Cambridge Assessment International Education

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6925740831

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 Theory **May/June 2023**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

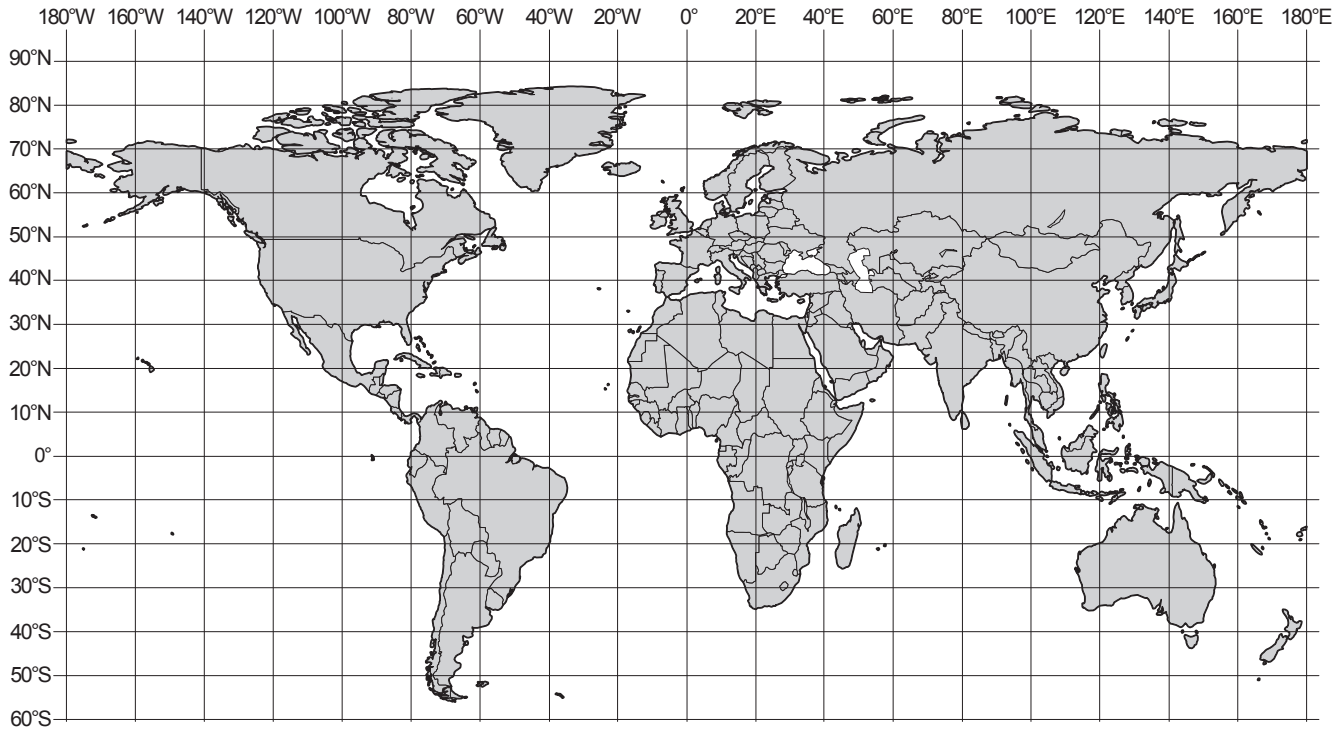
- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

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Section A

1 **(a)** Write the letter **T** on the map in **one** location where tropical cyclones form.



[2]

(b) State **one** condition needed for tropical cyclones to form.

..... [1]

(c) State **three** impacts of a tropical cyclone on a coastal city.

1 .....

2 .....

3 .....

[3]

[Total: 6]

2 **(a)** Malaria is caused by a parasite.

Explain how a human becomes infected with malaria.

.....

.....

.....

..... [2]

(b) **(i)** Governments use biological control as a method of reducing the spread of malaria.

State the meaning of biological control.

.....

..... [1]

(ii) State **three** ways individual people can protect themselves from being infected with malaria.

1 .....

.....

2 .....

.....

3 .....

