



Year 8 Disease and Variation HW Questions



35 minutes



47 marks

Q1. Spots may be caused by bacteria in the skin. A researcher investigated the effect of spot-lotion on bacteria.

(a) He grew bacteria on the surface of jelly in a Petri dish.

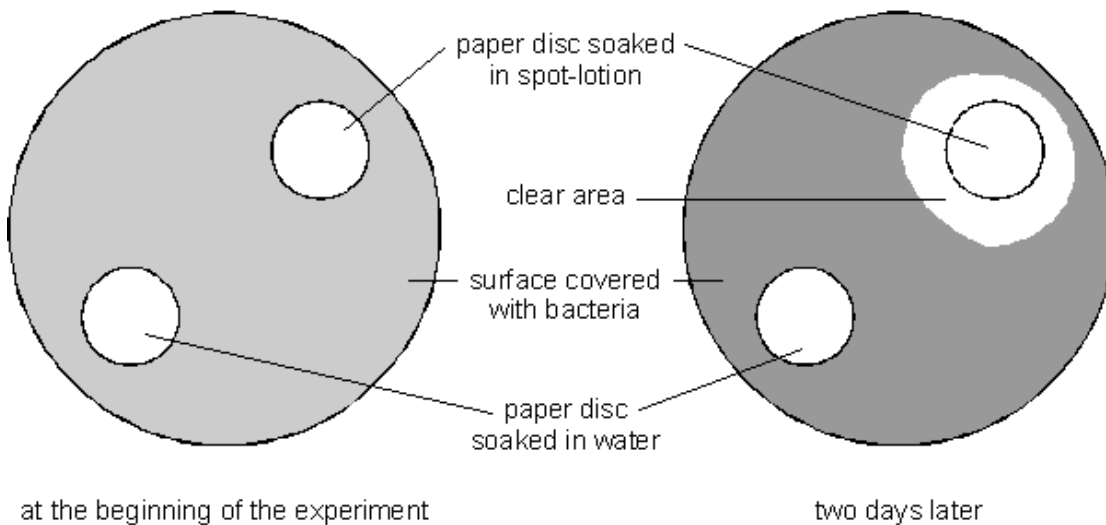
At what temperature would the bacteria reproduce quickly?

Tick the correct box.

100°C	<input type="checkbox"/>	4°C	<input type="checkbox"/>
37°C	<input type="checkbox"/>	-15°C	<input type="checkbox"/>

1 mark

(b) The researcher placed two small paper discs onto the surface of the jelly. One disc had been soaked in spot-lotion. The other disc had been soaked in water. The diagrams below show the jelly at the beginning of the experiment and two days later.



Suggest what had happened to the bacteria in the clear area around the paper disc soaked in spot-lotion.

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1 mark

(c) What was the control in this experiment?

.....
.....

1 mark

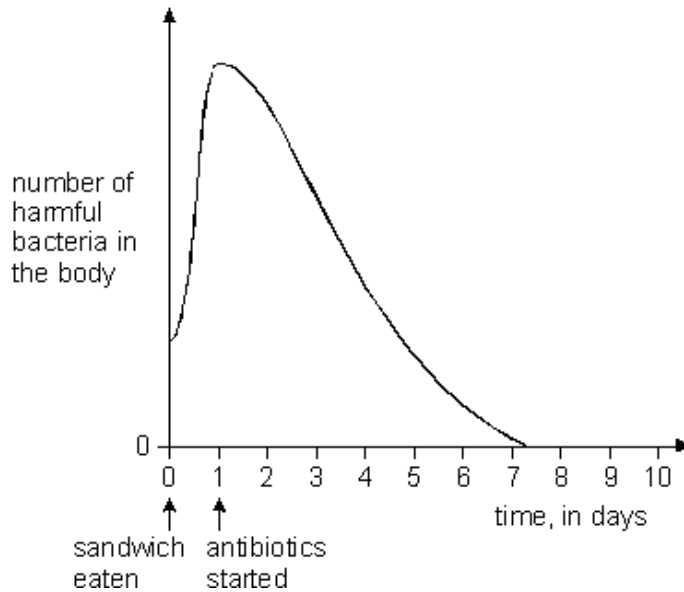
(d) Give **two** safety precautions the researcher should take to avoid contact with the bacteria.

