eduresourceza.com

Downloaded from eduresourceza.com

Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER					

BIOLOGY **0610/33**

Paper 3 Theory (Core) **October/November 2017**

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **20** printed pages.

DC (NF/JG) 134065/5
© UCLES 2017

CAMBRIDGE International Examinations

[Turn over

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

1 Fig. 1.1 shows five species of birds that live near the water in habitats such as mudflats, marshes and shorelines.

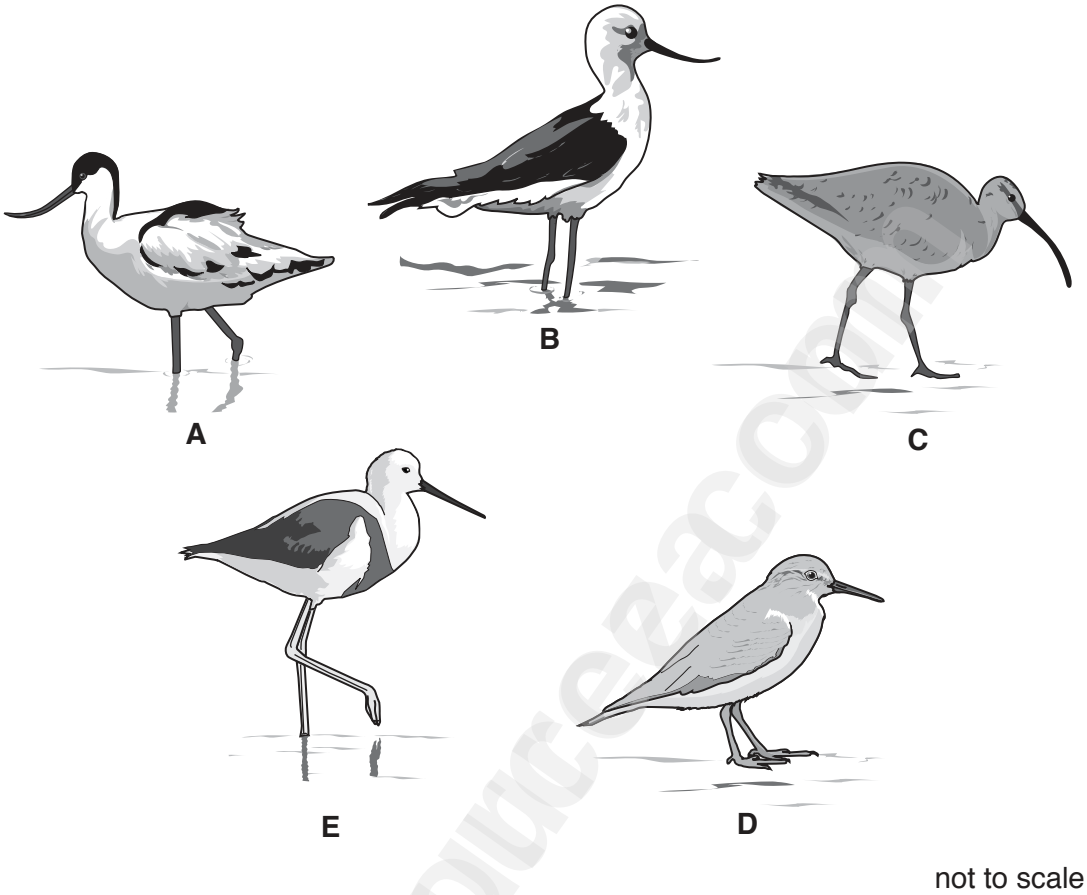

Fig. 1.1

(a) State **two** features that are characteristic of all birds.

1 .....

2 .....

[2]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(b) Fig. 1.2 is a key to identify the five birds in Fig. 1.1.

