Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2017–2018

Science: Single Award

Unit 1 (Biology)
Foundation Tier

GSS11

[GSS11]

WEDNESDAY 7 NOVEMBER 2018, MORNING

TIME

1 hour.

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(c)**.

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

Examiner Only	
Marks	Remark

1 A simple food chain is shown below.

grass → zebra → lion

(a) What terms are used to describe the grass and zebra in this food chain?

Choose from:

primary consumer : producer

secondary consumer : tertiary consumer

grass _____ [1]

zebra _____ [1]

(b) What do the arrows in a food chain represent?

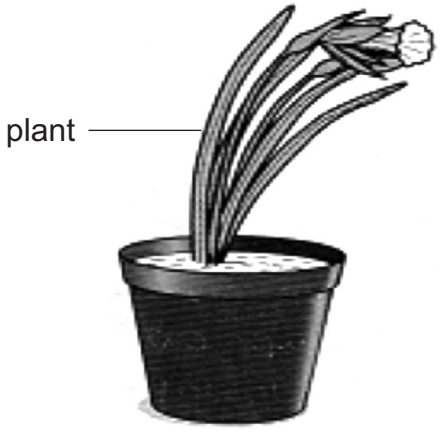
_____ [1]

(c) What is the original source of energy for all food chains?

_____ [1]

Examiner Only	
Marks	Remark

2 The diagram below shows a plant that has been given light from one direction for a period of 2 weeks.



Source: CCEA

(a) On the diagram draw an arrow to show the direction of the light. [1]

(b) **(i)** What word is used to describe this plant's response to light?

Circle the correct answer.

sensitivity **phototropism** **respiration**

[1]

(ii) Explain fully why this response is beneficial to the plant.

_____

_____

_____

_____ [2]

Examiner Only	
Marks	Remark

3 **(a)** Microorganisms can cause infection and disease. Complete the table below to give one disease caused by each microorganism.

Choose from:

athlete's foot : **flu** : **salmonella**

Microorganism	Disease
bacteria	tuberculosis
virus	
fungus	

[2]

(b) The body is able to defend itself against infection in many different ways.
Using lines, match each method of defence with its correct description.

Method	Description
passive immunity	antibodies produced by the patient's body
	antibodies injected into the patient
phagocytosis	phagocytes surround, engulf and destroy microorganisms

[2]

Examiner Only	
Marks	Remark

4 **(a)** Iron is a mineral needed by the body. What is the function of iron in the body?

Circle the correct answer.

helps red blood cells carry oxygen

prevents scurvy

strengthens teeth and bones

[1]

The labels below are from two different foods.

Food A per 100 g	
energy	270 kJ
protein	1.4 g
carbohydrates	6.4 g
fat	2.1 g

Food B per 100 g	
energy	2070 kJ
protein	2.5 g
carbohydrates	45.2 g
fat	30.1 g

(b) Mary does not want to gain weight so she has decided to eat food **A**. Give **two** reasons why food **A** is the better choice for her.

1. _____

_____

2. _____

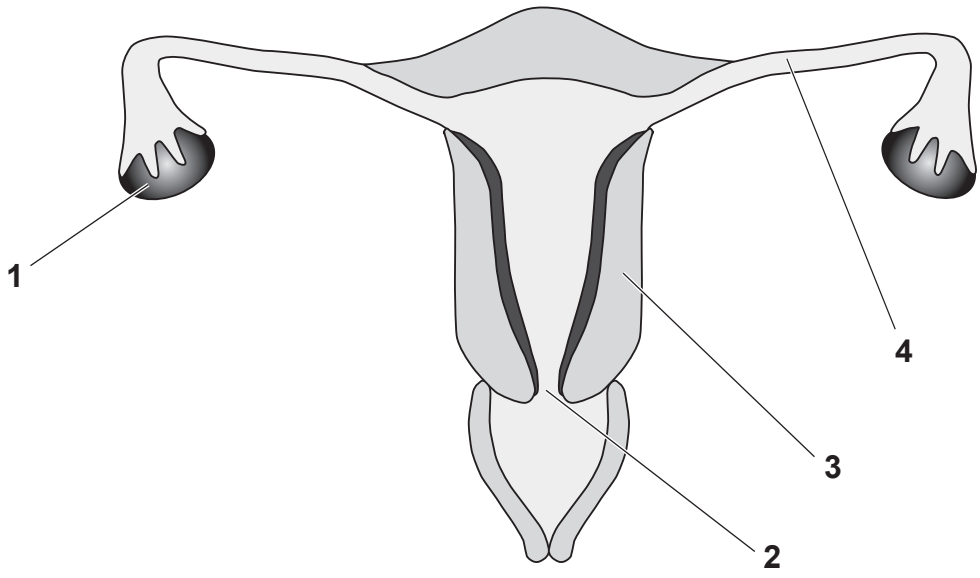
_____ [2]

(c) Name the food **group** shown in the food labels which will change Biuret reagent from blue to lilac (purple).

