



Cambridge O Level

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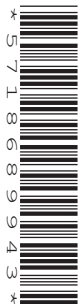
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CENTRE
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ENVIRONMENTAL MANAGEMENT

5014/12

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.

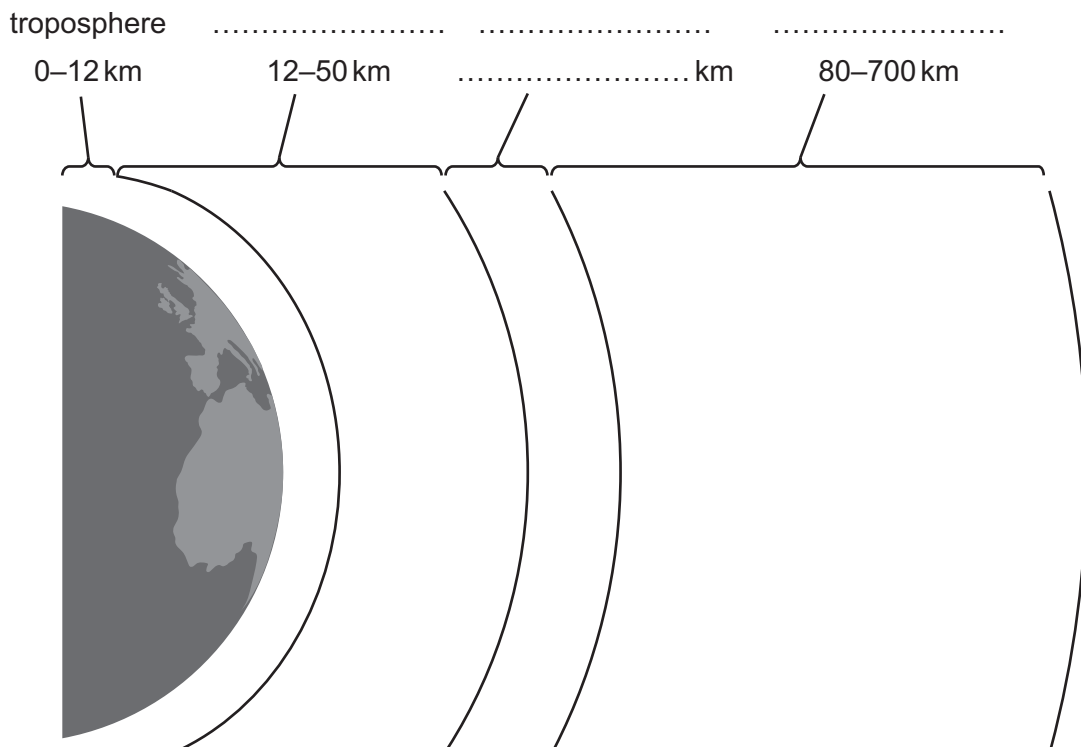
INFORMATION

- 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.

Section A

1 The diagram shows the layers in the atmosphere.



(a) Complete the diagram to show the layers in the atmosphere. [3]

