

Q1. The five main groups of vertebrate animals are:

fish amphibians reptiles birds mammals

(a) Which sentence is true?
Tick the correct box.

All vertebrates
breathe with lungs.

All vertebrates
have four legs.

All vertebrates
have a backbone.

All vertebrates
live on land.

1 mark

(b) Megatherium was a large mammal. It is now extinct.
The drawing shows what scientists think Megatherium looked like.



(i) How can you tell, from the drawing, that Megatherium was a mammal?

.....

1 mark

(ii) Give **one** other way that mammals are different from other vertebrate animals.

.....

1 mark

(c) The drawing below shows a frog.



(i) To which group of vertebrates does the frog belong?

.....

1 mark

(ii) Give **one** way the frog is adapted for jumping.

.....

.....

1 mark

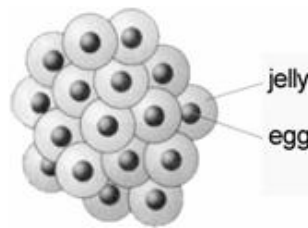
(iii) Give **one** way the frog is adapted for moving about in water.

.....

.....

1 mark

(d) The drawing below shows some frog's eggs. The female frog lays her eggs in water.



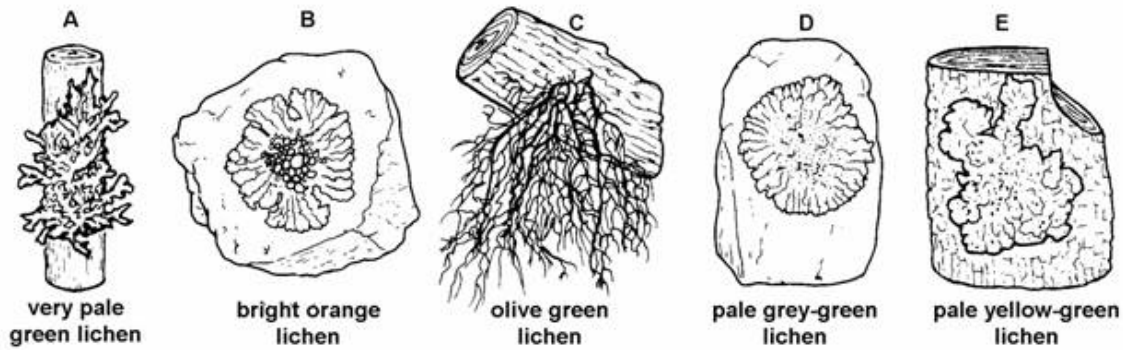
Give **one** reason why the eggs must be laid in water.

.....

.....

1 mark
Maximum 7 marks

Q2. The drawings show five different lichens which grow on rocks or trees.



Identify lichens A, C and D using the key below.

- | | | |
|----|--|----------------------------|
| 1. | The lichens grow on tree bark..... | Go to 2 |
| | The lichens grow on rocks | Go to 4 |
| 2. | They grow flat against the surface | <i>Parmelia subrudecta</i> |
| | They have branches which grow away from the surface..... | Go to 3 |
| 3. | They have long dangling branches | <i>Usnea</i> |
| | They have short branches | <i>Evernia</i> |
| 4. | They are bright orange | <i>Xanthoria</i> |
| | They are pale grey-green | <i>Parmelia saxatilis</i> |

