

CANDIDATE  
NAME

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--



**ENVIRONMENTAL MANAGEMENT**

**0680/23**

Paper 2

**May/June 2017**

**1 hour 45 minutes**

Candidates answer on the Question Paper.

No Additional Materials are required.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **both** questions.

Electronic calculators may be used.

You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **15** printed pages and **1** blank page.

1 (a) State a weather instrument used to measure:

temperature .....

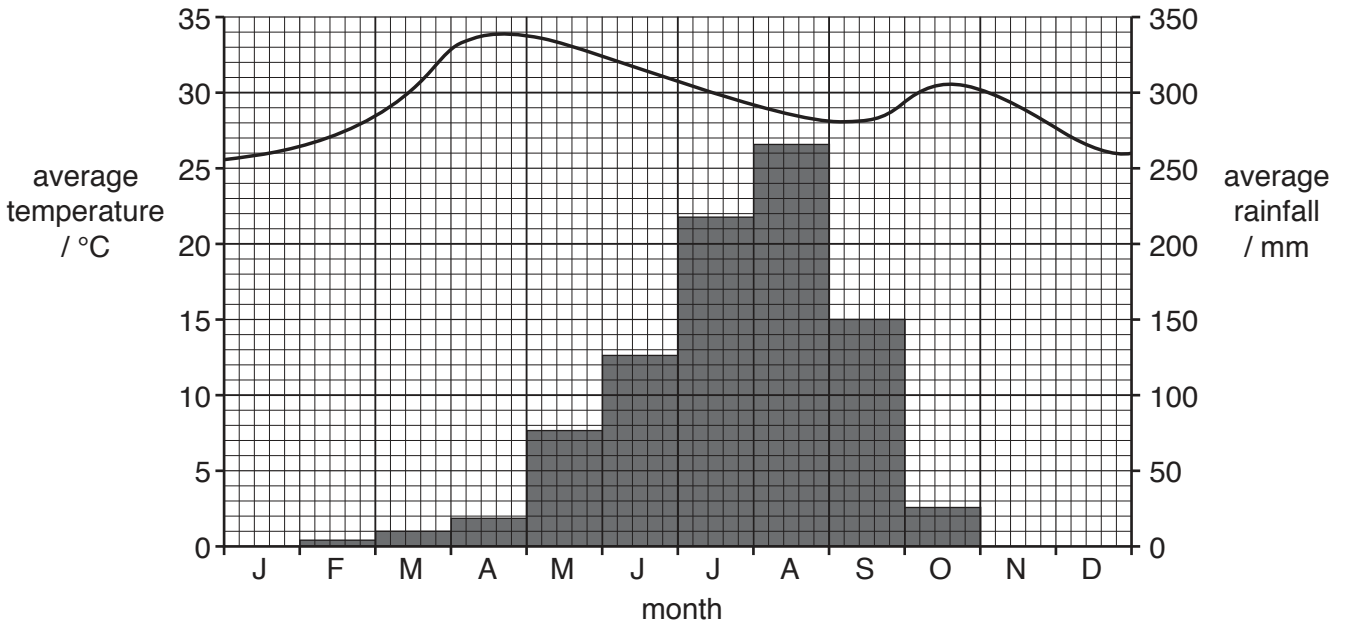
wind speed .....

atmospheric pressure .....

rainfall. ....

[4]

(b) The climate graph shows data for a weather station in a savanna climate.



(i) State the highest monthly rainfall and the month in which it occurs.

rainfall ..... mm

month ..... [2]

(ii) In the dry season monthly rainfall is less than 30 mm.

State the length of the dry season for this weather station.

..... months [1]

(iii) Describe the temperature pattern during the year.

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

(c) The photograph shows a giraffe grazing on savanna vegetation in the dry season.



(i) Describe the vegetation shown in the photograph.

.....

.....

.....

.....

.....

.....

.....

.....

.....

[3]

(ii) Suggest how the vegetation will change in the wet season.

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

(iii) The photograph shows producers and a consumer.

Define both these terms.

