

1. The photographs show a bear and a moose.



bear



moose

(a) Suggest **two** features shown in the photograph which show that the bear is a carnivore.

1

2

(2)

(b) Moose are herbivores.

Suggest **two** ways the moose may be adapted to avoid being eaten by predators.

1

2

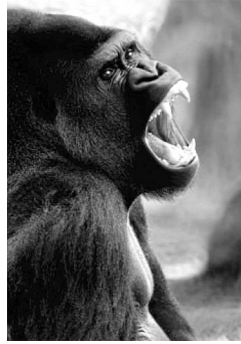
(2)

(Total 4 marks)

Q1



2.



Use the words in the box to complete the sentences.

| | |
|-------------------|---------------|
| colour | hand gestures |
| sound | body posture |
| facial expression | pheromones |
| | language |

The moth attracts a mate from a long distance using

The human seen in the picture is using and to communicate anger.

The gorilla can be seen in the picture to be using to communicate with other gorillas.

The cat is using to make itself look bigger to scare off a predator.

(Total 4 marks)

Q2



3. People with a body mass index (BMI) of over 30 are said to be obese.



Gustoimages / Science Photo Library

Suggest **two** possible health risks of being obese.

1

2

Q3

(Total 2 marks)



4. Draw one straight line from each drug to the plant from which it can be extracted.

drug

plant from which it can be extracted

artemisinin ●

taxol ●

quinine ●

aspirin ●

● Pacific Yew tree

● *Cinchona* tree

● Chinese plant
Artemisia annua

● bark of the willow tree

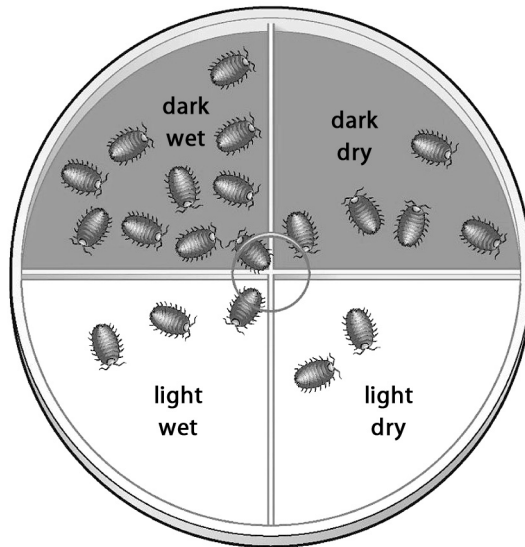
● seaweed

(Total 4 marks)

Q4



5. Choice chambers can be used to study the behaviour of woodlice.



(a) Twenty woodlice were put into the choice chamber through the hole in the top. They were then left for several minutes.

Describe the behaviour shown by these woodlice.

.....
.....
.....
.....

(2)

(b) Name **two** stimuli that the woodlice are responding to.

1
2

(2)

(c) Name the type of behaviour shown by the woodlice in this investigation.

.....

(1)

(Total 5 marks)

Q5



6. Some margarine-type spreads may have health benefits.



(a) They contain an ingredient that is said to reduce the absorption of cholesterol.

(i) Name this ingredient.

..... (1)

(ii) Explain how reducing the absorption of cholesterol has health benefits.

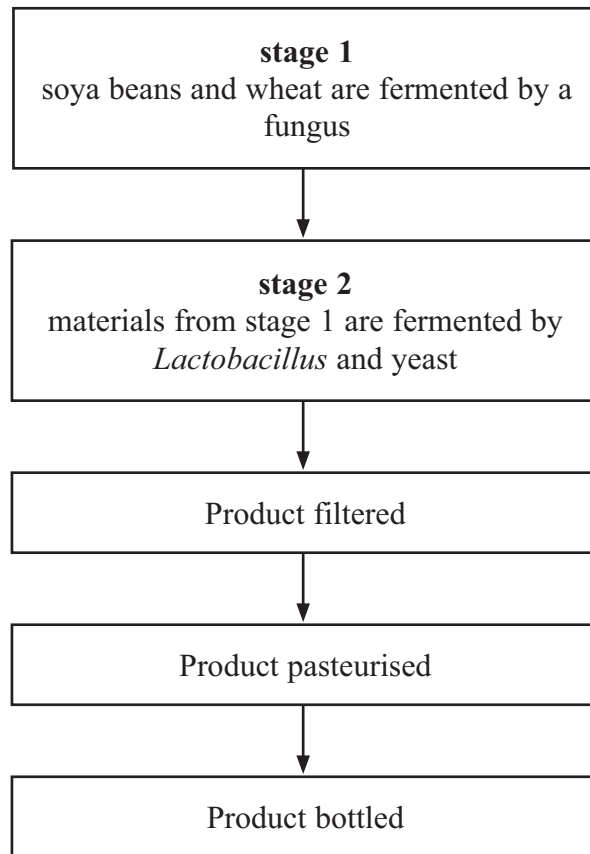
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..... (2)

(Total 3 marks)

Q6



7. The diagram shows the two fermentation stages in the production of soy sauce.



(a) Name the fungus (mould) used in stage 1.