- 1.
- 2.

2 marks
Maximum 5 marks

Q2. One evening Jenny and Leah ate chicken sandwiches which had been in their school bags all day. There were harmful bacteria in the food. The next day both girls became very ill. Their doctor gave them antibiotics to take for eight days.

The graph represents how antibiotics affect the number of bacteria in the body.



(a) Use the graph to explain why the girls did **not** become ill until the day after eating the sandwiches.

-
-

1 mark

(b) After taking the antibiotics for eight days Jenny was completely better. Explain why she got better.

-
-

1 mark

- (c) Leah should have taken the antibiotics for eight days. She felt much better after five days and stopped taking the antibiotics. Two days later she felt very ill again. Use the graph to help you explain why Leah became ill again.

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2 marks

- (d) Food will keep longer if it is placed in a refrigerator at 2°C. Refrigeration does **not** kill bacteria. What effect does the low temperature have on bacteria?

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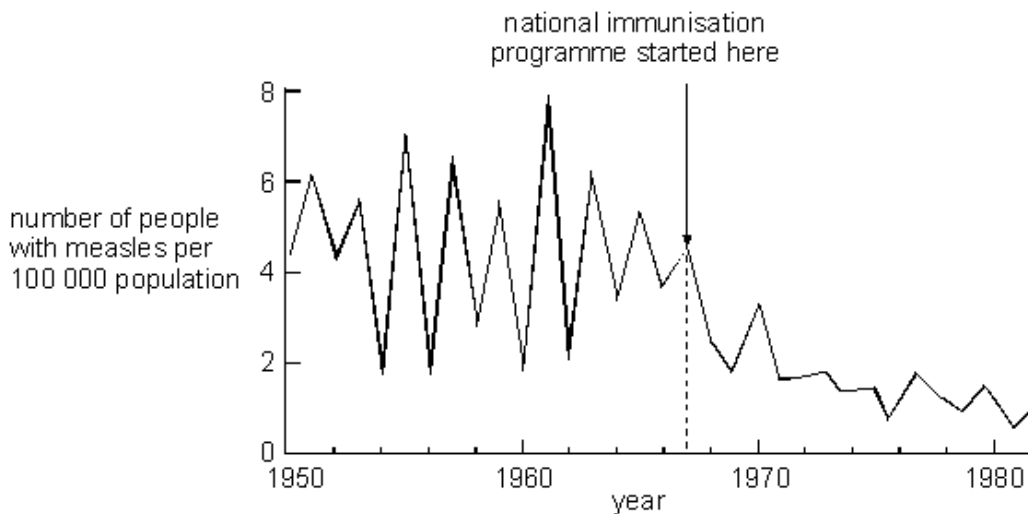
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1 mark
Maximum 5 marks

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- (a) In 1967 a national immunisation programme against measles began. Children were injected with a measles vaccine to make them immune to the disease.

The graph shows how the number of people with measles varied between 1950 and 1980.



(Data obtained from New Scientist, 18 November 1982)

- (i) What does 'immune' mean?

.....

.....

1 mark

(ii) Complete the following sentence.

When a person is vaccinated, white blood cells produce

..... which kill micro-organisms.

1 mark

(iii) What is present in a vaccine to cause white blood cells to respond in this way?

.....

1 mark

(b) Explain how a new born baby can have immunity to measles for a short time without being vaccinated.

.....
.....

1 mark

(c) The national immunisation programme worked well.
Explain how the graph shows this.

.....
.....

