TWENTY FIRST CENTURY
science

Module B3

LIFE ON EARTH

Practice test

FOUNDATION

Name:.....

Form/teaching set:.....

Answer all of the questions.

Write your answers in the spaces provided on this paper.

1 John is walking along a road at night.

A car with very bright headlights passes by.

John closes his eyes until the car has passed him.

(a) Draw one straight line from the correct stimulus to the correct receptor, and one straight line from the correct receptor to the correct effector.

stimulus	**receptor**	**effector**
light	ear	gland
sound	eye	muscle
touch	nose	nerve

[3]

(b) The message to close John's eyes was passed through his central nervous system.

Put a (ring) round each name of the **two** components of the central nervous system in humans.

brain **kidney** **liver** **spinal cord** **stomach** [2]

[Total marks: 5]

2 In 1953, a disease called myxomatosis infected rabbits in the United Kingdom.

Within two years, 99% of the rabbit population had been killed by the disease.

Now the rabbit population has recovered, and most rabbits are immune to the disease.

(a) These following statements describe how this has happened, but two statements are missing.

A One rabbit develops immunity to myxomatosis.

B

C The rabbit with immunity breeds and produces offspring that are also immune.

D

E The immune offspring breed to produce a population that is mainly immune.

Which of the following statements should be added to finish the description?

Show your answer by writing the letters **B** and **D** in the correct boxes.

The rabbit with immunity cannot breed. ☐

The rabbit with immunity survives while other rabbits die. ☐

The offspring are also killed by the disease. ☐

The offspring survive while the offspring of other rabbits die. ☐

Only a few of the rabbits with immunity are killed by the disease. ☐ [2]

(b) **(i)** What is the name of the process by which most of the population of rabbits became immune to myxomatosis?

Put a (ring) around the correct answer.

cross pollination **genetic manipulation**

natural selection **selective breeding** [1]

(ii) Over a long period of time, the process named in **(i)** can result in the formation of a new species of an animal or plant.

What scientific term is used to describe how new species are produced?

Put a (ring) around the correct answer.

dispersion **diversity** **evolution** **extinction** [1]

[Total marks: 4]

3 In the early part of the 19th century, Jean-Baptiste Lamarck published his ideas to explain the diversity of life on Earth.

(a) Here are some of his observations and explanations..

A Giraffes have long necks and feed on foliage high in trees.

B Because of where they live, some animals use certain organs more than others.

C Moles live mostly underground and have poor eyesight.

D An organ that is used more becomes more developed.

E Offspring will inherit highly developed organs from their parents.

F Ducks swim through water and have webbed feet.

(i) Which of these statements are **observations**?

……. [2]

(ii) Which of these statements are **explanations**?

……. [2]

(b) At first, many scientists believed that Lamarck's ideas to explain the diversity of life on Earth were correct.

Later, most scientists accepted ideas put forward by Charles Darwin instead.

Which **one** of the following statements suggests why Lamarck's ideas are no longer accepted?

Put a tick (✓) in the box next to the correct answer.

Giraffes are not the only animals with long necks. ☐

If a man develops large muscles by exercising, his offspring will not inherit these muscles. ☐

People with blue eyes often have children with blue eyes. ☐

Some animals that live above ground also have poor eyesight. ☐

[1]

[Total marks: 5]

4 Read this information about the snow leopard.

The snow leopard

The snow leopard lives among the high mountains of Central Asia. The total world population is thought to be only between 4000 and 7000 animals, and the species is in danger of extinction in the near future.

The snow leopard is usually found in mountain regions in dry, rocky habitat, with shrub or grassland. Its usual prey is wild sheep and goats.

Most of the wild sheep and goats have been hunted out of many areas where the snow leopard lives. Also, herders are increasingly moving their animals into snow leopard territory, and the animals eat all the grass. This pushes the wild prey away to other areas. As a result, snow leopard numbers have declined.

As an alternative food source, the snow leopard will kill the herders' animals, and this can result in the leopards being hunted by local farmers.

Another threat is large-scale poisoning of small mammal populations. This has not only affected snow leopards, but also the other predators which feed on them.

A further threat to this species comes from the increasing demand for bones for traditional Oriental medicine.

(a) The statements below describe one cause of the decline in snow leopard numbers, but they are in the wrong order.

A The herders' animals eat most of the grass in the area.

B The snow leopard kills domestic animals.

C Farmers hunt and kill the snow leopards.

D Herders move their animals into the area inhabited by snow leopards.

E The prey of the snow leopard moves away to find other grazing.

Write letters in the boxes to show the correct order for these statements.

One has been done for you.

D				

[3]

(b) The article mentions other threats that may reduce the number of snow leopards in the future.

Describe and explain **one** other threat to snow leopards.

……

……

……

…… [2]

(c) The article suggests that the snow leopard may become **extinct**.

What is meant by the word extinct?