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[3]

[Total: 6]

3 Some of the processes in the water cycle are shown.

Draw **one** straight line from each name of the process to the correct description of the process.

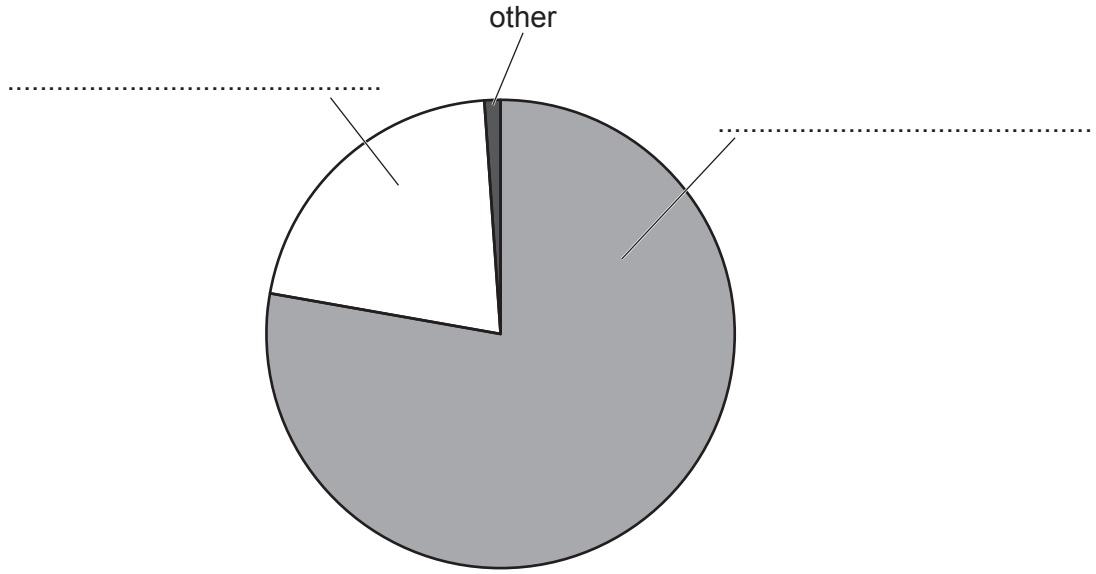
name of process	description of process
condensation	the change in water from gas to liquid
evaporation	the change in water from liquid to gas
interception	the flow of water over the top of the soil
surface run-off	the movement of water through the lower soil layers
through-flow	the prevention of precipitation from immediately reaching the soil

[4]

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4 The pie chart represents the composition of the **unpolluted** atmosphere.

The pie chart is **not** complete.



(a) Complete the pie chart with the names of the **two** gases. [2]

(b) State the names of **two** naturally occurring gases in the sector labelled 'other'.

1 .....

2 .....
[2]

[Total: 4]

Section B

5 A student reads an article about the European starling, a species of bird.

The European starling

In the 1890s, 110 European starlings were released into a park in New York, USA.

The starlings spread across the USA and now have a population of 200 million. They compete with local bird species and destroy crops.

Scientists estimate that European starlings cause $800 million of damage per year in the USA. This is $5 per hectare of agricultural land.

(a) A farm in the USA has 840 hectares of land.

(i) Calculate the cost of the damage caused by European starlings to this farm.

$ ..... per year [1]

(ii) Calculate the percentage increase in the population of European starlings.

.....% [2]

(b) (i) One method of reducing the impact of European starlings on crops is using pesticides.

Suggest **one** negative impact of using pesticides.

.....

..... [1]

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(ii) Another method of controlling the population of European starlings is to play a recording of the sound of a bird suffering from stress.

Suggest why this method reduces the impact of European starlings on crops.

.....

..... [1]

(iii) European starlings fly together in large groups.

Suggest why these large groups are a hazard to aircraft.

.....

..... [1]

(c) Two food chains for the European starling are shown.

tomatoes → European starling → hawk

manure → earthworm → European starling → hawk

Explain why the European starling is a primary and secondary consumer.

primary consumer .....

.....

