Competition and Adaptation 2

Q:1 Desert plants are adapted for survival in a dry climate.

(a) Joshua trees live in deserts.

Joshua trees have two different types of root:

- a system of shallow roots spread out over a large area
- roots about 1 m in diameter, shaped like bulbs, deep in the soil.

Explain the advantage to the Joshua tree of having:

(a) (i) shallow roots spread out over a large area

_____

_____

_____

_____

(2 marks)

(a) (ii) large, bulb-like roots deep in the soil.

_____

_____

(1 mark)

(b) Creosote bushes also live in deserts.

The leaves of creosote bushes:

- are covered with a layer of wax
- fold together during the day.

Explain how the leaves of the Creosote bush help it to survive in deserts.

_____

_____

_____

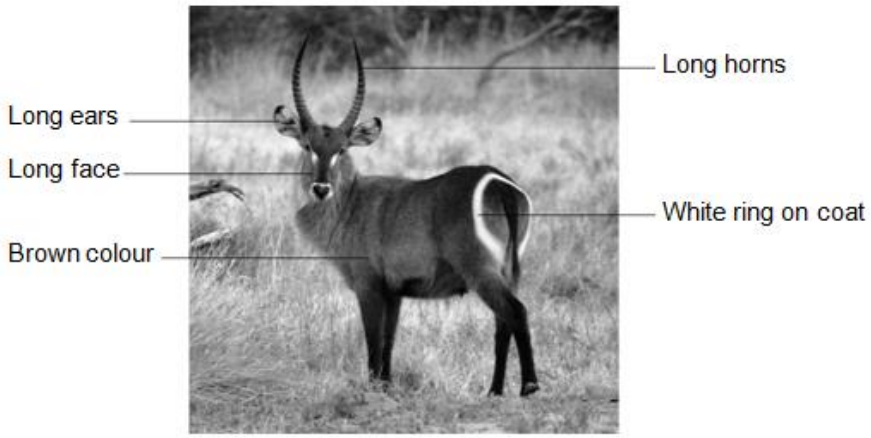
_____

_____

_____

(3 marks)

Q:2 The photograph shows some features of a waterbuck. Waterbuck live in areas of tall, brown grass.



Choose labels from the photograph to answer these questions.

You should choose a label once only.

(a) Which feature helps to camouflage the waterbuck in the grass?

_____

(1 mark)

(b) Which feature helps the waterbuck to detect predators?

_____

(1 mark)

(c) Which feature helps the waterbuck to fight predators?

_____

(1 mark)

(d) Which feature helps a baby waterbuck to follow a parent through the long grass?

_____

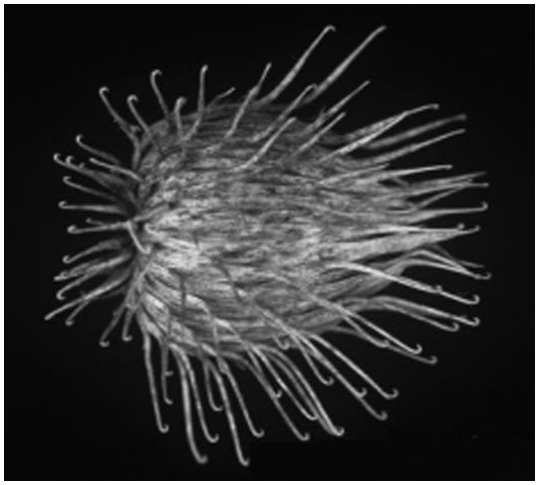
(1 mark)

Q:3 Fruits contain seeds. Most plants produce fruits that are adapted for dispersing seeds. Seeds are dispersed so that young plants do not grow near their parents.

(a) Explain the advantage to plants of dispersing their seeds.

(2 marks)

(b) The photograph shows cocklebur fruits.

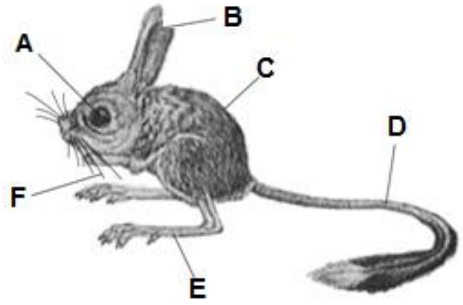


The photograph is magnified.

Suggest how cocklebur fruits are adapted for dispersing their seeds.

(2 marks)

Q:4 The drawing shows a jerboa. Jerboas live in sandy deserts.



Jerboas sleep in underground holes during the hot day and come out during the cold night.

The jerboa's main food is small insects which run across the surface of the sand.

For each question write the correct letter in the box.