*producer* .....  
.....  
*consumer* .....  
..... [2]

(iv) Parts of the savanna are increasingly being grazed by goats and cattle.

Suggest how this will affect the ecosystem shown in the photograph.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
..... [4]



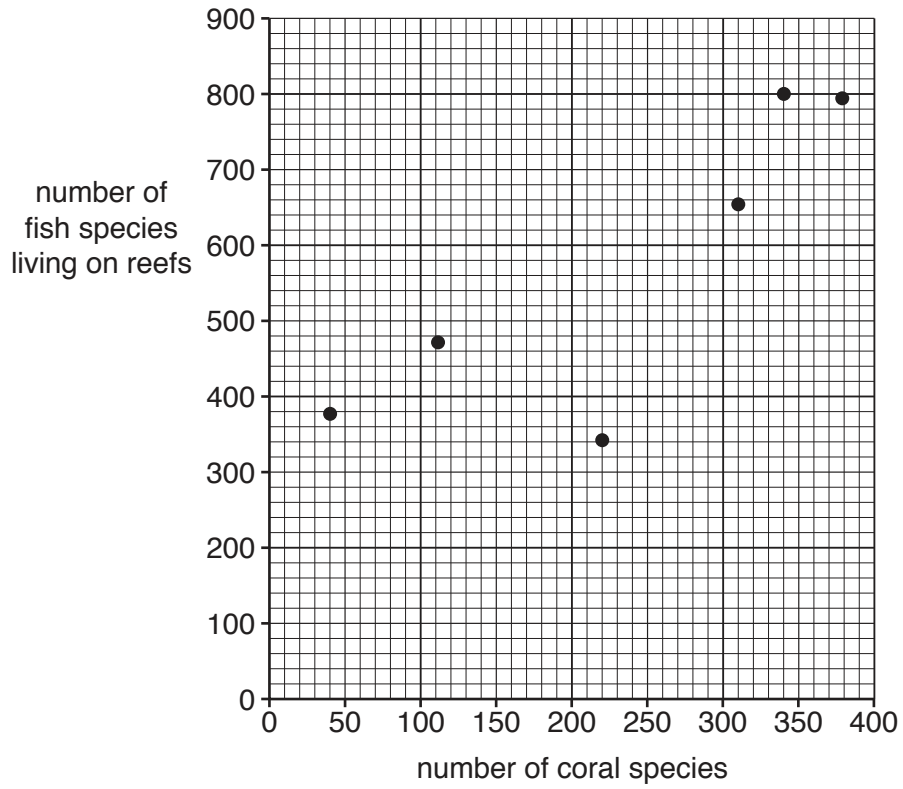








(b) The graph shows the number of coral species and the number of fish species living on reefs.



Describe the relationship between the number of coral species and the number of fish species living on reefs.

