

Biodiversity

Human Effect on Ecosystem

Question Paper 1

Level	GCSE (9-1)
Subject	Combined Science – Trilogy - Biology
Exam Board	AQA
Topic	4.7 Ecology
Sub-Topic	Biodiversity – Human Effect on Ecosystem
Difficulty Level	Bronze Level
Booklet	Question Paper 1

Time Allowed: 55 minutes

Score: / 55

Percentage: /100

Grade Boundaries:

Q1.Global warming may reduce biodiversity in some areas.

(a) What is biodiversity?

Tick **one** box.

The different habitats in an ecosystem

☐

The interaction of living and non-living factors in a habitat

☐

The interdependence of organisms on Earth

☐

The total number of organisms in an ecosystem

☐

The variety of different species on Earth

☐

(1)

(b) What gases cause global warming?

Tick **two** boxes.

Carbon dioxide

☐

Methane

☐

Nitrogen

☐

Oxygen

☐

Water vapour

☐

(2)

- (c) Give **two** effects of global warming that could reduce biodiversity in an area.

1

.....

2

.....

(2)
(Total 5 marks)

Q2.Peat can be burnt as a fuel.

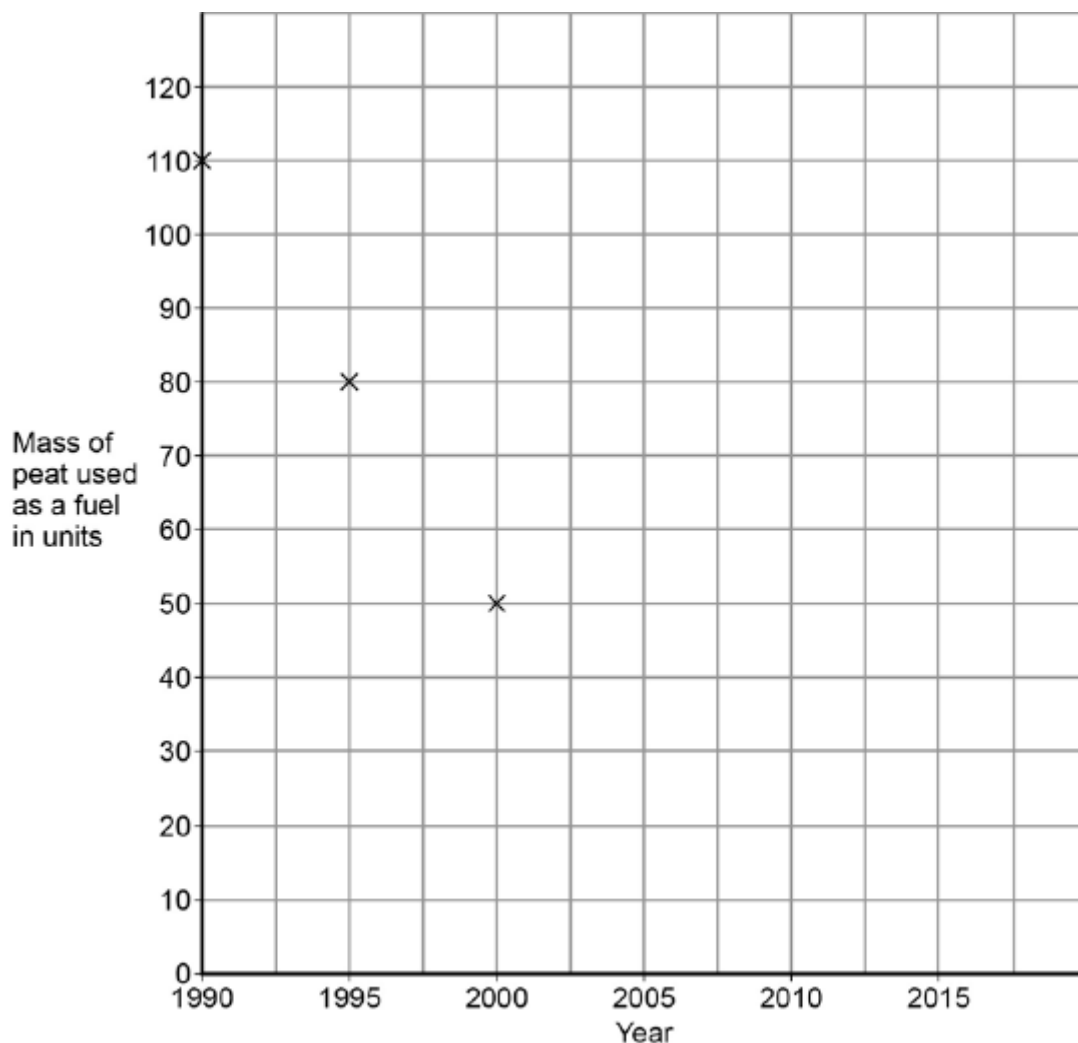
Table 1 shows the amount of peat used as a fuel in the UK over 20 years.