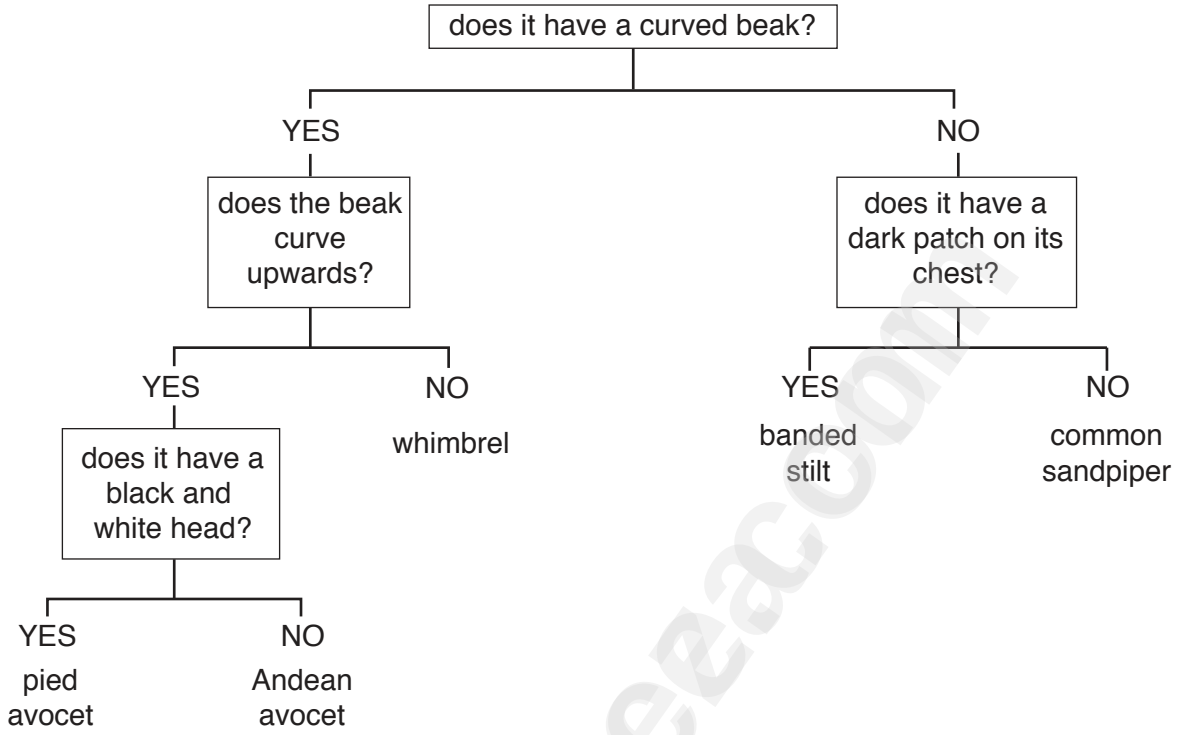

Fig. 1.2

Use the key to identify the five birds shown in Fig. 1.1.

Complete Table 1.1 by writing the letters **A**, **B**, **C**, **D** and **E** in the boxes next to the name of each bird.

Table 1.1

name of the bird	letter
pied avocet	
Andean avocet	
common sandpiper	
banded stilt	
whimbrel	

[4]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(c) Bird **A** in Fig. 1.1 feeds mainly on small animals found in the mud or in the water.

It has long legs and a long beak.

(i) Suggest how these features help it to survive in its habitat.

.....

.....

..... [2]

(ii) State the name of the process that has produced birds with these features.

..... [1]

[Total: 9]