..... (1)

(b) What type of microorganism is *Lactobacillus*?

..... (1)

(c) What effect will *Lactobacillus* have on the fungus used in stage 1?

.....
..... (1)

(d) State why soy sauce is pasteurised.

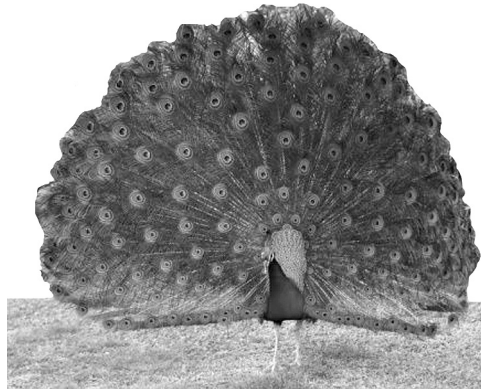
.....
..... (1)

(Total 4 marks)

Q7



8. The photograph shows a peacock displaying his tail feathers.



(a) Suggest one reason why the peacock is displaying his tail feathers.

..... (1)

(b) Suggest how this type of behaviour increases the chances of survival of a species.

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.....
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.....
.....
..... (3)

(Total 4 marks)

Q8



9. Wolves are wild dogs that hunt in packs.



(a) State **two** ways that hunting in packs helps wolves to survive.

1

.....

2

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(2)

(b) It is thought that, about twenty thousand years ago, the first domesticated animals were dogs.

Suggest **two** ways that dogs helped humans to survive.

1

.....

2

.....

(2)



(c) The table shows the percentage of animals eaten by humans in one area of Europe from 11000 to 5000 years ago.

| time from present day (years ago) | domesticated cattle and pigs (%) | domesticated sheep and goats (%) | wild cattle and pigs (%) | wild deer (%) |
|-----------------------------------|----------------------------------|----------------------------------|--------------------------|---------------|
| 11 000 | 27 | 0 | 45 | 28 |
| 9 000 | 37 | 26 | 22 | 15 |
| 7 000 | 31 | 28 | 10 | 31 |
| 5 000 | 56 | 36 | 3 | 5 |

(i) Describe the overall trend for domesticated animals shown in the table.

.....

(1)

(ii) Suggest why the percentage of deer eaten increased between 9000 and 7000 years ago.

.....

(1)

(Total 6 marks)

Q9



10. The first stage in making yoghurt is adding a starter culture of microorganisms to milk.

(a) Name the microorganisms that are used in the starter culture.

..... (1)

(b) Describe how these microorganisms change the milk into yoghurt.

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.....
..... (3)

(c) Explain why prebiotics are added to some yoghurts.

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.....
.....
..... (2)

(Total 6 marks)

Q10



11. Complete the table by stating what each term means. Give one example of each.

| | term | what it means | example |
|-----|-----------------------|----------------------|----------------|
| (a) | conditioned behaviour | | |
| (b) | habituation | | |
| (c) | anthropomorphism | | |

(Total 6 marks)

Q11



12. Loggerhead and green turtles are marine turtles. They are hunted by tiger sharks.



loggerhead turtle

Porterfield Chickering / Science Photo Library



green turtles

Georgette Douwma / Science Photo Library

Tiger sharks hunt turtles by swimming very fast (30 km/hr), attacking from below and biting through their shells.

The table shows some facts about loggerhead and green turtles.

| species | colour | time spent at surface breathing (s) | relative shell strength | speed (km/hr) | ability to withdraw into shell |
|--------------------|------------------------------------------|-------------------------------------|-------------------------|---------------|--------------------------------|
| loggerhead turtles | brown on top, white underneath | 56 | stronger | 20 | no |
| green turtles | brown and green on top, white underneath | 2 | weaker | 22 | no |

(a) Use the information in the table to suggest the most likely reason why tiger sharks attack ten times as many loggerhead turtles compared to green turtles.

.....

.....

(1)



- (b) Green turtles lay eggs in the sand on beaches.
The young turtles hatch out, walk to the sea and then swim away to return years later to lay their own eggs.

The table shows some details of the reproductive strategies of four species.

| species | number of eggs produced per mating | time spent with young after hatching (days) |
|-------------------------|------------------------------------|---------------------------------------------|
| green turtles (reptile) | 100 – 120 | none |
| crocodiles (reptile) | 30 – 60 | 3 |
| great tit (bird) | 10 – 12 | 26 |
| robin (bird) | 5 – 6 | 35 |

Explain how the time spent with the young after hatching affects the different number of eggs laid.

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.....
.....

(2)

(Total 3 marks)

Q12



13.



(a) (i) Name the type of behaviour being shown in the picture.

..... (1)

(ii) Explain how this type of behaviour can help the duckling survive.

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..... (3)

(Total 4 marks)

Q13



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