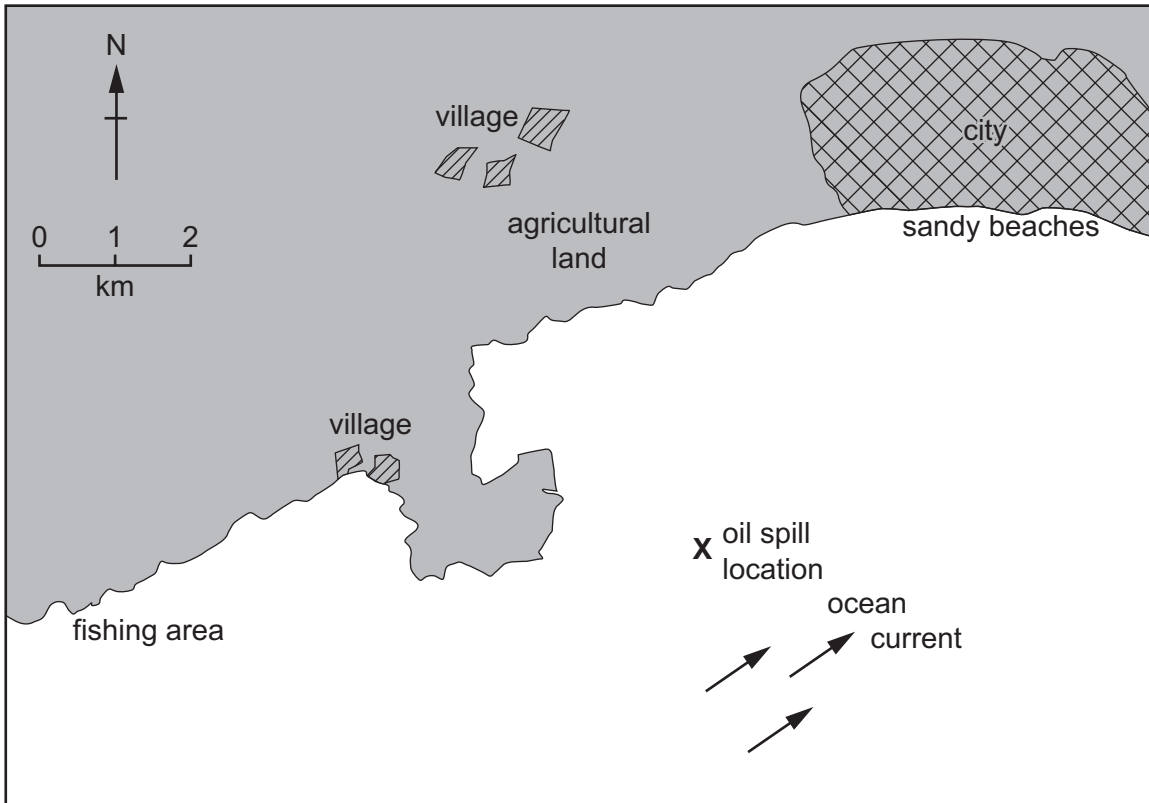
(b) Add a letter **O** to the diagram to show the position of the ozone layer. [1]

(c) Explain why the ozone layer is important to life on Earth.
.....
.....
.....
..... [2]

[Total: 6]

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2 The map shows some features of a coastal area of a country.



(a) An oil spill occurs in the sea at location X.

(i) Determine the distance between the oil spill and the nearest land.

..... km [1]

(ii) Suggest which local industry will be affected first by the oil spill.

Give a reason for your answer.

.....

 [2]

(b) Describe how each of the following equipment reduces the impact of an oil spill.

booms

.....

detergent sprays

.....

skimmers

.....

[3]

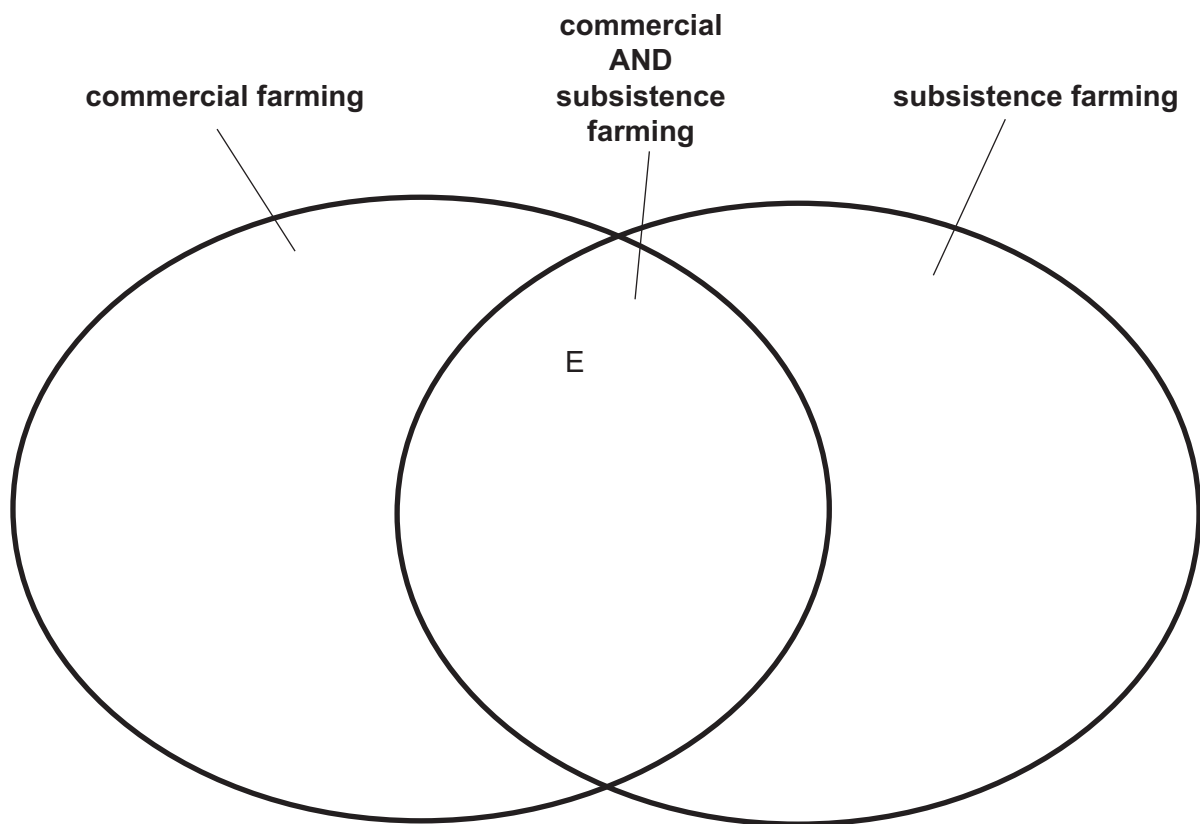
[Total: 6]