The name of Lichen A is

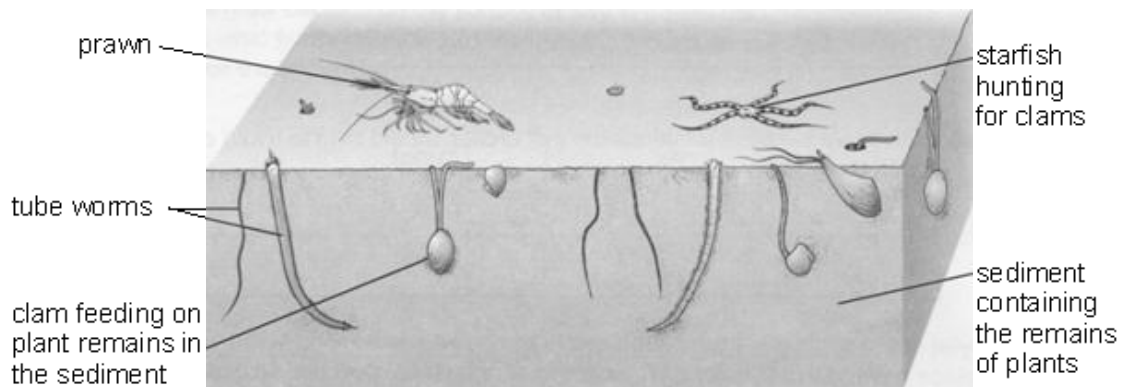
The name of Lichen C is

The name of Lichen D is

Maximum 3 marks

##

The drawing shows some of the animals which live at the bottom of the North Sea.



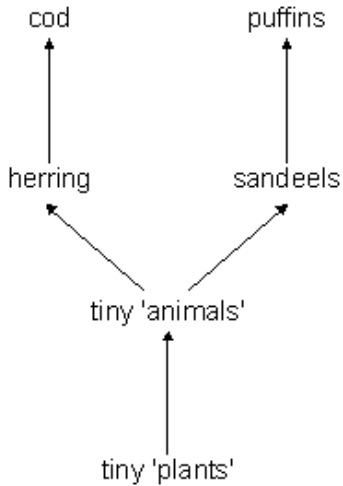
not to scale

(a) Suggest **two** advantages clams get from living in the sediment.

1.
.....
2.
.....

2 marks

(b) Part of a food web in the North Sea is shown below.
Herring, sandeels and cod are types of fish. Puffins are sea birds.



- Herring lay eggs in the gravel on the seabed.
- Sandeels live where the seabed is covered with sand.

Millions of cubic metres of gravel and sand are removed from the bottom of the North Sea every year for roads and buildings.

(i) Give **one** way removing some of the sand and gravel might cause the numbers of herring and cod to decrease.

herring
.....
.....

1 mark

cod
.....
.....

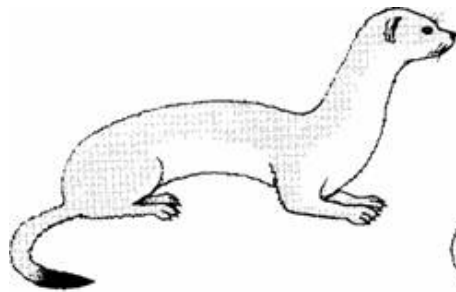
1 mark

- (ii) Explain why removing some of the sand has led to a decrease in the number of puffins.

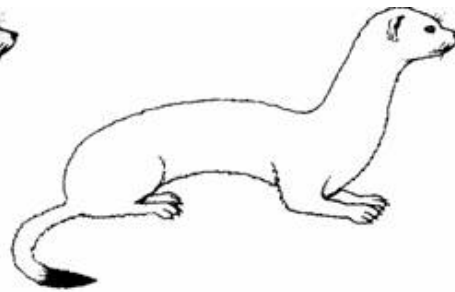
.....
.....
.....
.....

