



# **GCSE Biology**

## **Classification**

### **Question Paper**

**Time available: 50 minutes**

**Marks available: 42 marks**

**[www.accesstuition.com](http://www.accesstuition.com)**

1. Figure 1 shows a ring-tailed lemur.

Figure 1



The table below shows part of the classification of the ring-tailed lemur.

Classification group	Name
Kingdom	<i>Animalia</i>
Phylum	<i>Chordata</i>
	<i>Mammalia</i>
	<i>Primates</i>
	<i>Lemuroidea</i>
Genus	<i>Lemur</i>
	<i>catta</i>

(a) Complete the table above to give the names of the missing classification groups.

(2)

(b) Give the binomial name of the ring-tailed lemur.

Use information from the table above.

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(1)

Lemurs are only found on the island of Madagascar.

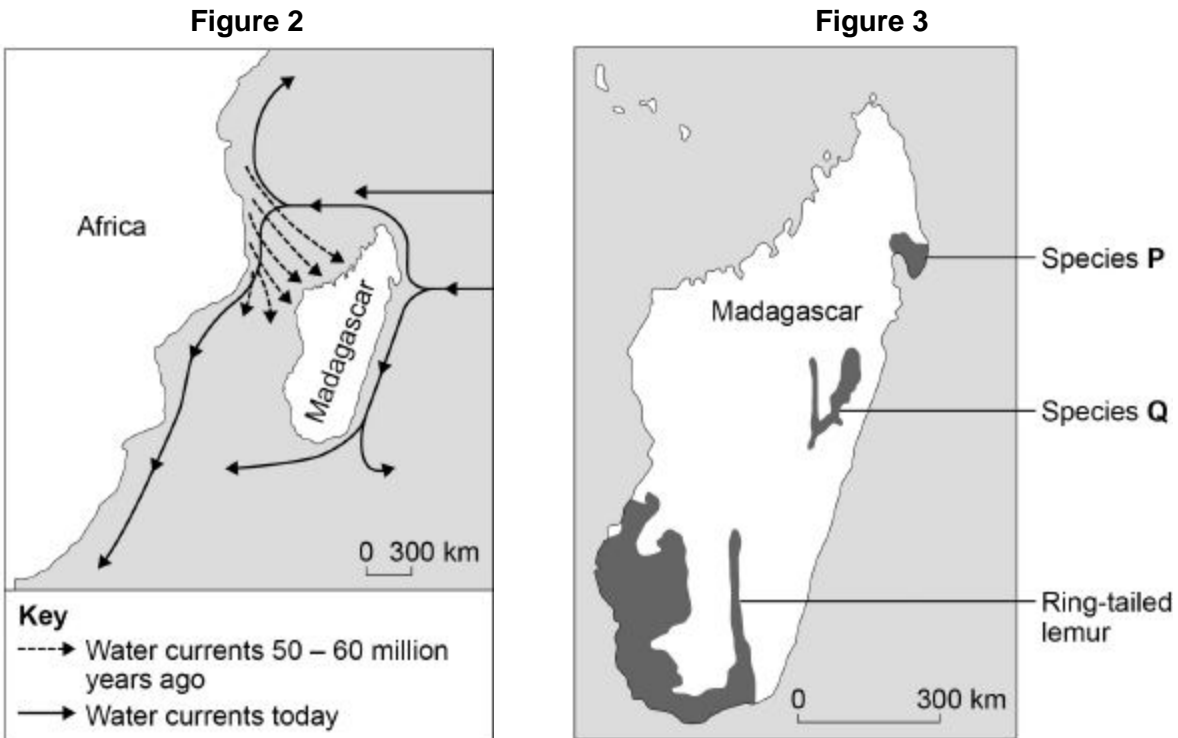
Madagascar is off the coast of Africa.

Scientists think that ancestors of modern lemurs evolved in Africa and reached Madagascar about 50-60 million years ago.

Today there are many species of lemur living on Madagascar.

**Figure 2** shows information about water currents.

**Figure 3** shows the distribution of three species of lemur on Madagascar.



(c) Suggest how ancestors of modern lemurs reached Madagascar.