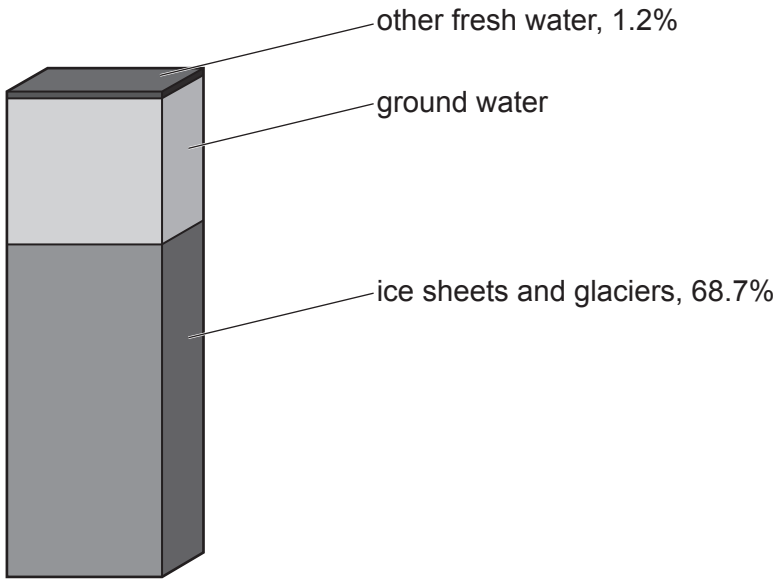
secondary consumer .....

.....

[2]

[Total: 8]

6 **(a)** The diagram shows the distribution of the Earth's fresh water.



(i) Calculate the percentage of fresh water that is ground water.

.....% [1]

(ii) Streams, rivers and lakes are examples of 'other fresh water'.

State **one** other example of a natural source of fresh water.

..... [1]

(iii) Suggest **two** impacts that global warming will have on the availability of the fresh water sources shown in the diagram. Give a reason for each impact.

impact 1 .....

reason .....

.....

impact 2 .....

reason .....

.....
[2]

(b) Living organisms produce water by respiration.

Write the **word** equation for respiration.

..... [2]

(c) Many people in rural areas of Africa have poor sanitation.

Poor sanitation means drinking water is **not** safe and sewage is **not** treated.

Suggest the impacts of poor sanitation.

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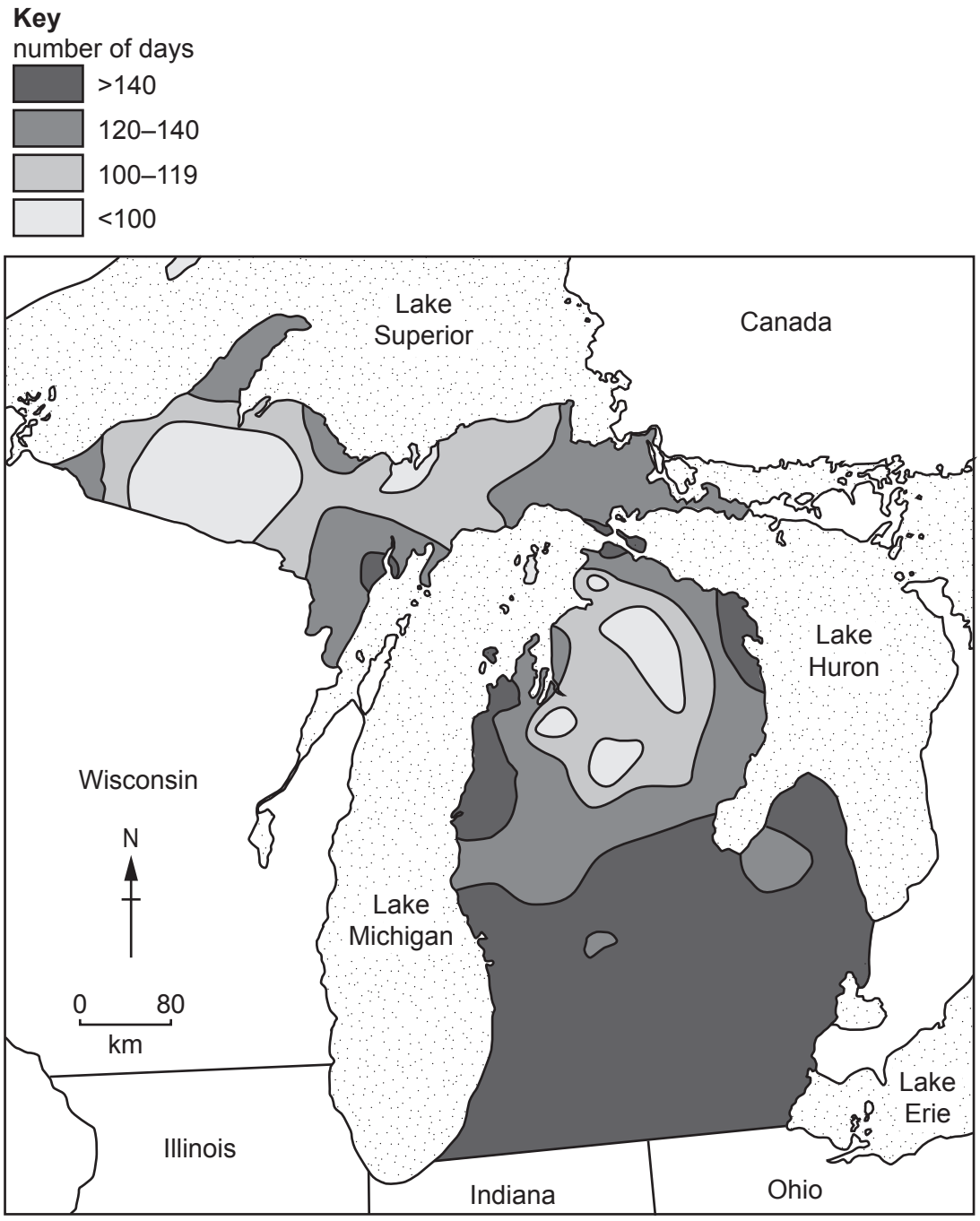
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..... [5]