_____ [1]

Examiner Only	
Marks	Remark

5 The diagram below shows parts of the female reproductive system.



Source: CCEA

(a) Use the numbers **1, 2, 3** or **4** to answer the following questions.

(i) Which part produces an egg? _____ [1]

(ii) Where does fertilisation take place? _____ [1]

(b) A young, newly married couple with no children are considering contraception to prevent an unwanted pregnancy.

(i) Suggest which method would be most suitable for them.

Choose from:

vasectomy : condom : female sterilisation

_____ [1]

(ii) Explain fully your choice.

_____

_____

_____ [2]

BLANK PAGE

(Questions continue overleaf)

Examiner Only	
Marks	Remark

6 Variation in living organisms can be due to mutations.

(a) Explain fully what is meant by the term **mutation**.

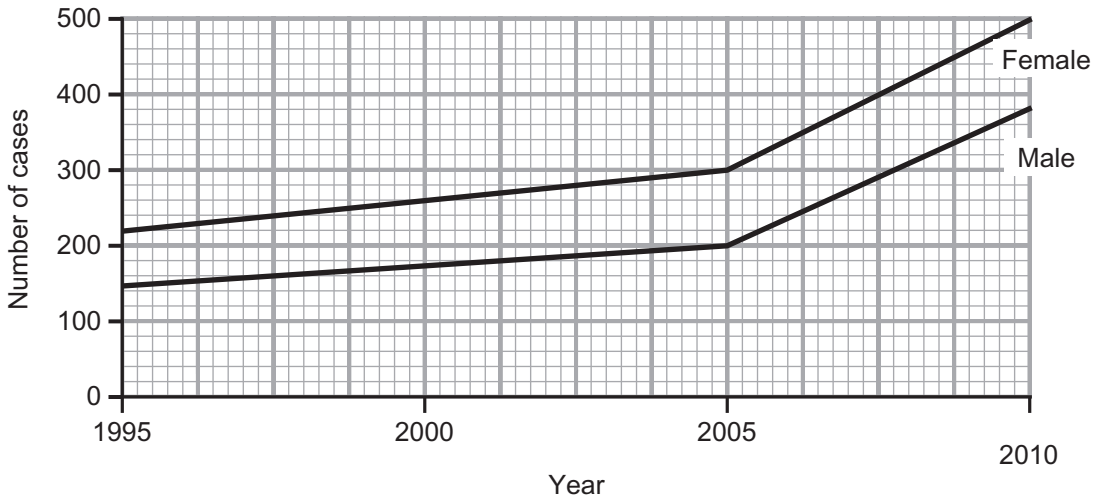
_____

_____

_____ [2]

Some mutations are caused by the environment. For example, skin cancer can be caused by UV light from the Sun.

The graph below shows how the number of cases of skin cancer in Ireland changed over a 15 year period.



(b) State **two** conclusions that can be made from this information.

1. _____

_____

2. _____

_____ [2]

(c) Tanning sunbeds that use UV light are very popular.

Examiner Only	
Marks	Remark

© marlenka / iStock / Thinkstock

However, using these sunbeds before the age of 30 increases the risk of the most serious type of skin cancer by 75%.
Many countries have either banned the use of sunbeds for people under the age of 18 or have banned their use for all ages.

(i) Suggest **one** reason why some countries have banned sunbeds.

_____

_____ [1]

(ii) Apart from not using sunbeds, suggest **one** other way to reduce exposure to UV light.

_____

_____ [1]

Examiner Only	
Marks	Remark

(d) Evidence shows that you can reduce the risk of some cancers by doing physical activity regularly.

The table below shows the time five women spend doing different activities each week.