Table 1

Year	Mass of peat used as a fuel in units
1990	110
1995	80
2000	50
2005	20
2010	10

Figure 1 shows some of the information from **Table 1**.

Figure 1



- (a) Complete **Figure 1** by plotting the points for 2005 and 2010.

(2)

- (b) Predict the amount of peat used as a fuel in the UK in 2015.

Use information from **Figure 1**.

.....

(1)

- (c) Plants in the UK are often grown in compost.

Compost usually contains peat.

The coconut fibre shown in **Figure 2** is a waste product of coconut farming.

Coconut fibre can be used to produce peat-free compost.

Figure 2



© afe207/Thinkstock

Table 2 shows features of peat-free compost made using coconut fibre.

Complete **Table 2** to show if each feature is an advantage **or** disadvantage.

Put a tick in each row.

Table 2

Feature compared to peat compost	Advantage	Disadvantage
Coconut fibre is transported longer distances		
Coconut fibre is a waste product		
Coconut fibre traps less air in the soil, so roots absorb fewer mineral ions		

(2)
(Total 5 marks)

Q3. Scientists have produced many different types of GM (genetically modified) food crops.

- (a) Use words from the box to complete the sentence about genetic engineering.

clones	chromosomes	embryos	genes
--------	-------------	---------	-------

GM crops are produced by cutting out of the
..... of one plant and inserting them into the cells of a crop plant.

(2)

(b) Read the information about GM food crops.

- Herbicide-resistant GM crops produce higher yields.
- Scientists are uncertain about how eating GM food affects our health.
- Insect-resistant GM crops reduce the total use of pesticides.
- GM crops might breed naturally with wild plants.
- Seeds for a GM crop can only be bought from one manufacturer.
- The numbers of bees will fall in areas where GM crops are grown.

Use this information to answer these questions.

(i) Give **two** reasons why some farmers are in favour of growing GM crops.

1

.....

2

.....

(2)

(ii) Give **two** reasons why many people are against the growing of GM crops.

1

.....

2

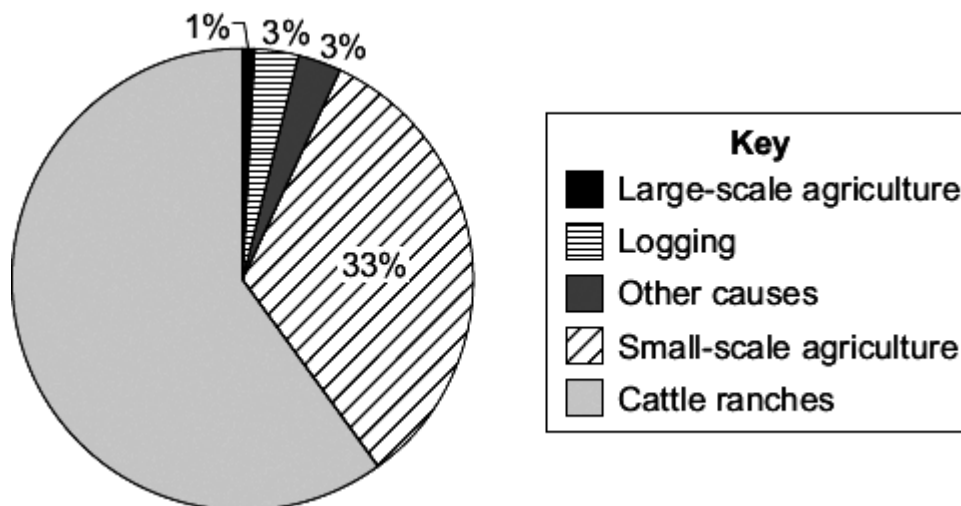
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(2)

(Total 6 marks)

Q4. Large-scale deforestation is taking place in Brazil.

The pie chart shows the causes of deforestation in Brazil.



- (a) Calculate the percentage of forest that has been destroyed for cattle ranches.

Show clearly how you work out your answer.

.....

Percentage =

(2)

- (b) Cattle give off large amounts of methane into the atmosphere.

The methane causes the Earth's temperature to increase.

Give **two** effects of the temperature increase on the environment.

1

.....

2

.....

(2)

(Total 4 marks)

Q5. The photographs show some ways in which humans affect the environment.