3 The table describes different farming activities.

farming activity	description
A	production mainly for selling
B	production mainly for own use
C	growing crops
D	using machinery
E	using irrigation

(a) Use the table to complete the diagram.

One has been completed for you.



[4]

(b) Explain how the overuse of insecticides impacts biodiversity.

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.....
.....
..... [3]

(c) State **one** alternative to using insecticides to control pests.

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..... [1]

[Total: 8]

Section B

4 A student reads a newspaper article about natural disasters.

<p style="text-align: center;">Recent natural disasters prove that the climate crisis is getting worse</p>
<p>In 2019, there were many natural disasters around the world.</p> <p>According to the United Nations, there was a climate crisis disaster reported each week in the month of July.</p> <p>In the first six months of 2019, 7 million people lost their homes.</p> <p>The World Bank estimated that three regions, South America, sub-Saharan Africa and southeast Asia, will have 143 million climate migrants by 2050.</p>

(a) (i) The student concludes that the article does **not** prove the climate crisis is getting worse.

Suggest why.

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..... [3]

(ii) One of the natural disasters in 2019 was drought.

State the causes of drought.

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..... [2]

(iii) Explain how droughts can cause soil erosion.

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..... [2]

(b) Natural disasters often cause people to lose their homes.

Suggest how the loss of homes can increase the number of deaths due to a natural disaster.

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..... [3]

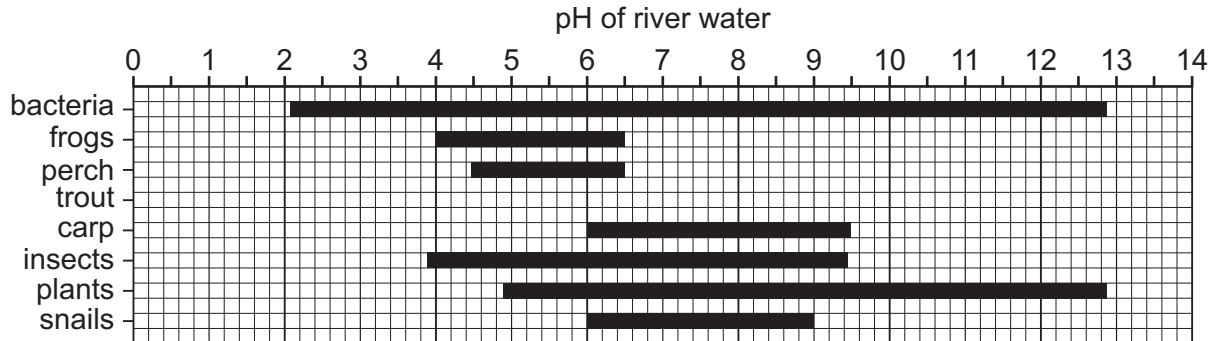
[Total: 10]

5 A scientist investigates the pH range of rivers that aquatic organisms can live in.

The results are shown in the diagram.

Key

■ pH range of rivers where organism found



(a) (i) Trout can live in rivers with a pH range of 5.0 to 6.5.

Plot the data for trout on the diagram. [1]

(ii) State which organism can live in rivers with the greatest pH range.

..... [1]

(iii) Suggest what would happen to the populations of aquatic organisms in a river if the pH changes from 6.0 to 5.0.

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..... [4]

(b) (i) Acid rain is a cause of pH change in rivers and lakes.

Explain how acid rain is formed.

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..... [5]

(ii) Describe strategies a country can use to reduce its contribution to the problem of acid rain.

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..... [3]

[Total: 14]

6 The map shows countries where people are at risk of malaria.

Key

- no malaria
- malaria risk



(a) (i) Describe the distribution of countries where people are at risk of malaria.

.....

.....

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.....