	Washing the car/ mins	Doing housework/ mins	Walking/ mins	Gardening/ mins	Total activity time/ mins
Anne	10	40	30	5	**85**
Orla	0	70	40	30	**140**
Carol	10	55	60	15	**140**
Nuala	25		70	10	**150**
Jane	0	60	60		**120**

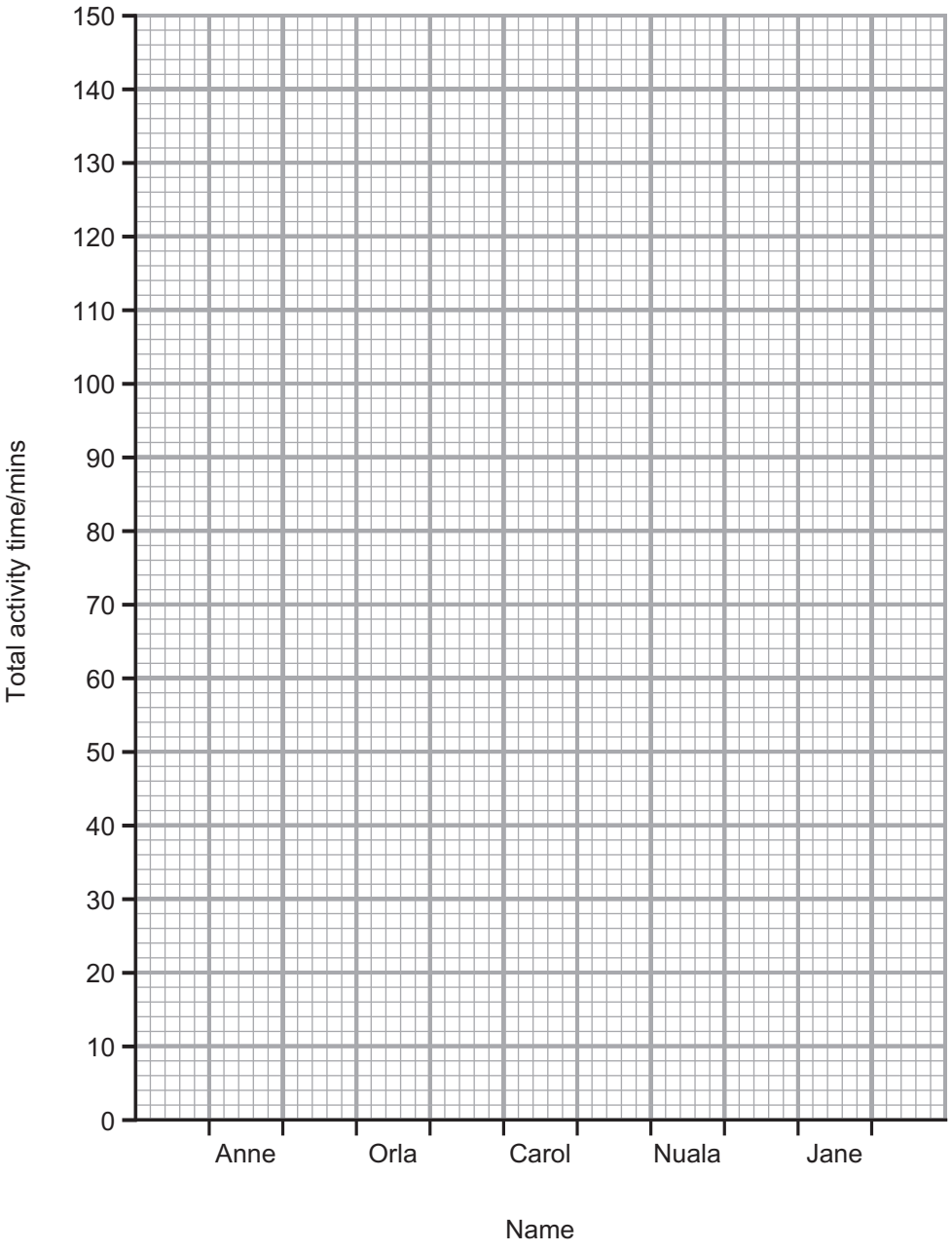
(i) Complete the table by filling in the values for Nuala and Jane. [2]

(ii) Calculate the percentage of Jane's exercise time that comes from walking.

(Show your working out.)

Answer _____ % [2]

(iii) On the grid below draw a bar chart showing the **total activity** time for each person.

