1 The passage describes atmospheric pollution by gases.

Complete the passage by writing a suitable word or words in each of the blank spaces.

(10)

The release of carbon dioxide comes from the burning of ..... fuels in power stations and in cars and other vehicles.

This burning also releases .... which dissolves in water in clouds to produce ....

If the combustion of these fuels is not complete another gas called .... is also released. This gas is very toxic and can combine with ..... in the blood. This prevents the delivery of ..... around the body.

Carbon dioxide may also contribute to the increase in air temperature referred to as .... Gases that contribute to this are known as ..... gases.

Some of these gases, such as ..... , are produced by cows and released into the atmosphere. Other gases known as ..... can be released when old refrigerators are destroyed.

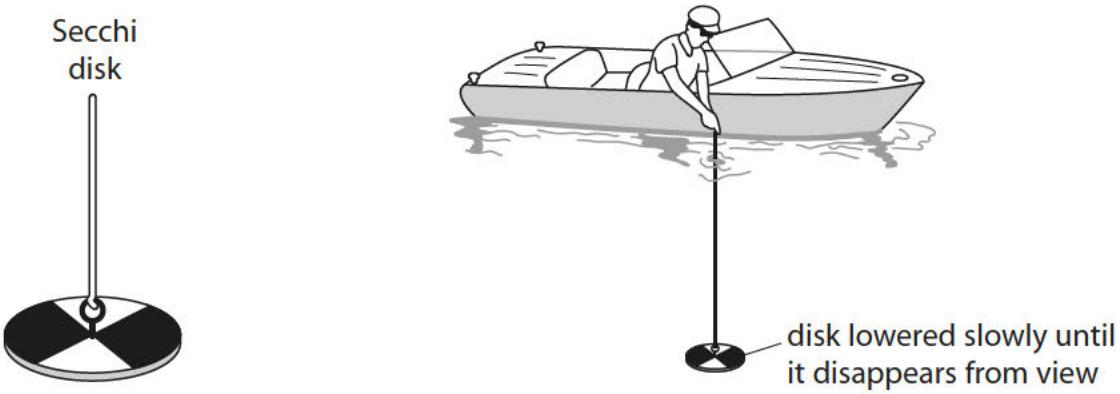
(Total for Question = 10 marks)

2 Water in lakes can become polluted if too much phosphate is leached from the soil. The polluted water becomes very cloudy because of the growth of lots of microscopic plants called algae.

It is possible to find out how polluted water is by using a black and white disk called a Secchi disk. The following technique is used.

- the disk is lowered into the water using a rope
- the disk is lowered into the water until it can no longer be seen
- the depth when the disk is no longer seen is measured

The diagrams show a Secchi disk and the way in which it is used.



Scientists used Secchi disks to test the pollution level of four lakes.

The table shows the results.

Lake	Depth at which Secchi disk can no longer be seen in metres
A	7.0
B	3.9
C	3.3
D	4.4

(a) They concluded that lake C was the most polluted with phosphate.

Suggest two reasons why this conclusion may **not** be correct.

(2)

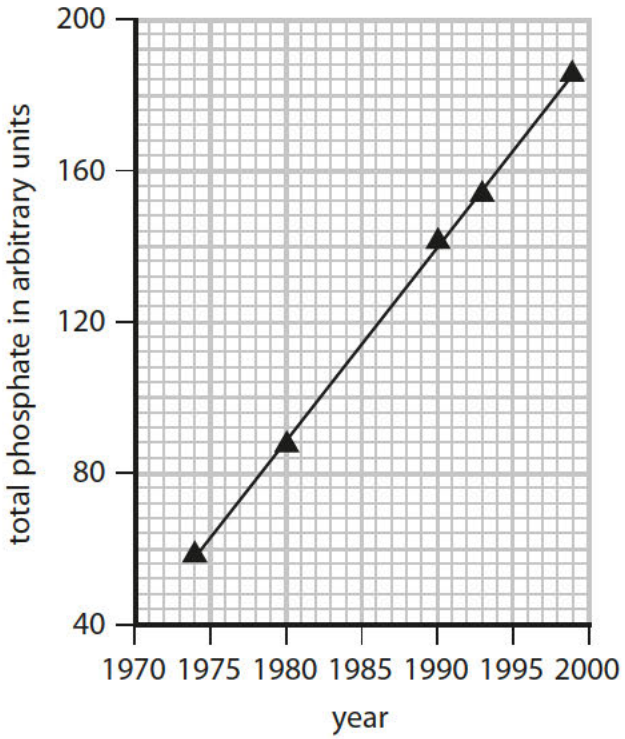
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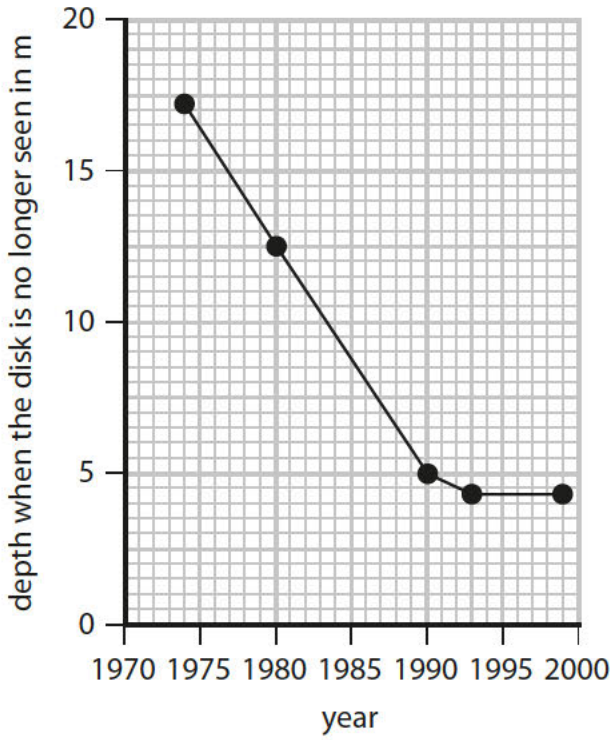
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2 .....