[Total: 11]

7 **(a)** The map shows the growing season for one crop in Michigan, a state in the USA.

The growing season is the number of days that the crop can grow.



(i) Describe the pattern shown by the data on the map.

.....

.....

.....

..... [2]

(ii) Suggest reasons for the differences in the length of the growing season shown on the map.

.....

.....

.....

.....

.....

..... [3]

(b) Milk production from cows is important for commercial farms in Michigan.

(i) Cows release methane gas.

Explain why methane is an atmospheric pollutant.

.....

.....

.....

..... [2]

(ii) Describe **two** characteristics of commercial farming.

1 .....

.....

2 .....

.....
[2]

(c) A farmer plants a row of trees around the edge of a field.

Suggest the benefits of this agricultural practice.

.....

.....

.....

..... [2]

(d) A farmer uses rainwater harvesting for irrigation.

Describe **four** benefits of rainwater harvesting.

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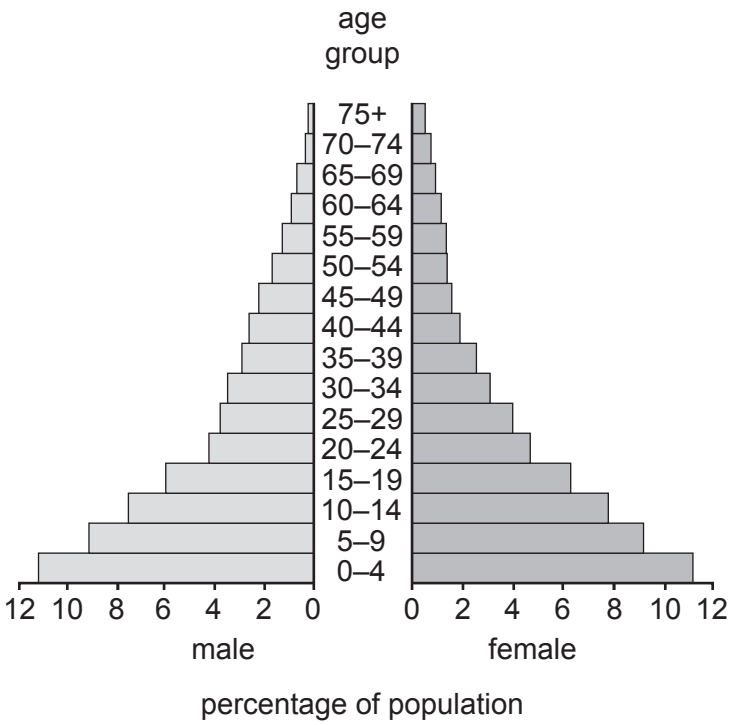
.....