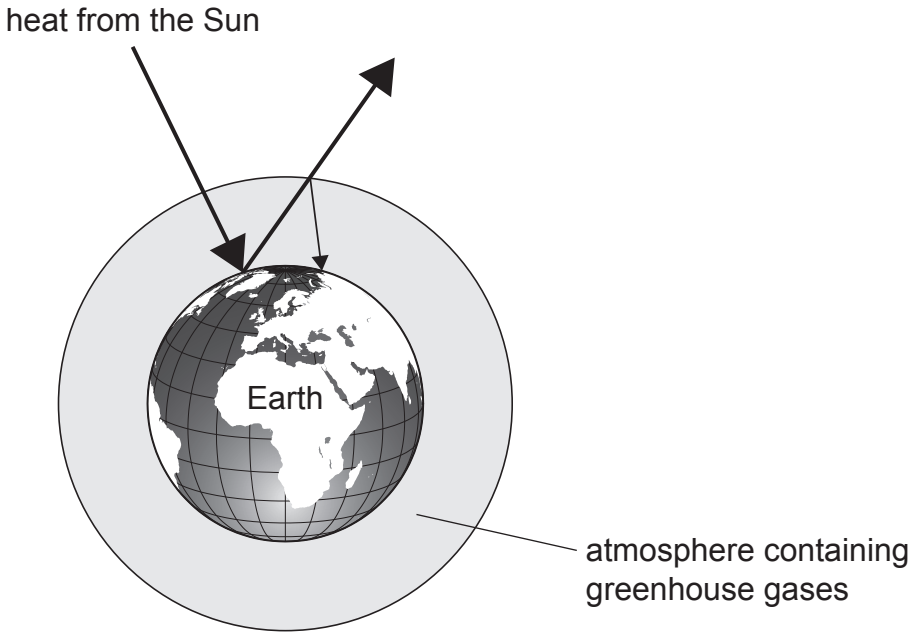


[2]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

7 The diagram below shows what happens to heat from the Sun when it reaches the Earth.



Source: CCEA

(a) Using the diagram above and your knowledge explain how global warming occurs.

_____

_____

_____

_____

_____

_____ [3]

(b) Over the past 100 years global warming has increased.
State **two** ways human activity has contributed to this increase.

1. _____

2. _____ [2]

(c) (i) Global warming can be monitored using abiotic factors.
What is meant by the term **abiotic**?

_____

_____ [1]

(ii) Explain how monitoring polar ice fields can tell scientists that global warming is increasing.

_____

_____ [1]

Examiner Only	
Marks	Remark

8 The flowers on a pea plant can be purple or white.

© Bob Gibbons / Science Photo Library

The allele for white flowers is recessive to the allele for purple flowers.

(a) What is meant by the term **recessive**?

_____

_____ [1]

Examiner Only	
Marks	Remark

(b) (i) Complete the Punnett square below to show the offspring from two heterozygous purple flowers.

Use the symbols: A = purple allele
a = white allele

		a
A		

[2]

(ii) What is the genotype for a **white** flower?

_____ [1]

(iii) What is the probability of the offspring having **purple** flowers?

_____ [1]

Examiner Only

Marks	Remark

Examiner Only	
Marks	Remark

9 **(a)** The red fox was introduced to Australia by European settlers in 1855. Since it was introduced, the red fox has been linked to many of the extinctions of native Australian mammals.

© JMQuinet / Reporters / Science Photo Library

(i) Give **one** reason why the red fox is described as a competitive invasive species in Australia.

_____

_____ [1]

(ii) Explain what is meant by the term **extinction** of a species.

_____

_____ [1]

Examiner Only	
Marks	Remark

(b) Many conservation programmes are aimed at reducing the number of red foxes. These include fencing areas of farmland, using a poison that does not harm native animals and encouraging dingos. Dingos are a native Australian dog that hunt foxes and other small mammals.

(i) Explain the advantage to the **native species** of Australia of using poison as a method of conservation.

_____

_____ [1]

(ii) Use the information given to explain fully why many farmers would prefer to use fences rather than introduce dingos to areas around their farms.

_____

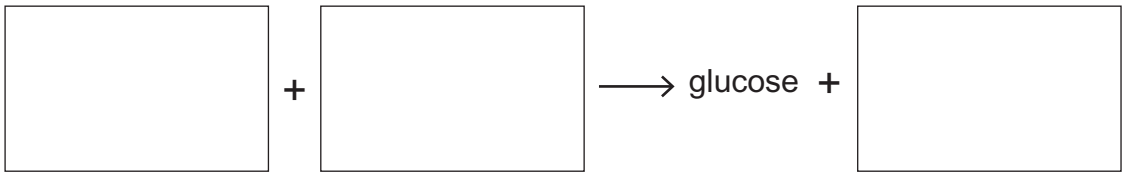
_____

_____ [2]

Examiner Only	
Marks	Remark

10 Photosynthesis is the process in which green plants use sunlight to produce glucose.

(a) Complete the word equation for photosynthesis:



[3]

(b) Give **one** reason why photosynthesis in plants is vital for animals.

_____

_____ [1]

(c) The glucose produced during photosynthesis is stored as starch in the leaves of the plant.
Describe how you would test a leaf for the presence of starch.

Your answer should include:

- the names of any chemicals used
- the result you would expect

In this question you will be assessed on your written communication skills including the use of specialist scientific terms.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Examiner Only	
Marks	Remark

[6]

THIS IS THE END OF THE QUESTION PAPER