eduresourceza.com

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

2 Fig. 2.1 shows the system that excretes excess water from the body.

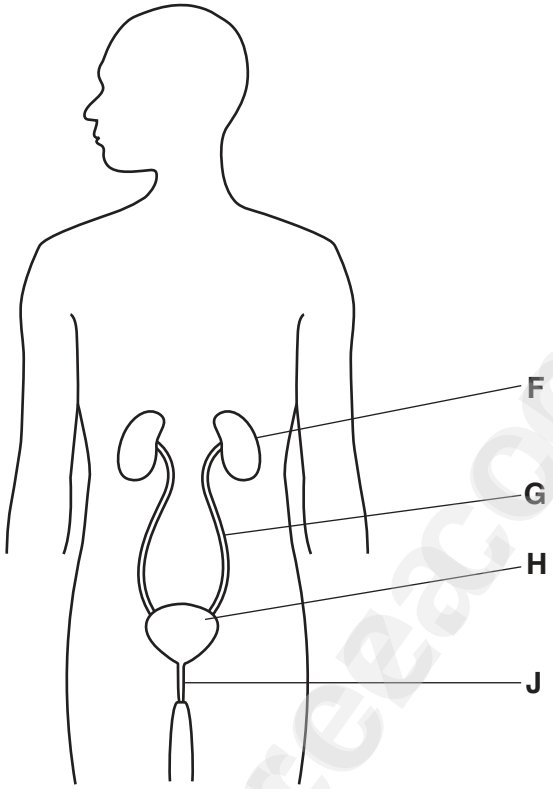

Fig. 2.1

(a) **(i)** Identify the letter on Fig. 2.1 that shows where urine is stored.

..... [1]

(ii) State the name of the organ where urine is stored.

..... [1]

(b) The ureter and the urethra are two parts of the organ system shown in Fig. 2.1.

Describe the function of these **two** structures.

ureter .....

.....

urethra .....

.....

[2]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(c) Urine contains urea.

(i) Circle the substance that is broken down to produce urea.

amino acids **fatty acids** **hydrochloric acid** **lactic acid** [1]

(ii) State the name of the organ that produces urea.

..... [1]

(d) A scientist compared the daily water intake and daily water loss from an athlete on two separate days.

The first set of results was collected on a day when the athlete was resting.

The second set of results was collected on the day of a long race.

The results are shown in Table 2.1.

Table 2.1

rest day				race day			
water input / cm^3		water loss / cm^3		water input / cm^3		water loss / cm^3	
respiration	400	faeces	100	respiration	500	faeces	100
food	500	skin	400	food	500	skin	.....
drink	1500	breathing	400	drink	.....	breathing	600
		urine	.....			urine	400
Total	.....	Total	2400	Total	3000	Total	3000

Calculate the four missing values in Table 2.1.

Write your answers on the dotted lines in Table 2.1.

[2]

(e) A person drinks a large volume of water but does not exercise.

Describe the effect that increased water intake would have on the volume and concentration of urine produced.

.....

.....

..... [2]

[Total: 10]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

3 **(a)** Drinking excessive alcohol, injecting heroin and smoking tobacco can all do serious harm to the body.

Table 3.1 shows some of the risks of using these substances.

Complete Table 3.1 by putting ticks in the boxes to show the possible risks of using these substances.

Table 3.1

action	chronic obstructive pulmonary disease	coronary heart disease	HIV infection	liver disease	lung cancer
drinking excessive alcohol					
injecting heroin					
smoking tobacco					

[3]

(b) Explain why many people find it difficult to stop smoking tobacco.

.....

.....

.....

.....

..... [2]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(c) A man and a woman drink the same volume of an alcoholic drink in 30 minutes.

Fig. 3.1 shows the change in their blood alcohol concentration over seven hours.