..... [4]

[Total: 15]

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8 **(a)** The diagram shows a population pyramid for a less economically developed country (LEDC).



State what each of the following features indicate about the population of this less economically developed country (LEDC).

narrow top .....

.....

wide base .....

.....

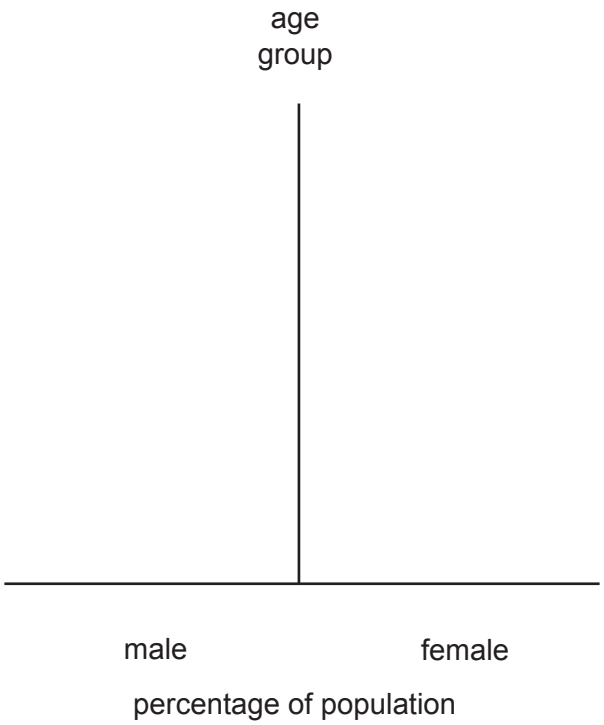
percentage of females compared to males in the 75+ age group .....

.....

.....

[3]

(b) Sketch the shape of the population pyramid for a more economically developed country (MEDC).



[1]

(c) The aim of the United Nations Population Fund (UNPF) is:

- to ensure that every pregnancy is wanted, every childbirth is safe and every young person's potential is fulfilled.

(i) Suggest how the UNPF can ensure every pregnancy is wanted.

.....

..... [1]

(ii) Governments around the world donate money to support the UNPF.

In 2020, the UK pledged $213 million to the UNPF. In April 2021, the UK government announced it was reducing this to $32 million.

Suggest **one** impact of this change.

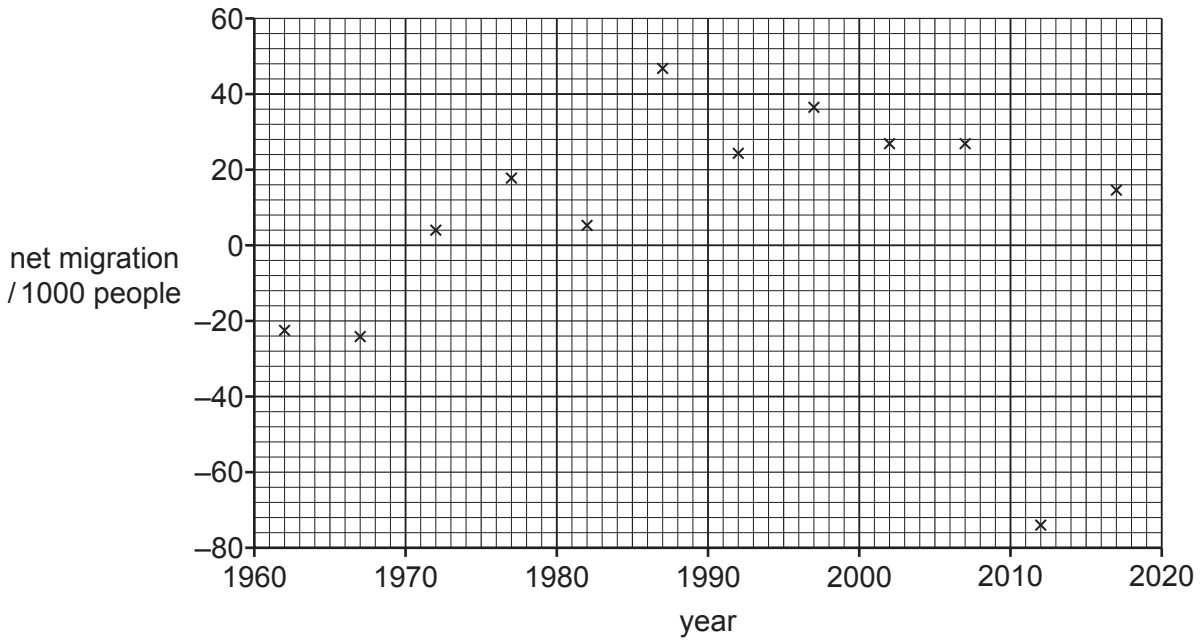
.....