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(1)

(d) Describe how the ancestors of modern lemurs may have evolved into the species shown in **Figure 3**.

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**(5)**  
**(Total 9 marks)**

2.

Living organisms are classified into the following groups:

- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

(a) Which scientist first suggested this type of classification system?

Tick **one** box.

Alfred Russel Wallace

Carl Linnaeus

Charles Darwin

Gregor Mendel

(1)

The stone plant, *Lithops bromfieldi*, is adapted to live in very dry deserts.

**Figure 1** shows several stone plants.

**Figure 1**

Two swollen  
leaves of one  
stone plant



(b) Give the genus to which the stone plant belongs.

\_\_\_\_\_

(1)

(c) The stone plant has many adaptations that help it to survive in the desert.

Draw **one** line from each adaptation to how the adaptation helps the stone plant to survive.

Adaptation	How the adaptation helps survival
Plants look like stones	Can trap a lot of light
Leaves with thick, waxy cuticles	Absorb water from deep in the ground
Many long, branching roots	Help cross-pollination
Thick, fleshy leaves	Are not easy to see and so are not eaten
	Reduce water loss
	Store water

(4)

The jerboa is a small desert animal.

Figure 2 shows a jerboa.

**Figure 2**



The jerboa is adapted for survival in the desert.

The jerboa spends the daytime in its underground burrow.

The jerboa only leaves its burrow to look for food during the night.

(d) Describe how these adaptations help the jerboa to survive in the desert.

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**(2)**

(e) What type of adaptations are described in Question (d)?

Tick **one** box.

Behavioural

Functional

Structural

**(1)**

**(Total 9 marks)**

3. The image below shows:

- *Phiomia*, an ancestor of elephants
- a modern African elephant.

*Phiomia* lived about 35 million years ago.



© Dorling Kindersley via Thinkstock

Both *Phiomia* and the African elephant reach up into trees to get leaves.

In the 1800s, Darwin and Lamarck had different theories about how the long nose of *Phiomia* evolved into the trunk of the African elephant.

(a) (i) Use Darwin's theory of natural selection to explain how the elephant's trunk evolved.

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(4)



(ii) Lamarck's theory is different from Darwin's theory.

Use Lamarck's theory to explain how the elephant's trunk evolved.

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(2)

(b) (i) In the 1800s, many scientists could **not** decide whether Lamarck's theory or Darwin's theory was the right one.

Give **two** reasons why.

1. \_\_\_\_\_

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2. \_\_\_\_\_

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(2)

(ii) Before the 1800s, many people had a different idea to explain where all the living things on Earth came from.

What idea was this?

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(1)

(Total 9 marks)

4.

**Figure 1** shows a fossil of a sea animal called a Plesiosaur. The Plesiosaur was alive about 135 million years ago.

**Figure 1**



By Andy Dingley (Own work) [CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0>)], via Wikimedia Commons

(a) How can fossils give evidence for evolution?

Tick (✓) **one** box.

Newer fossils are simpler than older fossils.

Fossils show change over time.

All fossils show the bones of animals.

(1)

(b) Plesiosaurs lived in the sea. There was mud at the bottom of the sea.

Suggest how the fossil shown in **Figure 1** may have been formed after the animal died.

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(3)

(c) **Figure 2** shows what scientists think a living Plesiosaur may have looked like.

**Figure 2**



© Andreas Meyer/Hemera/Thinkstock

Scientists think that the Plesiosaur had smooth skin, with no scales.

The scientists **cannot** be certain what the skin of a Plesiosaur was like. Suggest why.

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(1)

(d) Plesiosaurs are now extinct.

Give **two** possible reasons why.

1. \_\_\_\_\_

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2. \_\_\_\_\_

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(2)

(Total 7 marks)

**5.**

(a) Complete the sentences about evolution.

Draw a ring around the correct answer to complete each sentence.

(i) Darwin suggested the theory of evolution by

- artificial
- natural
- asexual

selection.