..... [3]

(ii) Suggest a reason why some countries are **not** affected by malaria.

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..... [1]

(b) (i) Describe how malaria is spread from one person to another.

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..... [4]

(ii) Scientists in some countries have identified that insecticides are no longer effective in the control of malaria.

State **two** other control methods that can be used.

1
.....
2
..... [2]

[Total: 10]

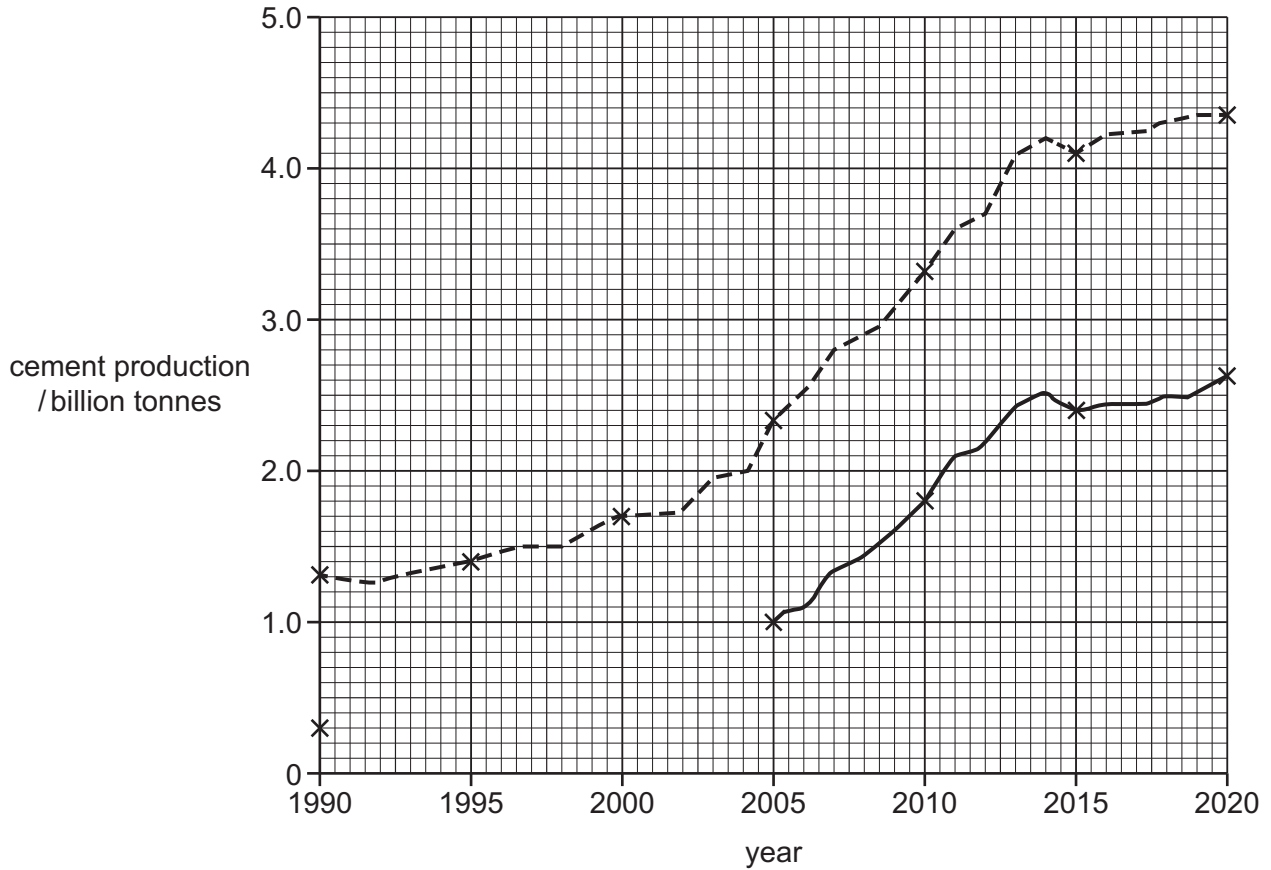
7 Many modern buildings are made of concrete.

Concrete is made from cement, sand, gravel and water.

(a) The graph shows cement production between 1990 and 2020.

Key

- production in China
- - - total world production



(i) Complete the line graph for China using the data in the table.

year	cement production /billion tonnes
1995	0.4
2000	0.6

[2]

(ii) Describe the trend in world cement production between 1990 and 2020.