- (a) Coal-burning power stations give off smoke. The smoke contains many different gases.



By Norbert Kaiser (English: own work.) [CC-BY-SA-3.0], via Wikimedia Commons

Draw a ring around the correct answer to complete each sentence.

- (i) The gas which causes global warming is

carbon dioxide.
oxygen.
sulfur dioxide.

(1)

- (ii) The gas which causes acid rain is

methane.
oxygen.
sulfur dioxide.

(1)

- (b) The photograph shows a quarry.



By Thomas Bjørkan (Own work) [CC-BY-SA-3.0], via Wikimedia Commons

Draw a ring around the correct answer to complete each sentence.

- (i) Quarrying increases biodiversity.

releases methane into the atmosphere.

reduces land available for animals and plants.

(1)

- (ii) Quarrying can be reduced by recycling

metals.

paper.

plastic

(1)

- (c) The photograph shows a farmer spraying fruit trees.



Photograph supplied by Hemera/Thinkstock

Chemicals in the spray kill insects on the trees.

Draw a ring around the correct answer to complete each sentence.

(i) The spray contains

- fertiliser.
- herbicide.
- pesticide.

(1)

(ii) The chemical in the spray might also

- kill other animals.
- kill plants.
- increase biodiversity.

(1)
(Total 6 marks)

Q6. Soay sheep live wild on an island off the north coast of Scotland. No people live on the island.



By Owen Jones = Jonesor [CC-BY-SA-2.5], via Wikimedia Commons

Over the last 25 years, the average height and mass of the wild Soay sheep have decreased.

The scientists think that climate change might have affected the size of the sheep.

- (a) More Soay sheep are now able to survive winter than 25 years ago.

What change in the climate may have helped more Soay sheep to survive winters?

.....
.....

(1)

- (b) Complete the sentences.

- (i) Soay sheep show variation in size because of differences in their

.....

(1)

- (ii) The change in the size of the Soay sheep over 25 years can be explained by Darwin's

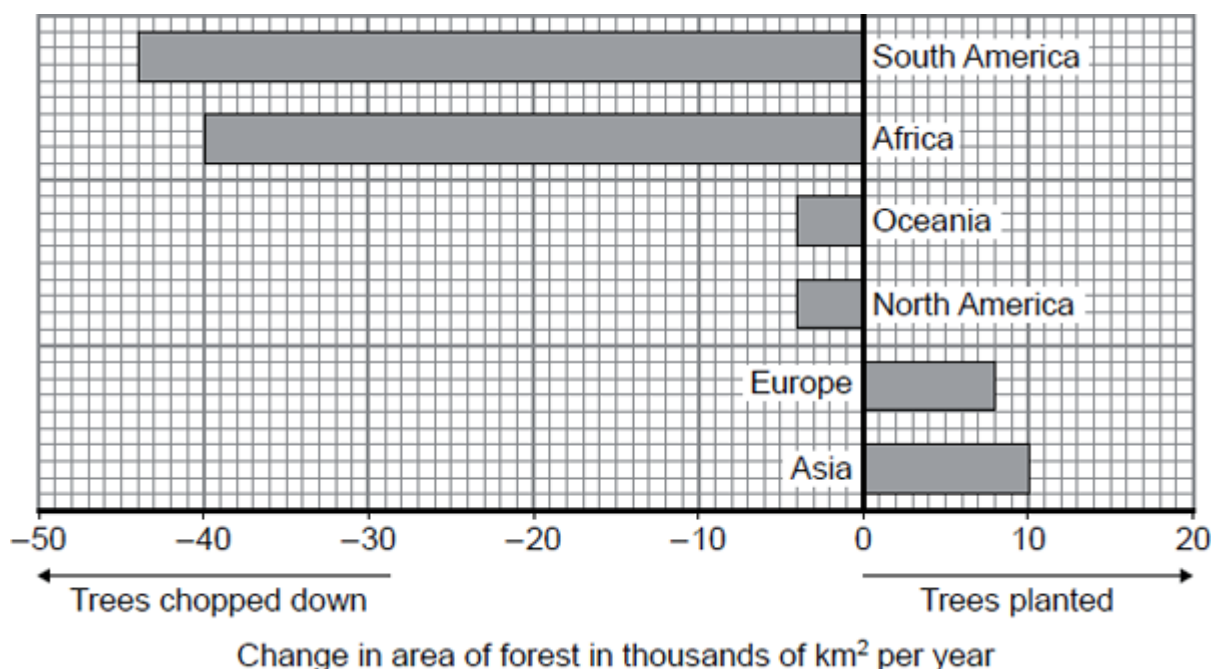
theory of

(1)

(Total 3 marks)

- Q7.** In many parts of the world, forests are being chopped down (deforestation) so that the land can be used to grow food crops. In other parts, trees are planted to produce new forests.

