AQA GCSE Biology | 8461

SPECIFICATION POINT 4.7.5.1

Factors affecting food security

Past-paper questions

Tier	**Higher**
Question groups	**4**
Available paper years	**2009–2020**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.7.5.1 Factors affecting food security

Question 01

January 2009 | BLY1H | Original Q6 | Legacy

6 The use of cloned animals in food production is controversial.

It is now possible to clone 'champion' cows.
Champion cows produce large quantities of milk.

6 (a) Describe how adult cell cloning could be used to produce a clone of a 'champion' cow.

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(4 marks)

4.7.5.1 Factors affecting food security

Question 01 · continued

for mark

6 (b) Read the passage about cloning cattle.

> The Government has been accused of 'inexcusable behaviour' because a calf of a cloned American 'champion' cow has been born on a British farm. Campaigners say it will undermine trust in British food because the cloned cow's milk could enter the human food chain.
>
> But supporters of cloning say that milk from clones and their offspring is as safe as the milk we drink every day.
>
> Those in favour of cloning say that an animal clone is a genetic copy. It is not the same as a genetically engineered animal. Opponents of cloning say that consumers will be uneasy about drinking milk from cloned animals.

Use the information in the passage and your own knowledge and understanding to evaluate whether the government should allow the production of milk from cloned 'champion' cows.

Remember to give a conclusion to your evaluation.

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(5 marks)

9

4.7.5.1 Factors affecting food security

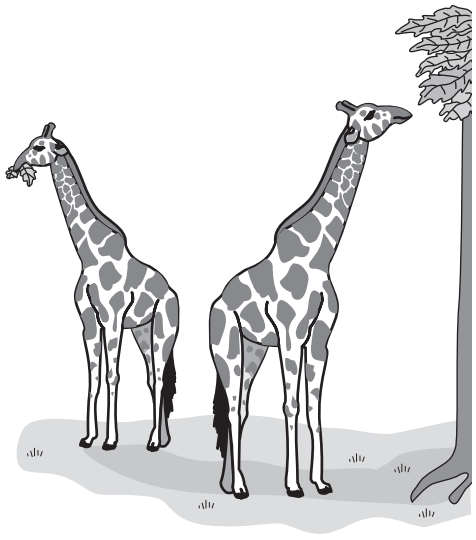
Question 02

November 2009 | BLY1BP | Original Q9 | Legacy

QUESTION NINE

Different people have different views about why giraffes have long necks.

The drawing shows giraffes feeding on tree leaves.



You will need to refer to statements **E1** to **E6** to answer the questions.

E1 According to Lamarck (1809), giraffes grew longer necks during their lifetime to reach foliage high up in trees during food shortages, and the longer neck developed was then passed on to offspring.

E2 According to Darwin (1872), some giraffes were born with longer necks than others and they could feed at higher levels than other animals. These survived best and reproduced, passing on the long neck feature to their offspring.

E3 Some research (in Africa) has shown that female giraffes spend up to 75% of their grazing time bent down eating low level bushes during food shortage in periods of dry conditions.

E4 Male giraffes fight with their necks. The ones with the biggest necks dominate other males.

E5 The dominant males mate most frequently with female giraffes.

E6 No fossils of short necked giraffes have yet been found.

4.7.5.1 Factors affecting food security

Question 02 · continued

9A The theory that long necks evolved through a process of natural selection is supported by . . .

1 **E1** and **E2**.

2 **E2**, **E4** and **E5**.

3 **E3**, **E4** and **E5**.

4 **E6**.

9B The information quoted in **E3** directly contradicts . . .

1 **E2**.

2 **E4**.

3 **E5**.

4 **E6**.

9C The piece of evidence given in **E6** . . .

1 proves that no short-necked giraffes have ever existed.

2 casts doubts on both Darwin's and Lamarck's theories.

3 could be used to support Darwin's theory.

4 could be used to support Lamarck's theory.

9D Lamarck's theory in **E1** is not a correct explanation.

We know this because . . .

1 both parent giraffes would need to have the longer necks for the feature to be inherited by their offspring.

2 characteristics acquired during an animal's lifetime cannot be passed on in its genes to its offspring.

3 male giraffes are about 1 metre taller than females of the same age.

4 the shape of animals cannot alter during their lifetime.

END OF TEST

4.7.5.1 Factors affecting food security

Question 03

3 There are many ways to increase the efficiency of food production.

3 (a) The table shows the energy available to humans from two different food chains.

Food chain	Energy transferred to humans in kJ per hectare of crop
Wheat → humans	900 000
Wheat → pigs → humans	90 000

3 (a) (i) Compare the amount of energy the two food chains transfer to humans.

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(1 mark)

3 (a) (ii) Give **one** reason for the difference in the amount of energy the two food chains transfer to humans.

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(1 mark)

4.7.5.1 Factors affecting food security

Question 03 · continued

3 (b) *In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.*

Give methods used in the factory farming of animals.
Explain the advantages and disadvantages of these methods.

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(6 marks)

8

4.7.5.1 Factors affecting food security

Question 04

November 2020 | 8461/2H | Original Q7

0 7 A new dog food has been developed that does **not** contain meat from cows, sheep or chickens.

The new dog food contains insects.

The insects in the dog food factory are fed on waste vegetables.

0 7 . 1 Sketch the pyramid of biomass for the food chain that produces food for dogs from insects.

Label the pyramid.

[2 marks]

0 7 . 2 Describe **two** reasons why the biomass of the insects eaten by dogs does **not** all become biomass of the dogs.

[2 marks]

1 _____

_____

2 _____

_____

4.7.5.1 Factors affecting food security

Question 04 · continued

0 7 . 3 Explain how making dog food from insects could improve **human** food security in the future.

[4 marks]

8