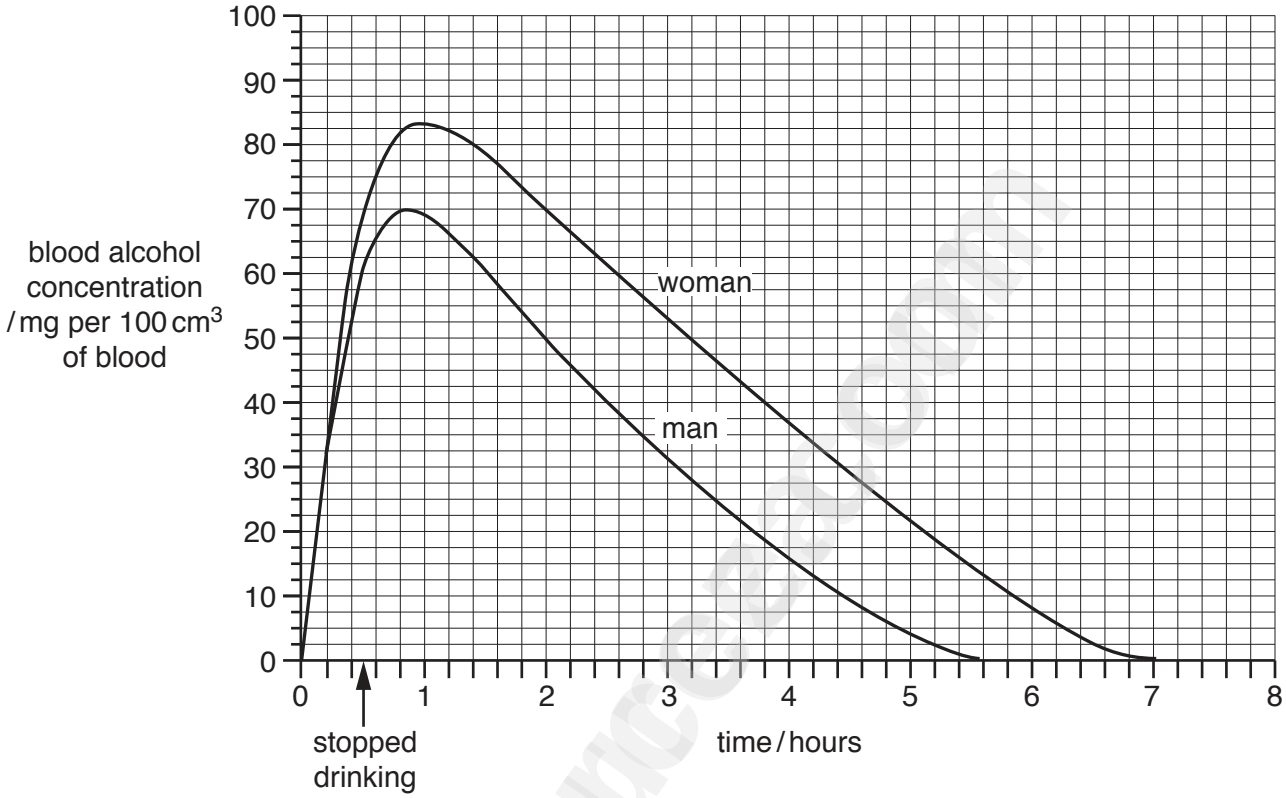

Fig. 3.1

(i) Describe **two** ways that the woman's blood alcohol concentration is different from the man's blood alcohol concentration in Fig. 3.1.

1 .....

.....

.....

2 .....

.....

.....

[2]

(ii) At two hours the blood alcohol concentration of the man was 50 mg per 100 cm^3 of blood.

State the blood alcohol concentration of the woman at two hours.

..... mg per 100 cm^3 of blood. [1]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(iii) Calculate the difference between the man's and the woman's blood alcohol concentrations at two hours, using your answer to part **3(c)(ii)**.

..... mg per 100 cm^3 of blood. [1]

(iv) Suggest **one** reason why the same volume of alcohol affected the man and the woman differently.

.....

.....

..... [1]

[Total: 10]

eduresourceza.com

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

4 **(a)** The development of a new human life involves different stages.

These stages are labelled by the letters **A** to **G**.

The stages are **not** in the correct order.

A birth

B development of a fetus

C fertilisation

D formation of an embryo

E formation of a zygote

F implantation

G release of an egg cell

Put the seven stages in the correct order.

Write the letters in the spaces in the flow chart to show the correct order.

Two of the stages have been done for you.

..... → **C** → ..... → ..... → ..... → **B** → ..... [3]

(b) The list shows four different methods of birth control.

natural **chemical** **barrier** **surgical**

State the name of the method that these types of birth control belong to:

use of a condom .....

vasectomy .....

use of a contraceptive pill .....
[3]

(c) HIV is an example of a sexually transmitted infection.