1 mark

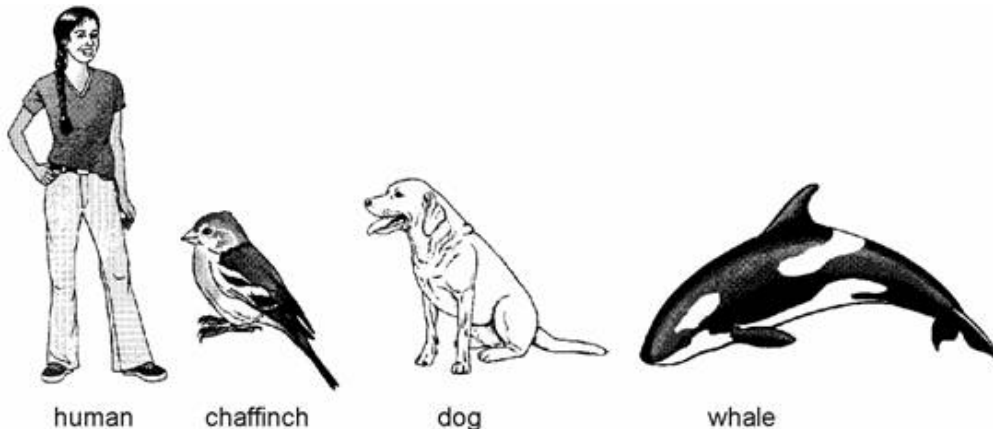
(d) An increasing number of children are not being immunised.
Predict what is likely to happen to the number of cases of measles as a result of this.

.....
.....

1 mark

Maximum 6 marks

Q4. The drawings show a human, a chaffinch, a dog and a whale.



not to scale

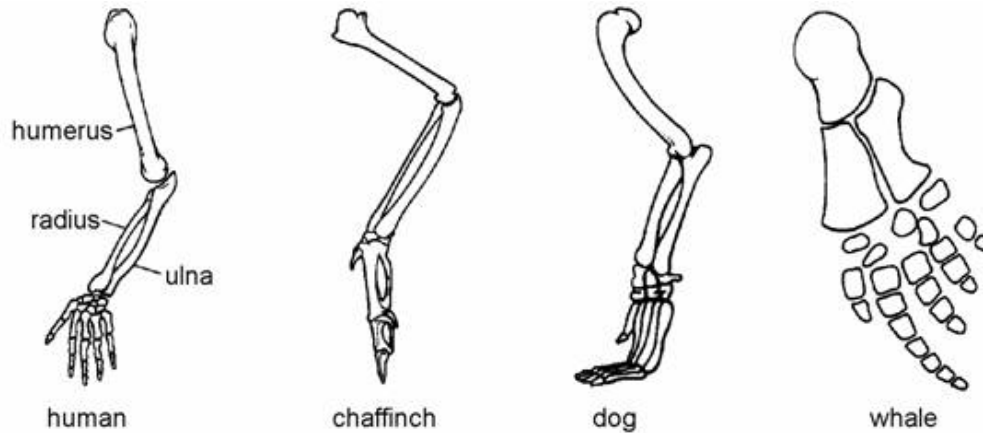
One of these animals is a bird. The other three are mammals.

(a) Which group do all four animals belong to?

.....

1 mark

(b) The drawings below show the bones of the front limbs of the four animals. Some of the bones of the human limb are labelled.



not to scale

On the drawings, label:

(i) the ulna of the chaffinch;

1 mark

(ii) the radius of the dog;

1 mark

(iii) the humerus of the whale.

1 mark

(c) Describe how the shape of the front limb of the whale is adapted for moving in water.

.....
.....

1 mark

(d) The bones of birds are hollow. How does this help birds to fly?

.....
.....

1 mark

Maximum 6 marks

Q5. Every year thousands of trees are cut down in forests.

(a) Mammals and birds are two groups of animals that live in forests.

Give **two** reasons why fewer mammals and birds can survive after trees have been cut down.

1

1 mark

2

1 mark

(b) Many small plants grow in the clearings left after trees are cut down.

Explain why small plants are able to grow well after the trees have been cut down.

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

2 marks

(c) In some forests, small branches are left on the ground.



Fungi and bacteria feed on these branches and release minerals, such as nitrates, back into the soil.

Why is it important that the minerals are released back into the soil?

.....
.....

1 mark

(d) A label was printed on the back of a birthday card.

The paper for this card was made from wood taken from sustainable forests.

In sustainable forests, new trees are planted to replace trees that are cut down.

Give **two** reasons why it is important to replace forest trees that are cut down.

1

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1 mark

2

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1 mark
maximum 7 marks

Q6. Ospreys can live in places where the weather is sometimes cold.