……

…… [1]

[Total marks: 6]

[Total marks for test: 20]

TWENTY FIRST CENTURY
science

Module B3

LIFE ON EARTH

Practice test

HIGHER

Name:.....

Form/teaching set:.....

Answer all of the questions.

Write your answers in the spaces provided on this paper.

1 Animals have two different systems involved in communication between their body organs.

These are nervous and hormonal communication systems.

Put ticks (✓) in the boxes below to show which statements are true for the **nervous system**, which for the **hormonal system**, and which are true for **both systems**.

Each statement should have only one tick.

	nervous system only	**hormonal system only**	**both systems**
uses electrical impulses			
uses chemicals in the blood			
maintains a constant internal environment in the body			
produces long-lived responses			
produces fast responses			

[Total marks: 3]

2 In 1953 a disease called myxomatosis infected rabbits in the United Kingdom.

Within two years, 99% of the rabbit population had been killed by the disease.

Now the rabbit population has recovered, and most rabbits are immune to the disease.

(a) The following statements describe how this has happened, but two statements are incomplete.

A One rabbit develops immunity to myxomatosis.

B The rabbits without immunity …….

C The rabbit with immunity breeds and produces offspring that are also immune.

D These offspring …….

E The immune offspring breed to produce a population that is mainly immune.

Finish sentences **B** and **D** to make a complete explanation of how the rabbit population recovered. [2]

(i) One rabbit developed immunity to the disease by a change in its genes.

What scientific term is used to describe a random change in an animal's genes?

……. [1]

(ii) For this change to be passed on to the rabbit's offspring, it must have taken place in one type of cell in the rabbit.

In which type of cell did the change in the genes take place?

……. [1]

(c) **(i)** What scientific term is used to describe the process by which most of the population of rabbits became immune to myxomatosis?

…… [1]

(ii) Over a long period of time, the process named in **(i)** can result in the formation of a new species of an animal or plant.

What scientific term is used to describe how new species are produced?

…… [1]

[Total marks: 6]

3 In the early part of the 19th century, Jean-Baptiste Lamarck published his ideas to explain the diversity of life on Earth.

(a) Here are some of his observations and ideas.

A Giraffes have long necks and feed on foliage high in trees.

B Because of where they live, some animals use certain organs more than others.

C Moles live mostly underground and have poor eyesight.

D An organ that is used more becomes more developed.

E Offspring will inherit highly developed organs from their parents.

F Ducks swim through water and have webbed feet.

(i) Which of these statements are observations?

…… [1]

(ii) Which of these statements are explanations?

…… [1]

(b) At first, many scientists believed that Lamarck's ideas to explain the diversity of life on Earth were correct.

Later, most scientists accepted ideas put forward by Charles Darwin instead.

Which **one** of the following statements suggests why Lamarck's ideas are no longer accepted?

Put a tick (✓) in the box next to the correct answer.

Giraffes are not the only animals with long necks. ☐

If a man develops large muscles by exercising, his offspring will not inherit these muscles. ☐

People with blue eyes often have children with blue eyes. ☐

Some animals that live above ground also have poor eyesight. ☐

[1]

(c) Many scientists were reluctant to accept Charles Darwin's theory to explain the diversity of life on Earth.

Suggest two reasons why.

……

……

……

…… [2]

[Total marks: 5]

4 Read this information about the snow leopard.

The snow leopard

The snow leopard lives among the high mountains of Central Asia. The total world population is thought to be only between 4000 and 7000 animals, and the species is in danger of extinction in the near future.

Snow leopard fur was once used in fashionable clothes, and around 1000 skins were traded a year in the 1920s. The fur trade has decreased, but other threats mean that the species is still in danger.

The snow leopard is usually found in mountain regions in dry, rocky habitat, with shrub or grassland. Its usual prey is wild sheep and goats.

Most of the wild sheep and goats have been hunted out of many areas where the snow leopard lives. Also, herders are increasingly moving their animals into snow leopard territory, and the animals eat all the grass. This pushes the wild prey away to other areas. As a result, snow leopard numbers have declined.

As an alternative food source, the snow leopard will kill the herders' animals, and this can result in the leopards being hunted by local farmers.

Another threat is large-scale poisoning of small mammal populations. This has not only affected snow leopards, but also the other predators which feed on them.

A further threat to this species comes from the increasing demand for bones for traditional Oriental medicine.

(a) The statements below describe one cause of the decline in snow leopard numbers, but they are in the wrong order.

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C Farmers hunt and kill the snow leopards.

D Herders move their animals into the area inhabited by snow leopards.

E The prey of the snow leopard moves away to find other grazing.

Write letters in the boxes to show the correct order for these statements.

One has been done for you.

D				

[3]

(b) The article mentions other threats that may reduce the number of snow leopards in the future.

Describe and explain another threat to snow leopards.

……

……

……

…… [2]

(c) The article suggests that few snow leopard are killed for their fur.

Suggest why the trade in snow leopard fur has declined.

……

…… [1]

[Total marks: 6]

[Total marks for test: 20]