(i) Define the term *sexually transmitted infection*.

.....

.....

..... [2]

(ii) State the name of the disease that HIV can lead to.

..... [1]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(iii) Describe **one other** way that HIV can be transmitted.

.....

.....

..... [1]

[Total: 10]

eduresourceza.com

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

5 **(a)** Most flowers contain male and female parts.

(i) State the name of the male gamete in plants.

..... [1]

(ii) State the name of the female gamete in plants.

..... [1]

(iii) State the name of the part of a flower that produces male gametes.

..... [1]

(iv) State the name of the part of a flower which receives the male gametes.

..... [1]

(b) Fig. 5.1 shows the flower of an aroid plant.

It is sometimes called the corpse flower because it smells of rotting meat.

Fig. 5.1

The smell of the corpse flower attracts lots of insects.

The insects pollinate the flower.

© UCLES 2017
Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

Describe **other** ways insect-pollinated flowers and wind-pollinated flowers are adapted for pollination.

insect-pollinated flowers .....

.....

.....

.....

wind-pollinated flowers .....

.....

.....

.....
[4]

(c) The seeds of the corpse flower are dispersed by birds.

The seeds germinate and new corpse flowers grow.

State **two** environmental conditions that a seed requires for germination.

1 .....

2 .....
[2]

[Total: 10]

eduresourceza.com

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

6 **(a)** Explain why plants are the start of most food webs.

.....

.....

.....

.....

..... [3]

(b) Fig. 6.1 is a desert food web.