2 marks
Maximum 6 marks

- Q4.** (a) The drawings below show a stoat in summer and in winter.



stoat in summer



stoat in winter

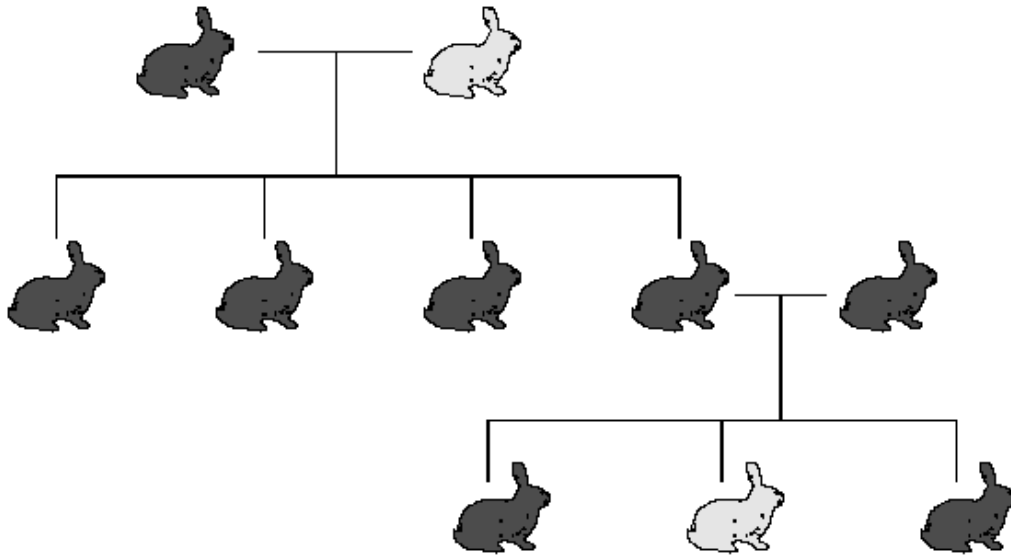
In winter the ground is often covered by snow or frost. During this part of the year a stoat's fur is white.

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

##

The food chain below shows the feeding relationships between some organisms living in the Arctic.

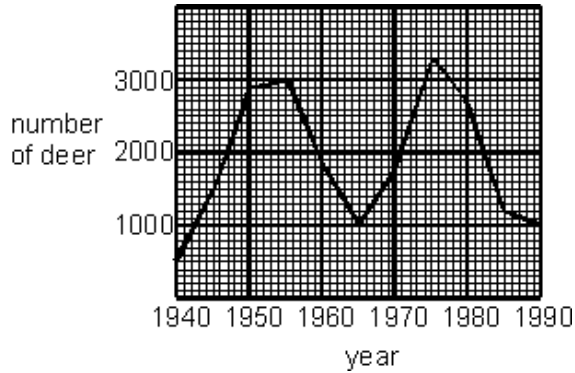
plants → deer → wolves

(a) Which organism in the food chain is a predator?

.....

1 mark

In one area of the Arctic the number of deer has been counted every five years since 1940. The graph shows the number of deer.



(b) Suggest a reason why the deer population changed between 1975 and 1990.

.....

1 mark

(c) The population of wolves in the area also changed.

(i) What is likely to have happened to the number of wolves between 1980 and 1990?

.....

1 mark

(ii) The number of **deer** in 1946 was about the same as in 1960. Suggest why the number of **wolves** was probably higher in 1960 than in 1946.

.....

1 mark

Maximum 4 marks

Q6. The drawings show identical twins, Sara and Helen, and their parents.



father



mother



Sara



Helen

(a) (i) Sara and Helen have blue eyes like their mother.

Describe how genetic information is passed on from a parent to a child.

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

2 marks

(ii) Sara and Helen have brown hair like their father and blue eyes like their mother.

Why do children have characteristics of both parents?

.....
.....

1 mark

(b) Sara and Helen are identical twins.

Why do they have identical characteristics?

.....
.....

1 mark

- (c) Sara now spends a lot of her time working outdoors in a hot country.
Helen now works in an office in England.

The table shows information about three human characteristics.

characteristic	Is it identical for Sara and Helen?
eye colour	yes
skin colour	no
weight	no

Explain why their eye colour is identical but their weight and skin colour are **not** identical.

.....

.....

.....

.....

2 marks
maximum 6 marks