..... [1]

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(d) The graph shows net migration for Botswana between 1962 and 2017.

A negative value means the number of people leaving the country is greater than the number of people entering the country.



(i) Describe the pattern of net migration for Botswana.

.....

.....

.....

..... [2]

(ii) State **three** reasons for migration.

1 .....

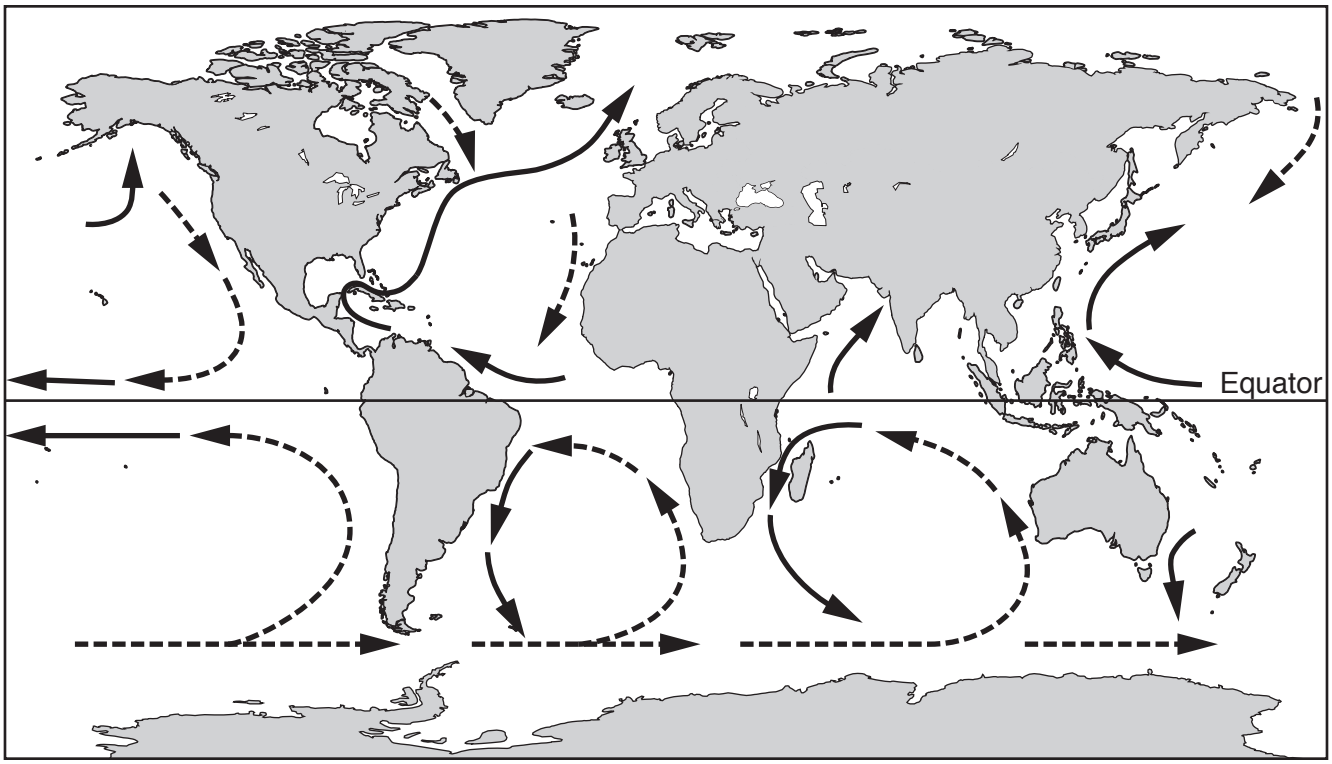
2 .....