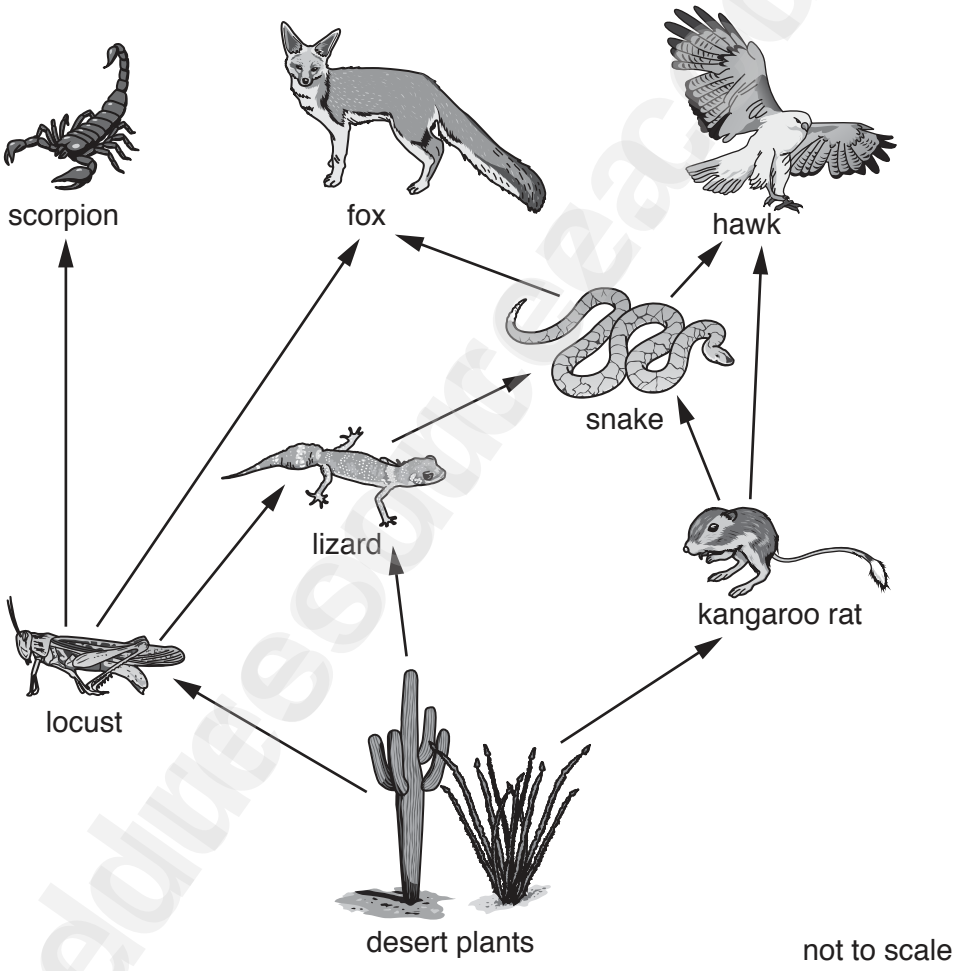

Fig. 6.1

(i) Use Fig. 6.1 to complete a food chain that has four different organisms and ends with the hawk.

Write the names of three missing organisms in the boxes.

	→		→		→	hawk

[1]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(ii) State the names of **two** tertiary consumers in the food web in Fig. 6.1.

..... [2]

(c) The number of locusts in the food web in Fig. 6.1 suddenly decreases.

Explain what effect this would have on the population of scorpions and on the population of desert plants.

scorpions .....

.....

.....

.....

.....

desert plants .....

.....

.....

.....

.....

[4]

[Total: 10]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

7 **(a)** The cells in the leaves of plants that make glucose contain a green substance.

(i) State the name of this green substance.

..... [1]

(ii) State the name of the cells that make glucose.

..... [1]

(b) Leaves contain different types of cells.

Fig. 7.1 represents a typical leaf.

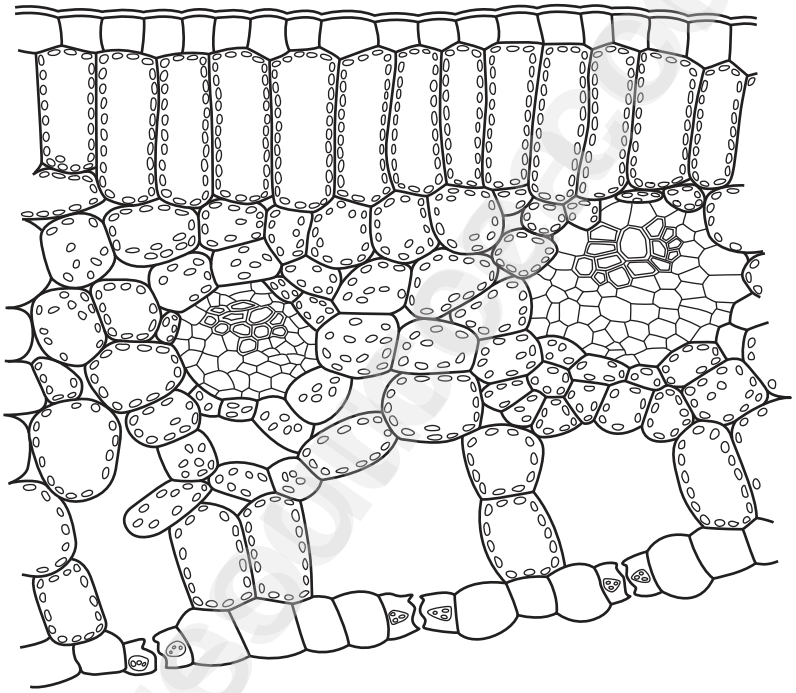

Fig. 7.1

(i) State the name of the thin, transparent layer of wax which covers the surface of most leaves.

..... [1]

(ii) State the name of the layer of cells that is beneath the layer of wax that covers the outer surface.

..... [1]

(c) Leaves contain two types of transport tissue, xylem and phloem.

State which substances are transported by:

xylem .....

phloem .....

[2]

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(d) The lower surface of most leaves has many pores.

The pores allow gases to move into and out of a leaf for photosynthesis.

(i) State the name of these pores.

..... [1]

(ii) State the name of the gas that is used for photosynthesis.