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(b) The graph shows changes in the level of phosphate and Secchi depth measurements, for one of the lakes over a 25-year period.





(i) Using both graphs, describe the relationship between phosphate levels and Secchi depth.

(2)

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(ii) The number of fish in the lake decreases over the 25-year period.

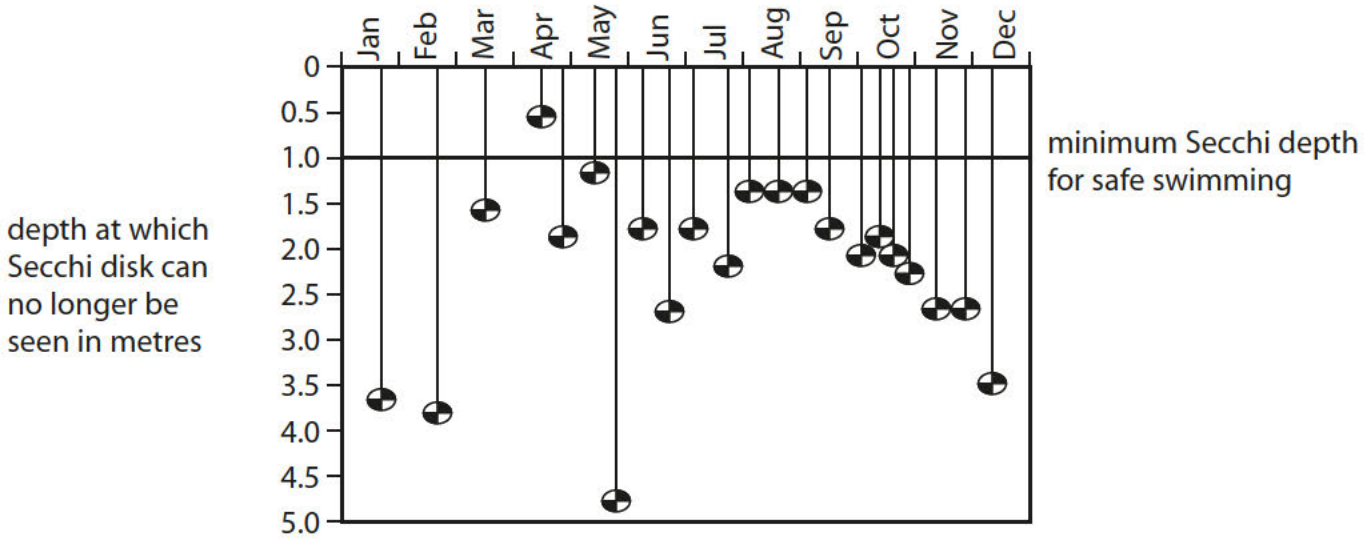
Explain how the changes in phosphate levels might cause the decrease in the number of fish.

(5)

(c) Seawater is sometimes polluted by raw sewage. This water also becomes cloudy and is not safe for humans to swim in.

A scientist used Secchi disks to measure pollution in seawater at a beach during a year.

The graph shows the depth at which he could no longer see the Secchi disk.



(i) How many times during the year was the Secchi disk used to measure pollution?

(1)

.....

(ii) In which month were most depth measurements taken?

(1)

.....

(d) Water may not be safe for swimming in at this beach.

The scientist concluded that the only month when the water was not safe for swimming was April.

(i) Give a reason to support this conclusion.

(1)

.....

.....

(ii) Suggest a reason to reject this conclusion.

(1)

.....

.....

(Total for Question = 13 marks)

3 This food chain is from a rainforest ecosystem.

trees ⟶ deer ⟶ genet ⟶ python

(a) (i) Name the primary consumer in the food chain.

(1)

.....

(ii) Name the tertiary consumer in the food chain.

(1)

.....

(b) The photograph shows a genet, which is a cat-like carnivore that lives in rainforests in Africa and Asia.



Photographer: Guerin Nicolas

Suggest how the following features help the genet to survive.

(i) large ears

(1)

.....

.....

(ii) spotted coat

(1)

.....

.....

(iii) ability to stand on hind legs

(1)

.....

.....

(c) The rainforests in many countries are under threat from deforestation.

Explain the consequences of removing the rainforest on the balance of atmospheric gases.

(2)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question = 7 marks)

4 The passage describes the consequences of air pollution.

Complete the passage by writing a suitable word or words on each dotted line.

(10)

The release of the gas sulfur ..... into the atmosphere

is an example of air pollution because the gas dissolves in water in air

to form ..... rain. This rain can kill trees on land

and fish in lakes.

Another gas that pollutes the air is ..... monoxide. This gas

combines with ..... in red blood cells and makes it more

difficult for them to carry out their function.

Other gases that pollute the atmosphere are greenhouse gases such as .....

and nitrous oxide from the burning of ..... fuels,

and ..... from the digestive system of cattle.

These gases increase the ..... effect and may lead to a problem

known as ..... in which the air temperature may rise.

This rise in air temperature may destroy the place where a species lives

known as its ..... .

(Total for Question = 10 marks)

5 Commercial flower growers keep their plants in greenhouses under artificial light.

Describe an investigation to find out if the length of time that plants are exposed to light affects how long it takes for flowers to appear.

(6)

(Total for Question = 6 marks)