(1)

(ii) Darwin's theory of evolution says that all species of living things have

evolved from 

artificial
complex
simple

 life forms.

(1)

(iii) Most scientists believe that life first developed about

three billion
three million
three thousand

years ago.

(1)

(b) Darwin's theory of evolution was only slowly accepted by other people.

Give **two** reasons why.

1 \_\_\_\_\_

\_\_\_\_\_

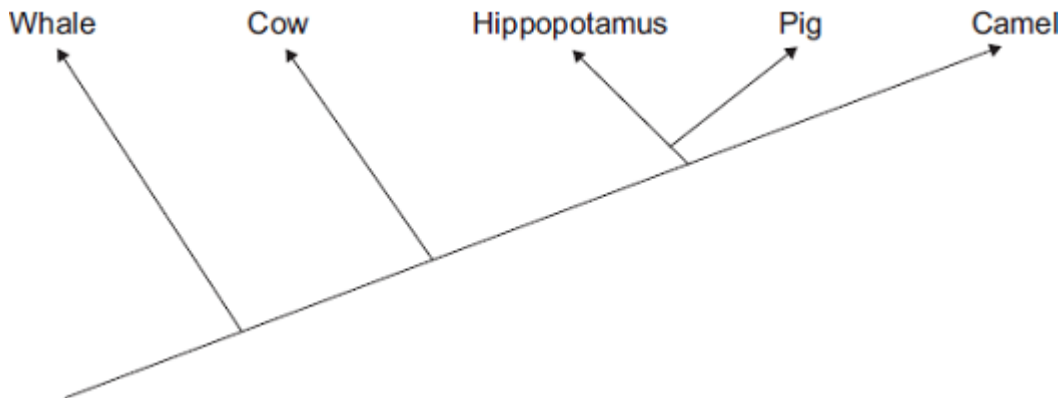
2 \_\_\_\_\_

\_\_\_\_\_

(2)

(c) **Diagram 1** shows one model of the relationship between some animals.

**Diagram 1**



(i) Complete the sentence.

The model shown in **Diagram 1** is an evolutionary \_\_\_\_\_ .

(1)

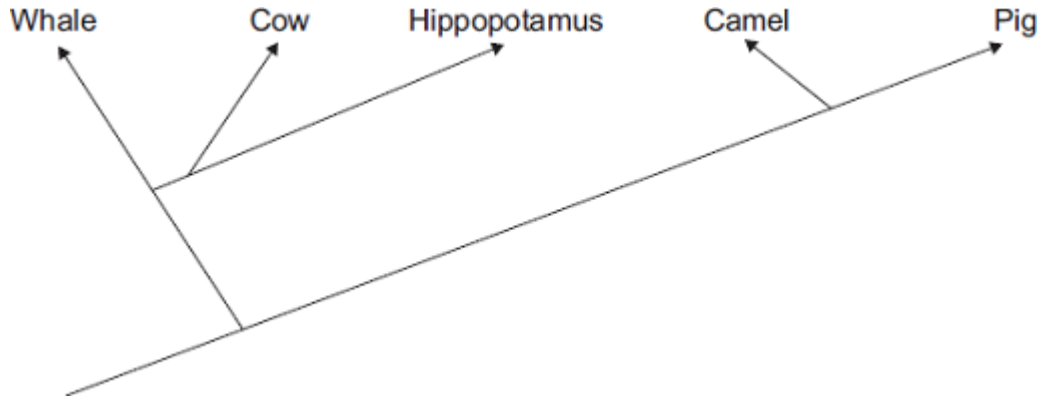
(ii) Which **two** of the animals in **Diagram 1** are most closely related?

\_\_\_\_\_ and \_\_\_\_\_

(1)

(iii) Diagram 2 shows a more recent model of the relationship between the animals.

**Diagram 2**



Suggest **one** reason why scientists have changed the model of the relationships between the animals shown in the diagram.

Draw a ring around the correct answer.

**more powerful  
computers**

**new evidence  
from fossils**

**new species  
discovered**

(1)

(Total 8 marks)