3 .....

[3]

[Total: 11]

9 **(a)** The map shows the distribution of some of the major ocean currents.



(i) Complete the key to identify cold currents and warm currents.

Key

..... cold current

..... warm current

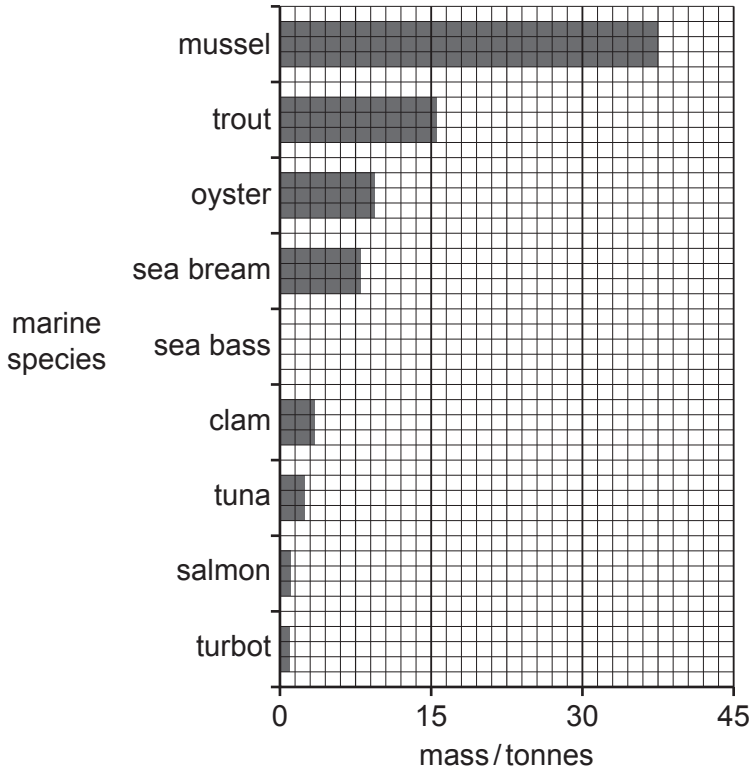
[2]

(ii) State the direction of movement of ocean currents south of the Equator.

.....

..... [1]

(b) The bar chart shows the main marine species farmed by some countries in Europe in 2018.



(i) Complete the bar chart to show that 5 tonnes of sea bass were farmed in 2018. [1]

(ii) Spain produced 7 tonnes out of every 10 tonnes of mussels farmed in Europe in 2018.

Determine the mass of mussels farmed by Spain in 2018.

..... tonnes [2]

(c) Providing a source of food is one way the oceans are a resource.

State **three** other ways the oceans are a resource.

1 .....

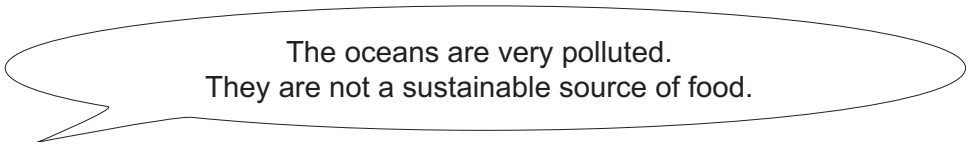
2 .....

3 .....

[3]

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(d) A student says:



To what extent do you agree with this statement? Give reasons for your answer.

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..... [6]

[Total: 15]

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