Q1.

The Galapagos Islands are located in the Pacific Ocean.

Several species of birds called finches live on the Galapagos Islands.

These finches are very similar to each other.

Figure 1 shows two modern species of Galapagos finch and their classification.

Figure 1

Medium ground finch

Small ground finch



Classification group	Medium ground finch	Small ground finch
Kingdom	Animalia	Animalia
	Chordata	Chordata
Class	Aves	Aves
	Passeriformes	Passeriformes
	Thraupidae	Thraupidae
Genus	Geospiza	Geospiza
	fortis	fuliginosa

(a) Complete **Figure 1** to give the names of the missing classification groups.

(2)

(b) Give the binomial name of the medium ground finch.

Use information from Figure 1.

(1)

In each species of finch, there is a variation in beak depth.

Figure 2 shows how beak depth is measured.







(c) Give evidence from Figure 3 that beak depth is an inherited characteristic.

(1)

(d) Scientists suggested that more than one gene controls beak depth.Give evidence from Figure 3 to support the scientists' suggestion.

(1)

Figure 4 is a map of the Galapagos Islands.

Figure 4



On Isabela Island, the medium ground finch **and** the small ground finch are found.

On Daphne Island, only the medium ground finch is found. On Crossman Island, only the small ground finch is found.

Figure 5 shows how the beak depth of each species varies on each island.



Figure 5

The medium ground finch and the small ground finch both feed on seeds.

The size of seeds eaten by each bird depends on the depth of the bird's beak.

(e) The range of beak depth of **medium ground finches** on Isabela Island is different from the range on Daphne Island.

Explain what might have caused this difference. (f) Figure 5 shows: the two species of finch live on Isabela Island • only one of the species lives on Daphne Island • only one of the species lives on Crossman Island. • Suggest why both species of finch are able to live on Isabela Island.

(Total 13 marks)

(2)

(6)

Q2.

The image below shows what the extinct Siberian rhinoceros (*Elasmotherium sibiricum*) might have looked like.



(a) What is the genus of the Siberian rhinoceros?

Tick (\checkmark) one box.

Elasmotherium

Elasmotherium sibiricum

sibiricum

(1)

The 'three-domain system' of classification places all living organisms in one of three domains.

(b) Which domain was the Siberian rhinoceros in?

Tick (\checkmark) one box.

Archaea

Eukaryota

modern humans existed.

Prokaryota	
Who developed	the 'three-domain system' of classification?
Tick (✔) one bo>	κ.
Carl Woese	
Charles Darwin	
Gregor Mendel	
The horn of the S	Siberian rhinoceros is estimated to have been 150 cm long
Suggest one ad	vantage of this adaptation to the Siberian rhinoceros.
The only parts of fossilised bones	f the Siberian rhinoceros that have been found are
The only parts of fossilised bones Give one reasor rhinoceros becar	f the Siberian rhinoceros that have been found are n why only the bones of the body of the Siberian me fossils.
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AQA Biology GCSE - Classification of living organisms



Q3.

The following table gives the classification of four plant species.

Group	Species 1	Species 2	Species 3	Species 4
Kingdom	Plantae	Plantae	Plantae	Plantae
Phylum	Spermatophyta	Spermatophyta	Spermatophyta	Spermatophyta
Class	Monocotyledonae	Dicotyledonae	Monocotyledonae	Dicotyledonae
Order	Poales	Fabales	Poales	Scrophulariales
Family	Cyperaceae	Fabaceae	Poaceae	Scrophulariaceae
Genus	Eriophorum	Pisum	Poa	Antirrhinum
Species	angustifolium	sativum	annua	majus

(a) Species **1** and **3** are the most closely related.

What information in the table above gives evidence for this?

(1)

Figure 1 shows the inheritance of flower colour in two species of plant.



Figure 1

- In pea plants and in snapdragon plants, flower colour is controlled by one pair of alleles.
- In **Figure 1** the parental generation plants are homozygous for flower colour.
- In heterozygous **pea** plants, the allele for red flower colour is dominant.
- In heterozygous **snapdragon** plants, the alleles for flower colour are both expressed.

Use the following symbols for alleles in your answers to parts (b) to (d):

Pea plants	Snapdragon plants
R = allele for red flowers	\mathbf{C}^{R} = allele for red flowers
\mathbf{r} = allele for white flowers	$\mathbf{C}^{\mathbf{w}}$ = allele for white flowers

(b) What is the genotype of the red-flowered pea plants in the F₁ generation?

(c) What is the genotype of a white-flowered snapdragon plant?

(1)

(1)

A gardener crossed two pink-flowered snapdragon plants.

(d) Draw a Punnett square diagram to show why only some of the next generation plants had pink flowers.

Identify the phenotypes of all the offspring plants.

(a) (3)
(b) What percentage of the offspring would you expect to have pink flowers?
Percentage = _____%
(1)

Commercially, hundreds of pink-flowered snapdragon plants can be produced from one pink-flowered plant.

Figure 2 shows a tissue culture technique used for producing many plants from one plant.



Many snapdragon plants, all with pink flowers

Nutrients are added to th	e agar jelly:		
Hormones are added to t	he agar jelly:		
The plant cells are kept in	sterile conditions		
The plant cells are kept at	: 20 °C:		
Explain why the method s plants.	hown in Figure 2 ן	produces only pink-fl	owered

Q4.

Figure 1 shows a ring-tailed lemur.





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

Classification group	Name
Kingdom	Animalia
Phylum	Chordata
	Mammalia
	Primates
	Lemuroidea
Genus	Lemur
	catta

(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.

(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.

(1)

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

		_
 	 	 _
 	 	 -
 	 	 -
 	 	_
 	 	 _
 	 	 _
		_
		_

(Total 9 marks)

Q5.

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)

(1)

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

Figure 1 shows several stone plants.



Figure 1

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

(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.



(4)

The jerboa is a small desert animal.

Figure 2 shows a jerboa.





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.

e) What type of adaptations are described in Question ((d)?
Tick one box.	
Behavioural	
Functional	

(Total 9 marks)