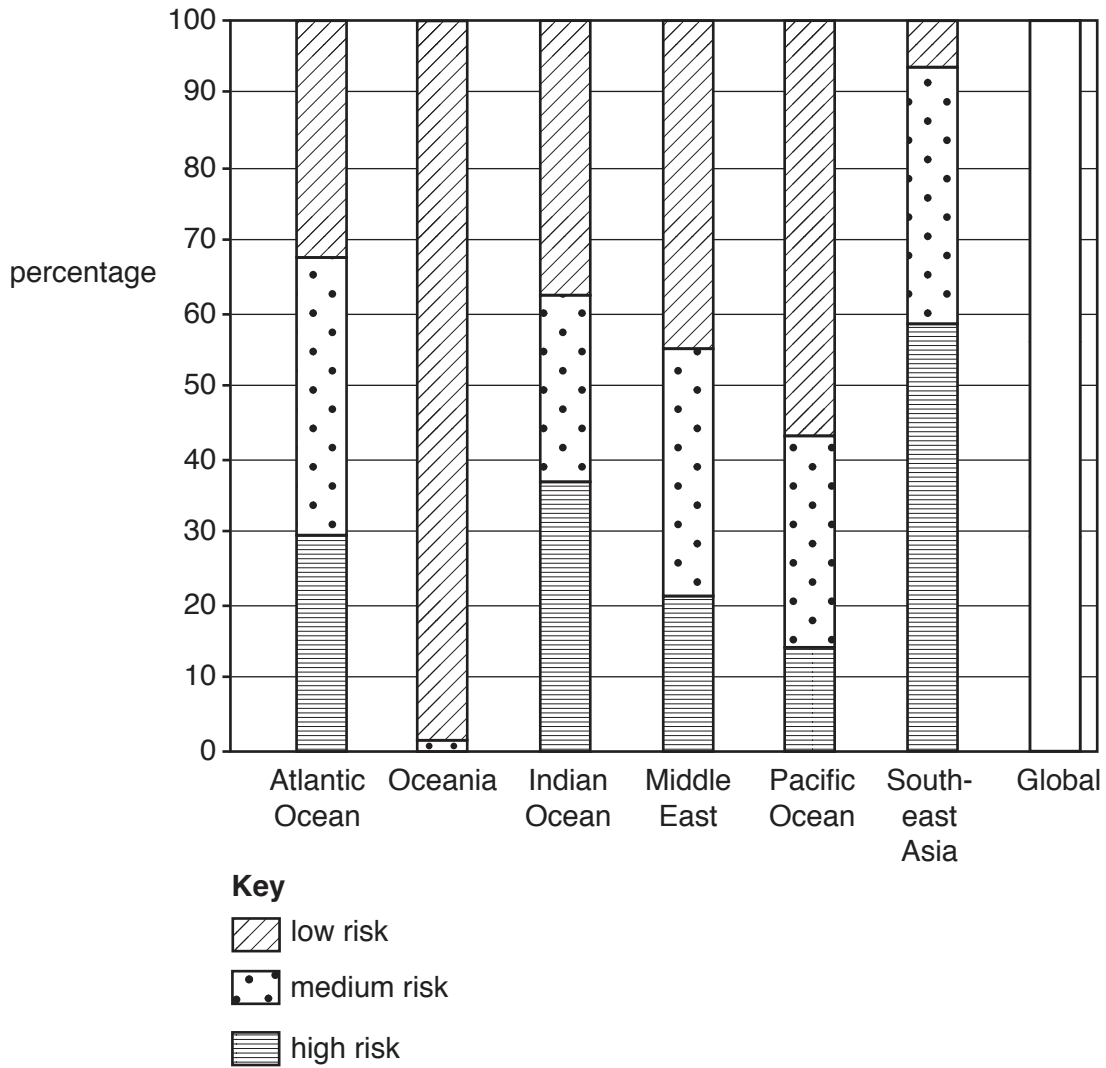
.....

.....

.....

..... [2]

(c) The graph shows the percentage of coral reefs at risk from overfishing.



(i) Complete the global column using the following figures.

high risk                    27%  
 medium risk                30%  
 low risk                     43%

[2]

(ii) Use the graph to complete the following paragraph.

The area where coral reefs are at least risk from overfishing is .....

The reefs in Southeast Asia are most at risk from overfishing, with ..... % at

high risk and just 7% at ..... risk.

[3]

(iii) Suggest why the risk to coral reefs from overfishing is higher in some areas than in others.

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

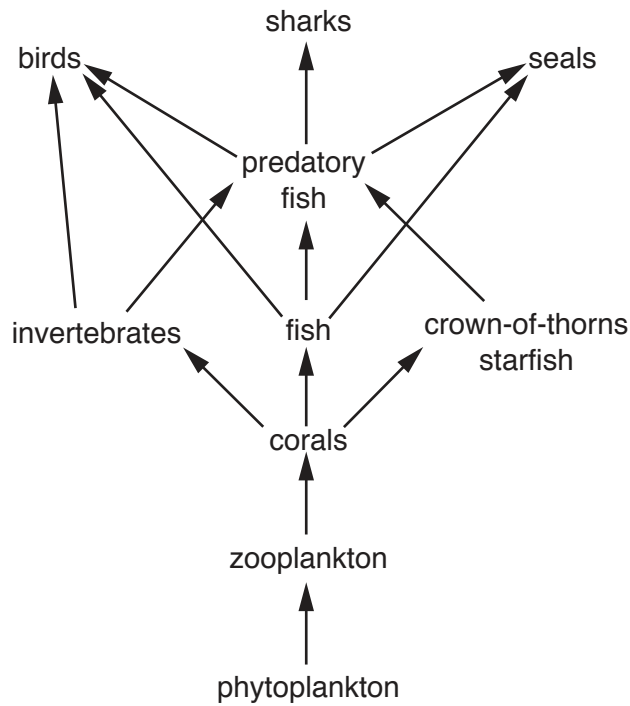
(iv) Give **one** reason why the fish catch from the oceans has increased.