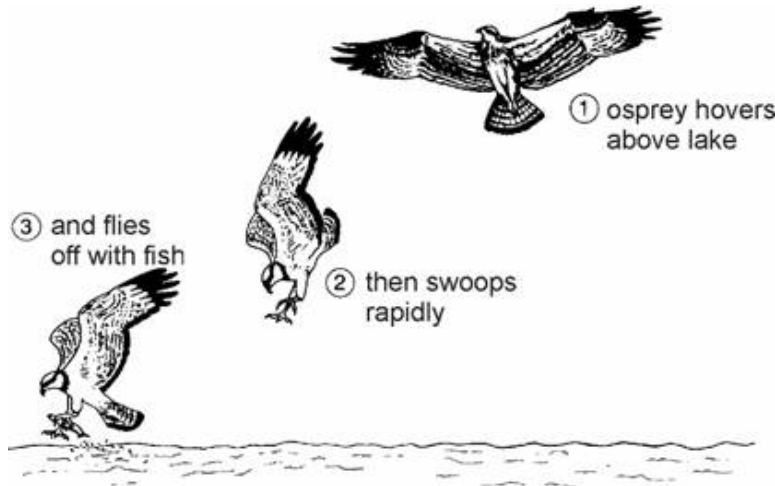
(a) Explain how an osprey's feathers insulate it in cold weather.

.....

.....

1 mark

Ospreys hunt for fish by flying about 10 metres above the water. When they see a suitable fish, they dive swiftly on their prey. This is shown in the diagram below.



(b) (i) What is the advantage of hunting for fish from such a height?

.....

1 mark

(ii) Look at the diagrams above. Suggest **three** different features of ospreys which enable them to be successful at **catching** fish.

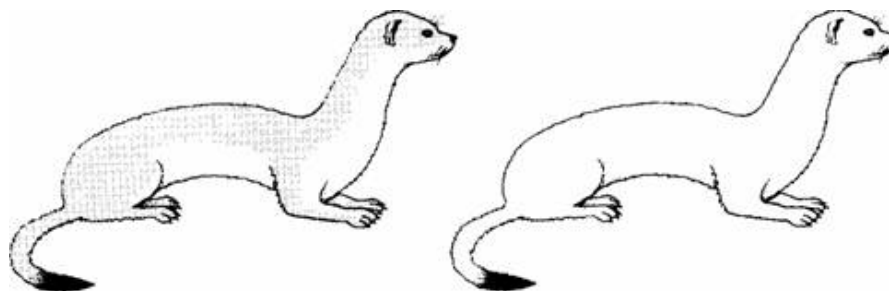
1.

2.

3.

3 marks
 Maximum 5 marks

Q7. (a) The drawings below show a stoat in summer and in winter.



stoat in summer

stoat in winter

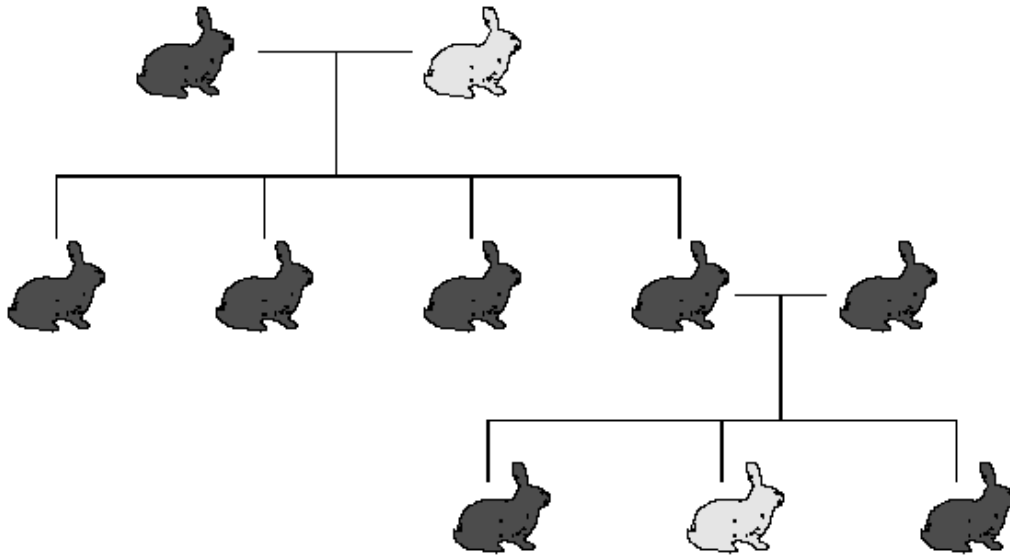
In winter the ground is often covered by snow or frost. During this part of the year a stoat's fur is white.

