

(Land use (deforestation, peat bogs))

Q1.(2019)

Today, humans are cutting down large areas of tropical rainforests.

Suggest **one** use of the land after the trees have been removed.

[1 mark]

Q2.(2019)

Why does the removal of trees cause an increase in carbon dioxide in the atmosphere?

[2 marks]

Tick (✓) **two** boxes.

There are fewer animals.

☐

There is less photosynthesis.

☐

There is less respiration.

☐

The soil dries out.

☐

The trees are burned.

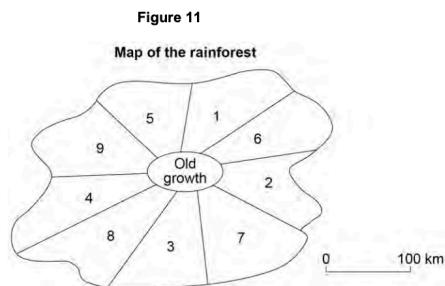
☐

Q3.a)(2019)

'Sustainable forestry' reduces the harmful effects of cutting down trees on the environment.

Figure 11 shows a method of 'sustainable forestry'.

Numbers 1–9 show different parts of a rainforest.



The trees are cut down in the sequence 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9

- The trees are cut down in only one area at any one time.
- It takes 30 years to cut down the trees in each area.
- The trees in the 'Old growth' area are never cut down.

How many years would it take to cut down the trees in all of the numbered areas in **Figure 11**?

[2 marks]

Number of years =

Q3.b)(2019)

The rainforest contains:

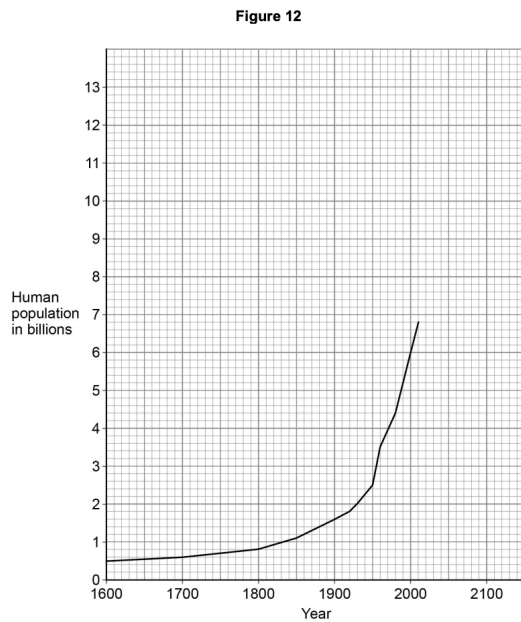
- 750 species of trees
- 400 species of birds
- 150 species of butterflies
- many other species of plants and animals.

Explain how the pattern of cutting down trees shown in **Figure 11** stops the biodiversity of the rainforest being reduced.

[4 marks]

Q4.a)(2020)

Figure 12 shows the human population from 1600 to 2010.



In 1900 the human population was 1.6 billion.

Calculate how many times greater the human population was in the year 2000 compared with the year 1900.

[2 marks]

Number of times greater = _____

Q4.b)(2020)

In 1950 the human population was 2.5 billion.

Calculate the mean annual increase in the human population between 1900 and 1950.

[2 marks]

Mean annual increase = _____ billion per year

Q4.c)(2020)

Predict the human population in 2050 if the current rate of population increase continues.

You should draw an extrapolation line on **Figure 12**.

[2 marks]

Predicted human population = _____

Q4.d)(2020)

The increasing human population has caused a decline in fish stocks.

Describe how fishing quotas can help to return fish stocks to a sustainable level.

[2 marks]

Q4.e)(2020)

Farming techniques have changed in recent years.

Describe:

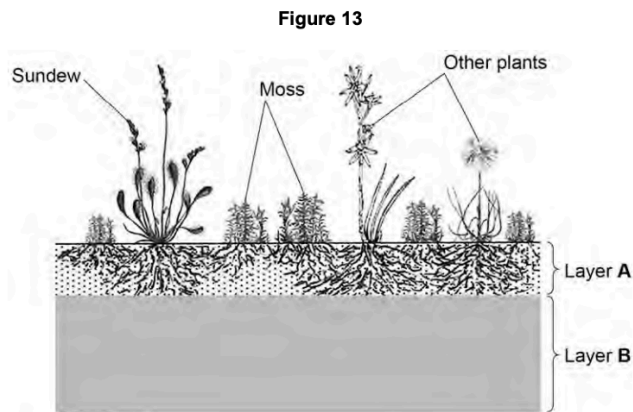
- why more land is being used for farming
- how increased farming has decreased biodiversity.

[6 marks]

Q5.a)(2024)

Peat bogs are estimated to contain twice as much carbon as all the world's forests.

Figure 13 shows a section through part of a peat bog.



Layer **A** contains a lot of air.

Layer **B**:

- contains the dead remains of plants
- has a low pH
- contains very little oxygen
- contains carbon dioxide and methane.

Explain why most of the dead remains of plants in layer **B** do **not** decay.

[3 marks]

The peat bog in **Figure 13** is a stable community.

The moss produces biomass at a rate of $340 \text{ g/m}^2/\text{year}$.

What is the approximate biomass of the moss that becomes biomass in primary consumers?

[1 mark]

Tick (✓) **one** box.

- | | |
|----------------------------------|--------------------------|
| $0.34 \text{ g/m}^2/\text{year}$ | ☐ |
| $3.4 \text{ g/m}^2/\text{year}$ | ☐ |
| $34 \text{ g/m}^2/\text{year}$ | ☐ |
| $340 \text{ g/m}^2/\text{year}$ | ☐ |

Q5.c)(2024)

The sundew plant shown in **Figure 13** on page 38 has leaves with sticky hairs that trap and digest insects.

Digestion of the insects releases phosphates and simple compounds of nitrogen that are used by the sundew plant.

What substance can the sundew plant make using the **phosphates**?

[1 mark]

Tick (✓) **one** box.

- | | |
|-----------|--------------------------|
| Cellulose | ☐ |
| DNA | ☐ |
| Glycerol | ☐ |
| Starch | ☐ |

Q5.d)(2024)

What substance can the sundew plant make using the **nitrogen**?

[1 mark]

Tick (✓) **one** box.

- | | |
|-------------|--------------------------|
| Fatty acid | ☐ |
| Glucose | ☐ |
| Lactic acid | ☐ |
| Protein | ☐ |

Q5.e)(2024)

Humans have destroyed large areas of peat bog to collect peat.

The peat provides fuel and provides compost for gardeners to use.

The peat comes from layer **B** in **Figure 13** on page 38.

Layer **B**:

- contains the dead remains of plants
- has a low pH
- contains very little oxygen
- contains carbon dioxide and methane.

Figure 14 shows the removal of peat from a peat bog.

Figure 14

Peat is dug out and cut into 'bricks' that are left to dry



Explain how the destruction of peat bogs and the use of peat affects the temperature of the Earth's atmosphere.

[4 marks]