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

(v) Describe strategies that can be used to reduce overfishing.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....[4]

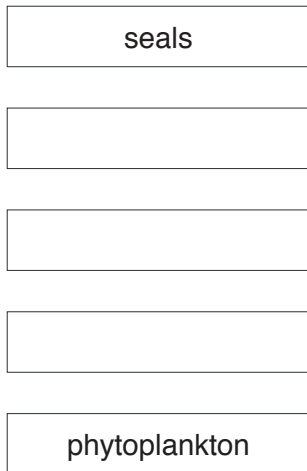
(d) The diagram shows a simplified food web for a coral reef.



(i) State the producer in the food web shown.

.....[1]

(ii) Complete the food chain diagram.



[3]

(iii) Describe the changes to the food chain in (ii) if the number of seals decreased.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

[3]

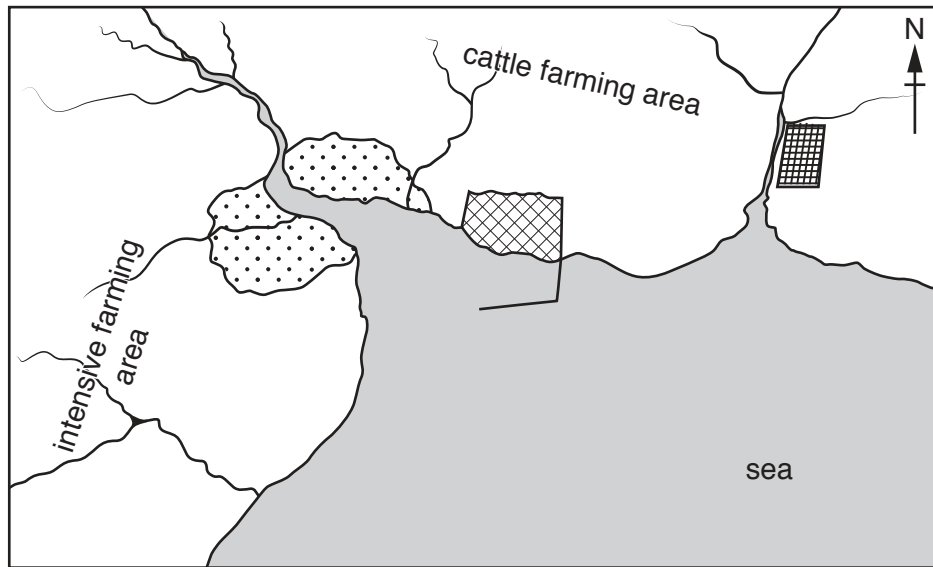
(iv) Crown-of-thorns starfish have few predators because they are covered in spines and contain a chemical which tastes unpleasant. In one year each starfish can consume 6 m<sup>2</sup> of coral.

Explain why crown-of-thorns starfish can destroy coral reefs.

.....  
.....  
.....  
.....






[2]

(e) The map shows a coastal area.



not to scale

**Key**

-  city
-  oil refinery
-  lead mine and processing plant
-  rivers
-  harbour

Explain how each of the following may damage life in the sea.

the oil refinery .....

.....  
.....  
.....

farming .....

.....  
.....  
.....

lead mining and processing .....

.....  
.....  
.....

[6]

(f) Explain why marine pollution is difficult to control.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

..... [6]

**BLANK PAGE**

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.