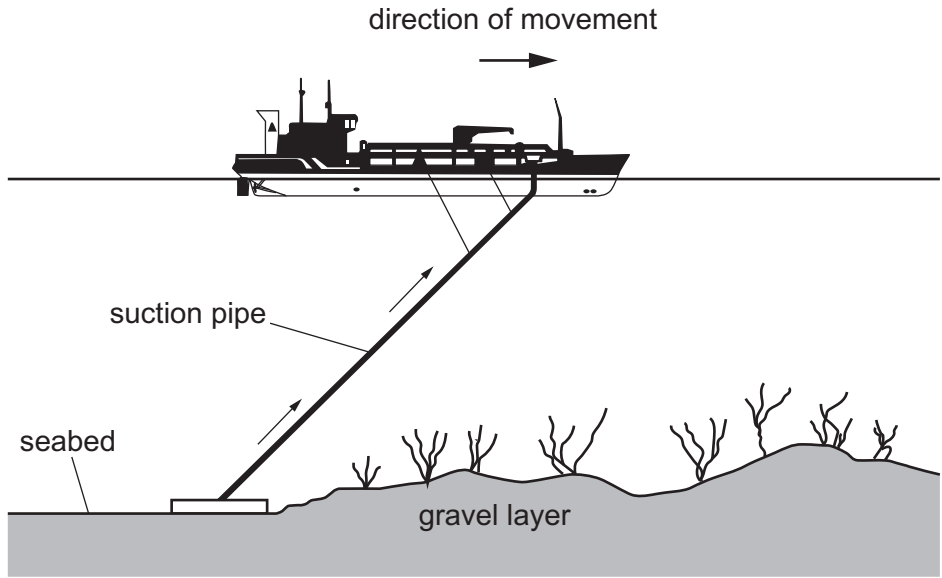
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..... [2]

(iii) Calculate the percentage of world production of cement that was produced in China in 2015.

..... % [1]

(b) Gravel is used in the production of concrete.

The diagram shows how gravel is extracted from the seabed.



(i) Suggest the effect this gravel extraction has on the marine ecosystem.

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..... [3]

(ii) Suggest why it is difficult for governments to control the extraction of gravel from the seabed.

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..... [2]

(c) State **three** strategies to make mineral extraction more sustainable.

- 1
-
- 2
-
- 3
-

[3]

[Total: 13]

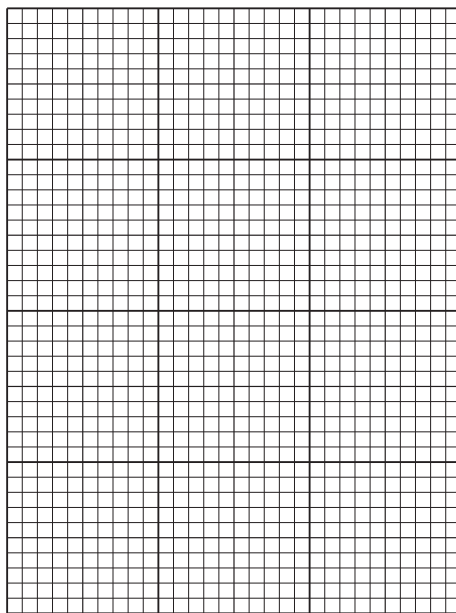
8 The northern white rhinoceros is an endangered species of animal.

The table shows population data about this rhinoceros.

year	wild population	captive population	total population
1939	2500	8	2508
1959	2000	7	2007
1979	500	15	515
1999	11	41
2019	0	2	2

(a) (i) Complete the table for the **wild** population in 1999. [1]

(ii) Plot a bar chart for the **captive** population between 1939 and 2019.



[4]

(iii) Suggest why keeping the northern white rhinoceros in captivity has **not** increased its population.

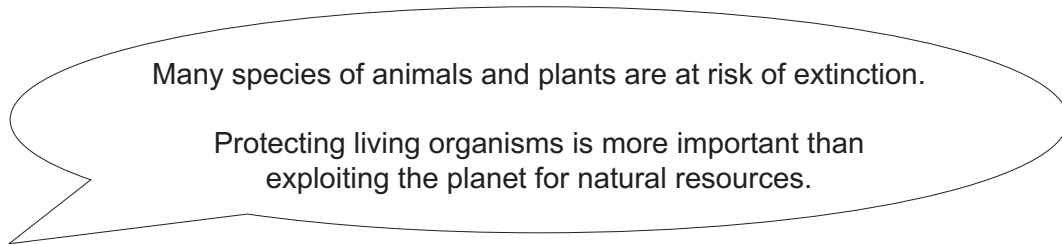
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..... [2]

(b) A scientist says:



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

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[6]

[Total: 13]

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