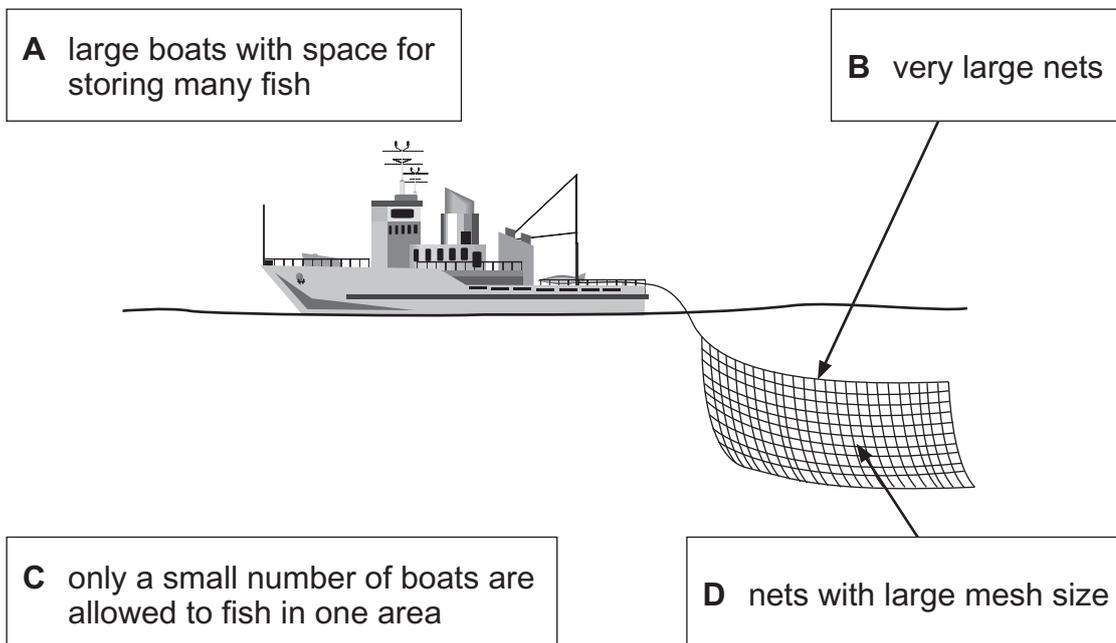
there are none left

there are very few left

their numbers are increasing

[1]

Read **A**, **B**, **C** and **D** below. They are about modern fishing.



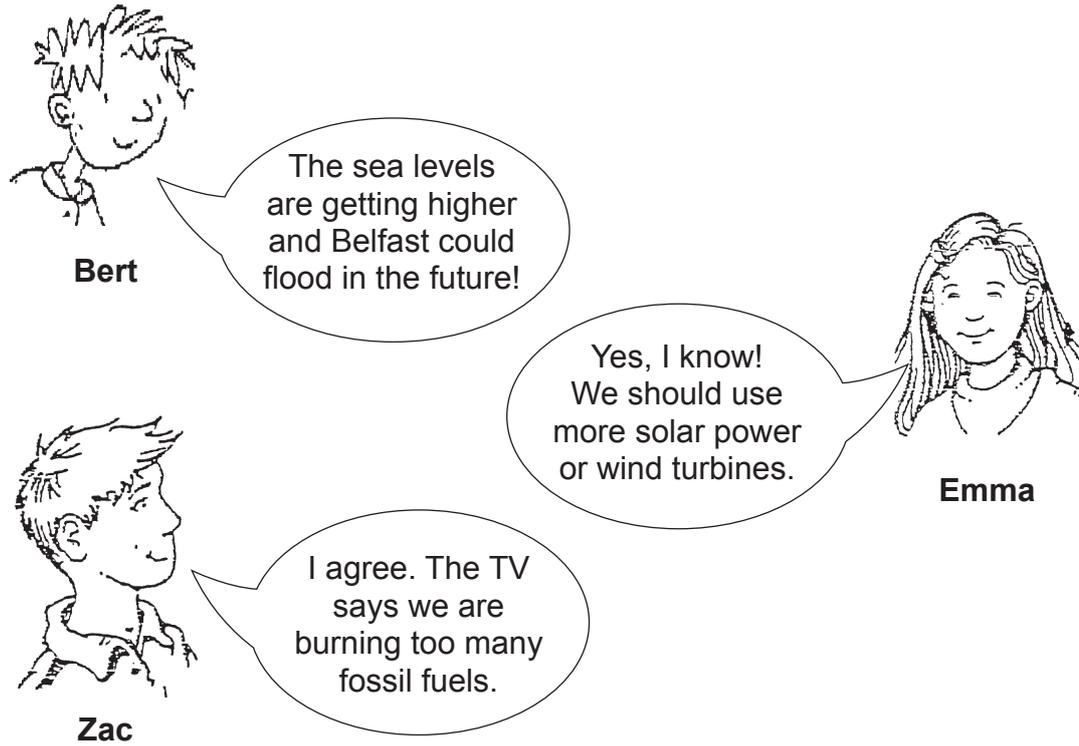
Source: CCEA

(ii) Which **two** of these (**A**, **B**, **C** or **D**) will help protect fish numbers?