The graph shows how the area of forest in each of the continents is changing each year.



- (a) (i) What area of forest is being lost in Africa each year?

Area = thousand km²

(1)

- (ii) Use **Steps 1, 2** and **3** to calculate the total change to the area of forest each year.

Step 1 Calculate the total area of trees chopped down.

.....

Total area chopped down = thousand km²

Step 2 Calculate the total area of trees planted.

.....

Total area planted = thousand km²

Step 3 Use your answers from **Steps 1** and **2** to calculate the total change in the area of forest.

.....

Total change in area of forest thousand km²

(3)

(b) Draw a ring around the correct answer to complete each sentence.

(i) Large scale deforestation reduces the number of species of

plants only.
animals only.
both animals and plants.

(1)

(ii) The remains of the trees are broken down into carbon dioxide by

lichens.
microorganisms
.
plants.

(1)

(iii) The gas released into the atmosphere when trees are burned is

carbon
dioxide.
methane.
oxygen.

(1)

(Total 7 marks)

Q8. The photograph shows an area where a tropical forest is being cleared.



- (a) Complete the sentences.

People could use timber from the forest for
.....

The cleared land can be used for
.....

Clearing forests increases the concentration of
..... in the atmosphere.

This increase causes global

(4)

- (b) Clearing forests causes some species to become *extinct*.

- (i) What is meant by *extinct*?

.....
.....

(1)

- (ii) It is important to prevent species from becoming extinct.

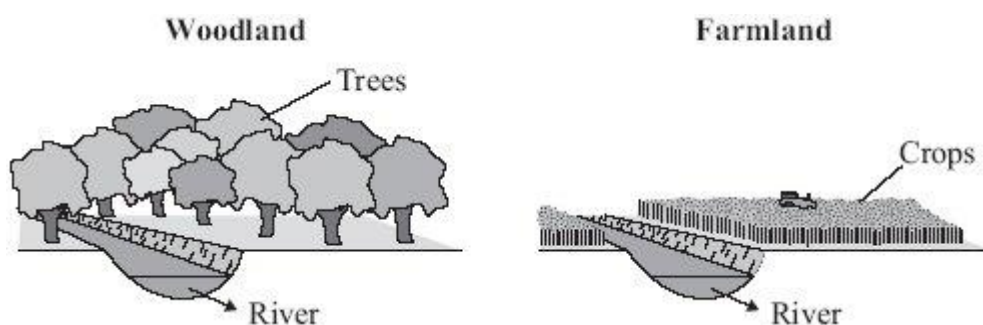
Give **one** reason why.

.....

.....

(1)
(Total 6 marks)

- Q9.** The drawings show some woodland and some farmland. Both have a river flowing through.



- (a) (i) There is a wider variety of wildlife in the woodland than in the farmland.

Give **one** reason why.

.....

.....

(1)

- (ii) Farmers remove woodland to provide space for growing crops.

Give **two** other reasons why humans remove woodland.
Do **not** include the uses of wood in your answers.

1

.....

2

.....

(2)

- (b) Many farmers spray chemicals on their fields.

Draw a ring around the correct word to complete each sentence.

(i)	To make crops grow larger, farmers use	fertilisers	.
		herbicides	
		pesticides	

(1)

(ii)	To kill insects that feed on the crop, farmers use	fertilisers	.
		herbicides	
		pesticides	

(1)

- (iii) There is a wider variety of wildlife in the river flowing through the woodland than in the river flowing through the farmland.

Give **one** reason why.

.....

.....

(1)

- (c) The population of the UK has increased over the last two hundred years. This increase in population has resulted in damage to the environment.

Apart from farming methods, give **two** ways in which humans damage the

environment.

1

.....

2

.....

(2)
(Total 8 marks)

Q10. A selective herbicide (a type of pesticide) can be used to kill weeds growing among crop plants.

The table shows the result of adding different amounts of a selective herbicide to a rice crop.

Herbicide added in kg per hectare	Amount of rice produced in tonnes per hectare	Percentage cover of weeds
0.0	50	85
1.7	70	32
3.4	76	24

(a) As more herbicide is applied, what happens to:

(i) the amount of rice produced;

.....

(1)

(ii) the percentage cover of weeds?

.....

(1)

- (b) Suggest **two** reasons why rice does not grow well when there are a lot of weeds present.

1

.....

2

.....

(2)

- (c) Suggest **one** possible danger of spraying crops with pesticides.

.....

.....

(1)

(Total 5 marks)