Suggest **two** ways its white coat helps a stoat to survive in the winter.

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

2 marks

(b) The diagram shows the family tree for a family of rabbits.



Use words from the list below to complete the sentences.

- adapt** **cytoplasm** **genes** **grow** **inherit**
letters **membrane** **mutate** **nuclei**

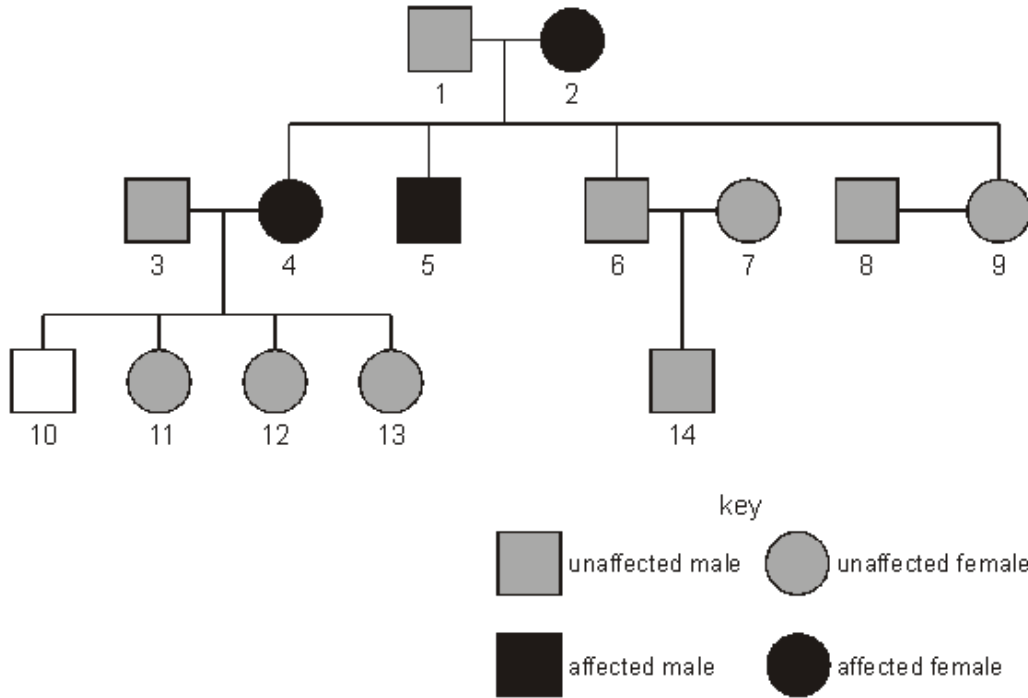
Rabbits have the same fur colour all year round.

Young rabbits fur colour from their parents.

Information about fur colour is passed on from one generation to the next in the form of in the of an egg and sperm.

3 marks
Maximum 5 marks

Q8. The diagram shows a family tree in which some members of the family had a hereditary disease. The disease is caused by a dominant allele.



(a) In the questions below, use **G** to represent the dominant allele for the disease, and **g** to represent the normal allele.

(i) Give the genotype of the grandmother, person 2.

.....

1 mark

(ii) Explain how you arrived at your answer.

.....

2 marks

(b) (i) Give the genotype of person 5.

.....

1 mark

(ii) Explain how you arrived at your answer.

.....

1 mark

(c) Person 10 died soon after birth. What is the possibility that he would have developed the disease if he had survived?

.....

1 mark

(d) Harmful alleles like allele **G** arise because of mutation.

(i) Explain what is meant by mutation.

.....

.....

1 mark

(ii) State **one** cause of mutation.

.....

1 mark

Maximum 8 marks