Which structure, A, B, C, D, E or F:

(a) helps to insulate the jerboa ☐

(1 mark)

(b) helps the jerboa to detect insects on a dark night ☐

(1 mark)

(c) helps the jerboa to hop quickly to catch an insect ☐

(1 mark)

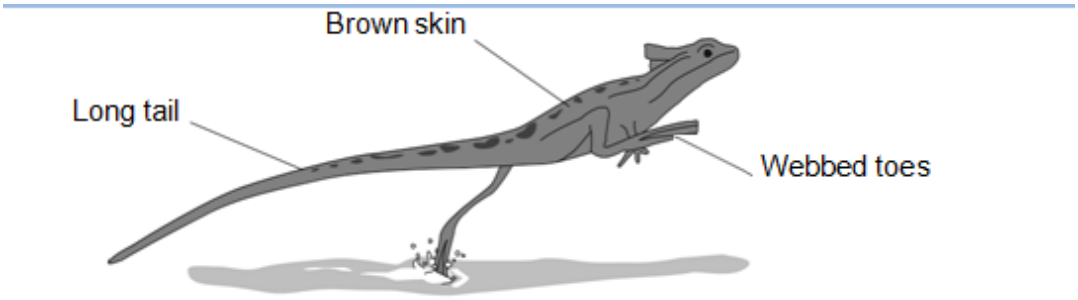
(d) helps the jerboa to keep its balance when hopping ☐

(1 mark)

(e) helps the jerboa to know the width of its underground hole in the dark? ☐

(1 mark)

Q:5 The picture shows a basilisk lizard. Some of the adaptations of the lizard are labelled.



Basilisk lizards are often found resting on branches of trees that grow next to water.

Basilisk lizards can run across the surface of the water.

(a) Draw one line from each adaptation of the lizard to the advantage of the adaptation.

Adaptation	Advantage
Toes on the back feet are webbed	For camouflage on branches of trees
Long tail	Helps the lizard to balance when running
Brown skin	Warning colours to deter predators
	Increases surface area in contact with the water

(3 marks)

(b) Suggest one advantage to the basilisk lizard of being able to run across the surface of the water.

_____

_____

(1 mark)

(c) Animals, such as lizards, compete with each other.

Give two factors that animals compete for.

Tick (☒) two boxes.

Oxygen ☐

Food ☐

Territory ☐

Light ☐

(2 marks)

Q:6 On a rocky shore, when the tide goes in and out, organisms are exposed to the air for different amounts of time.

(a) On hot, windy days when the tide is out the concentration of the salt solution in rock pools may become very high.

What term is used to describe organisms that can survive in severe conditions such as very high concentrations of salt solution?

_____

(1 mark)

(b) Periwinkles are types of snail.

Students surveyed the different types of periwinkle living on a rocky shore.

The diagram shows the results of the students' survey.

The highest position that the sea water reaches on the shore is called the high tide level.

Each bar represents the range of habitats for each type of periwinkle.

Position on shore	Small periwinkle	Rough periwinkle	Common periwinkle	Flat periwinkle
High tide level ↓ Low tide level				

(b) (i) Which two types of periwinkle are likely to compete with each other to the greatest extent?

_____

(1 mark)

(b) (ii) Explain your answer to part (b)(i).

_____

_____

(1 mark)

(b) (iii) The small periwinkle can survive much nearer to the high tide level than the flat periwinkle.

Suggest two reasons why the flat periwinkle cannot survive near to the high tide level.

1 _____

_____

_____

2 _____

_____

_____

(2 marks)

Q:7 Animals and plants are adapted in different ways in order to survive.

(a) Plants may have to compete with other plants.

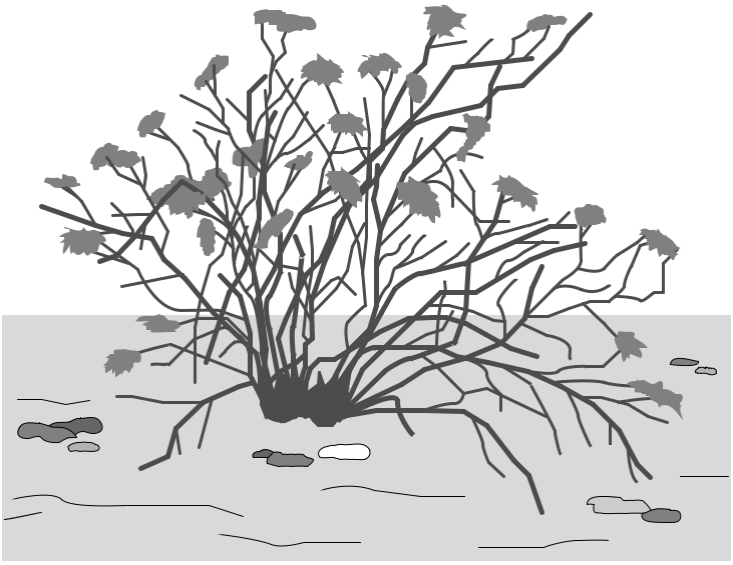
(a) (i) Name two things for which plants compete.

1 _____

2 _____

(2 marks)

(a) (ii) The drawing shows a creosote bush.



This bush lives in a desert.

The creosote bush produces a poison that kills the roots of other plants.

How does this poison help the creosote bush to survive in the desert?

_____

_____

(1 mark)

(b) The photograph shows an insect called a katydid.

The katydid is preyed on by birds.

How does the appearance of the katydid help it to survive?

_____

_____

_____

_____

(1 mark)

TOTAL MARKS=34