_____ and _____ [2]

Examiner Only	
Marks	Remark

3 (a) Bert, Emma and Zac are talking about global warming.



Source: CCEA

(i) Who is talking about a **cause** of global warming?

[1]

(ii) Who is talking about an **effect** of global warming?

[1]

Examiner Only	
Marks	Remark

- 4 (a) The photograph below shows caterpillars feeding on a ragwort plant.



Leaves
eaten by
caterpillars

Source: Chief Examiner

- (i) What term describes the ragwort plant in the food chain?

Choose from:

primary consumer : **producer** : **secondary consumer**

_____ [1]

- (ii) What is the source of energy of all food chains?

_____ [1]

- (b) What effect, if any, will the caterpillars have on the **growth** of the ragwort plant? Explain your answer.

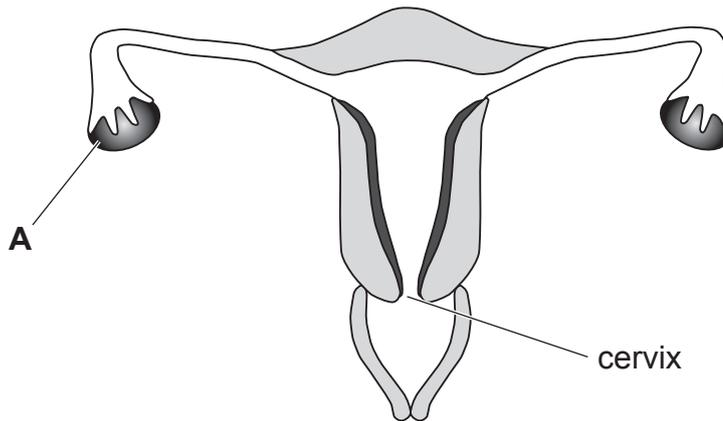
Effect _____

Explanation _____

_____ [2]

Examiner Only	
Marks	Remark

5 (a) The diagram below shows the female reproductive system.



Source: CCEA

- (i) Write down the name of the organ labelled **A** in the diagram above.

_____ [1]

- (ii) Describe the path a sperm takes from where it enters the vagina until it reaches and fertilises an egg. Use the diagram above and your own knowledge to answer this question.

 _____ [3]

- (b) (i) Pregnancy can be stopped by using contraception. Write down **two** advantages of using condoms as contraceptives.

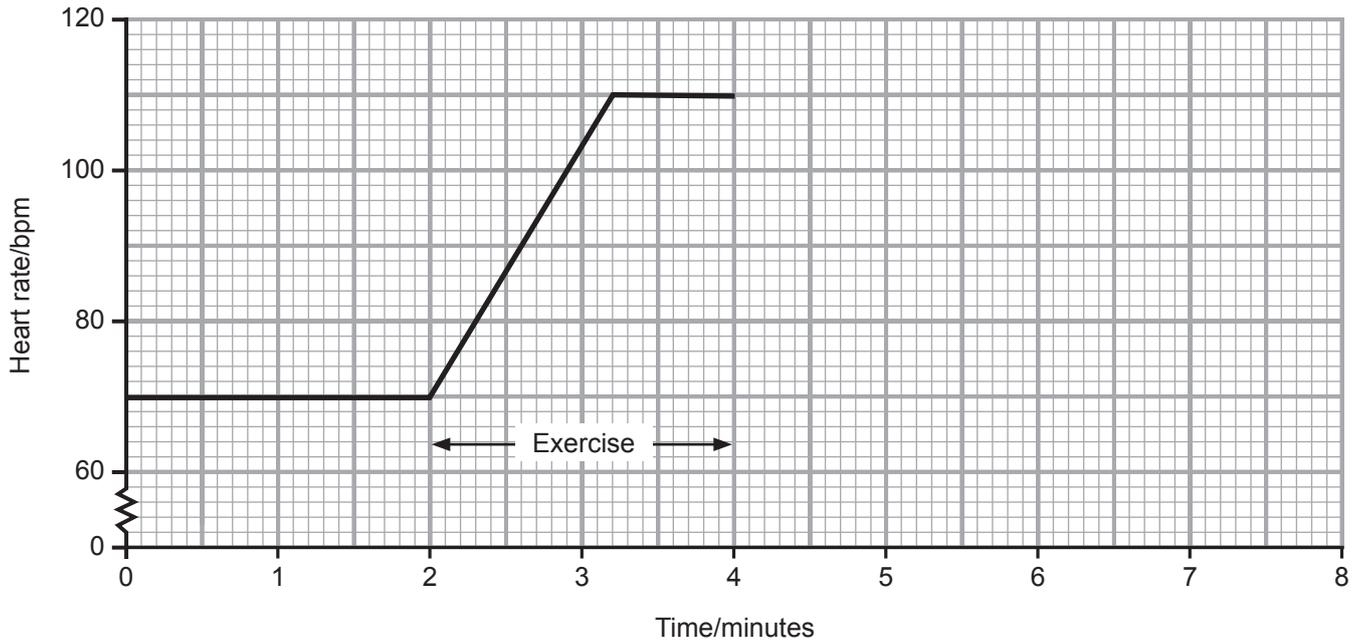
1. _____
 2. _____ [2]