..... [1]

(iii) State the name of the gas that is produced by photosynthesis.

..... [1]

[Total: 9]

eduresourceza.com

Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

8 **(a)** A person with diabetes may be unable to make insulin.

(i) Insulin belongs to an important group of chemicals made by the body.

State the name of this group of chemicals.

..... [1]

(ii) State where insulin is produced in the body.

..... [1]

(iii) State the function of insulin.

.....

..... [1]

(b) A person with diabetes may need regular injections of insulin.

State how the insulin is transported to different parts of the body.

..... [1]

(c) Human insulin can be made by genetically engineered bacteria.

(i) Define the term *genetic engineering*.

.....

.....

..... [2]

(ii) State **one** example of genetic engineering in crop plants.

.....

..... [1]

[Total: 7]

© UCLES 2017
Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

9 Fig. 9.1 shows a cross between two guinea pigs. The male guinea pig is pure-breeding for black fur colour and the female guinea pig is pure-breeding for white fur colour.

The allele for black fur colour can be represented by **B** and the allele for white fur colour can be represented by **b**.

All four of their offspring had black fur.

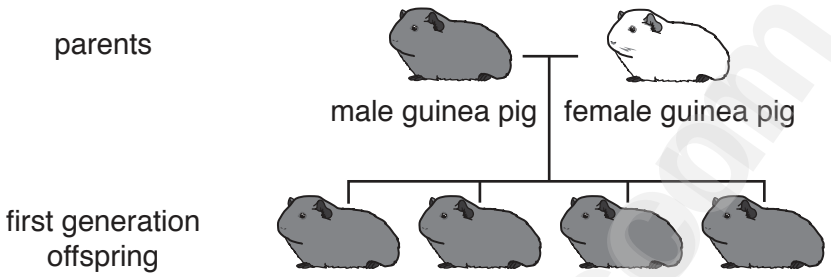

Fig. 9.1

(a) **(i)** State the phenotypes of each of the parent guinea pigs in Fig. 9.1.

phenotype of the male .....

phenotype of the female .....
[1]

(ii) State the genotype of the female parent guinea pig.

..... [1]

(iii) All of the offspring are heterozygous.

State the genotype of the heterozygous offspring.

..... [1]

© UCLES 2017
Downloaded from eduresourceza.com

Downloaded from eduresourceza.com

(b) Two of the first generation offspring were crossed.

They produced four second generation offspring.

These are labelled **A**, **B**, **C** and **D** in Fig. 9.2.

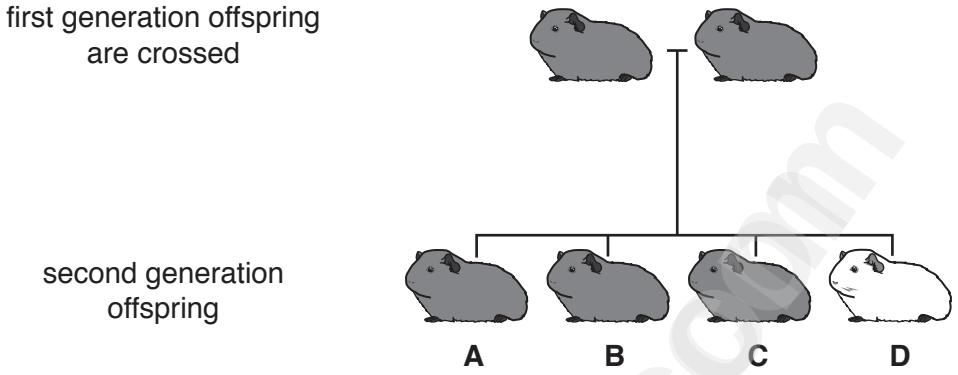

Fig. 9.2

(i) State **all** of the possible genotypes for the three offspring labelled **A**, **B** and **C**.

..... [1]

(ii) State the phenotypic ratio of the second generation of guinea pigs.

..... [1]

[Total: 5]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© UCLES 2017
Downloaded from eduresourceza.com