- (ii) Write down **one** disadvantage of using condoms as a contraceptive.

_____ [1]

Examiner Only	
Marks	Remark

6 (a) The line graph below shows Gail's heart rate before and during exercise.



(i) Describe fully the change in Gail's heart rate **during** exercise.

_____ [2]

Gail stopped exercising at 4 minutes. Her heart rate stayed the same for 1 minute.
 Her heart rate then fell steadily until it reached 70 bpm. This took another 2 minutes.
 After that it stayed at 70 bpm.

(ii) Use the information above to complete the line graph. [3]

(iii) What is Gail's recovery time?
 _____ minutes [1]

(b) Write down the name of **one** disease that exercise can help protect against.
 _____ [1]

Examiner Only	
Marks	Remark

BLANK PAGE
(Questions continue overleaf)

7 (a) Type 1 diabetes happens when an organ in the body stops producing insulin.

(i) Write down the name of the organ that produces insulin.

[1]

(ii) Describe and explain the effect insulin has on blood glucose levels.

_____ [2]

(b) Mary has Type 1 diabetes. Every morning she eats the same amount of carbohydrate for breakfast. She injects herself with the same amount of insulin at this time too. Then she walks a kilometre to school.

One morning, Mary woke up late so she had to run to school. Two hours later Mary started to feel dizzy and unwell.

(i) Why did Mary feel dizzy and unwell? Use the information above to help you answer this question.

_____ [2]

(ii) What should Mary have eaten to stop her feeling unwell?

_____ [1]

(c) Write down **two** differences between Type 2 diabetes and Type 1 diabetes.

1. _____

2. _____ [2]

Examiner Only

Marks

Remark

(d) Insulin is a hormone. Many body processes need hormone or nervous control to work properly.

Write down **two** differences between hormone and nervous control.

1. _____

2. _____

_____ [2]

Examiner Only	
Marks	Remark

- 8 (a) Polydactyly is an inherited condition. People with polydactyly have extra fingers or toes.

(i) What does the term 'inherited condition' mean?

_____ [1]

(ii) The allele that causes polydactyly is **dominant** to the normal allele. This is unusual.

Look at the genetic diagram below. Fill in the missing symbols to show the offspring produced by two parents who are **heterozygous** for polydactyly.

Use the symbols: D = polydactyly allele; d = normal allele

		d
	DD	
d		

[2]

(iii) Put a circle round any offspring that have polydactyly. Do this on the diagram above.

[1]

(iv) Look again at the genetic diagram above. What is the probability of these parents having a child with polydactyly?

_____ [1]

(b) Polydactyly in humans is an example of discontinuous variation. What does the term 'discontinuous variation' mean?

_____ [1]

Examiner Only

Marks Remark

- 9 (a) A group of pupils investigated the effect of planting density on seedling growth. Their results are shown in the table below.

Number of seedlings in pot	Average mass of seedlings/g	Total mass of all seedlings/g
5	2.2	11
10	2.2	22
15	2.2	33
20	1.9	38
25	1.8	45
30		42

- (i) Calculate the **average mass** of the seedlings when there are 30 seedlings in the pot.

(Show your working out.)

_____ g [2]

- (ii) Why do you think the **average mass** of the seedlings did not change when there were 15 or fewer seedlings in the pot?

 _____ [1]

- (b) Describe fully the relationship between the number of seedlings and the **total mass** of all the seedlings. Write down reasons for this relationship. Use the information in the table above to help you answer this question.

 _____ [3]

Examiner Only

Marks Remark

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA
will be happy to rectify any omissions of acknowledgement in future if notified.