UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

FISHERIES SCIENCE **5151/01**

Paper 1 **October/November 2008**

1 hour 30 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 a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

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.

For Examiner's Use	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Total	

This document consists of **18** printed pages and **2** blank pages.

1 Fig. 1.1 shows eight different animals. (Diagrams are not to scale)

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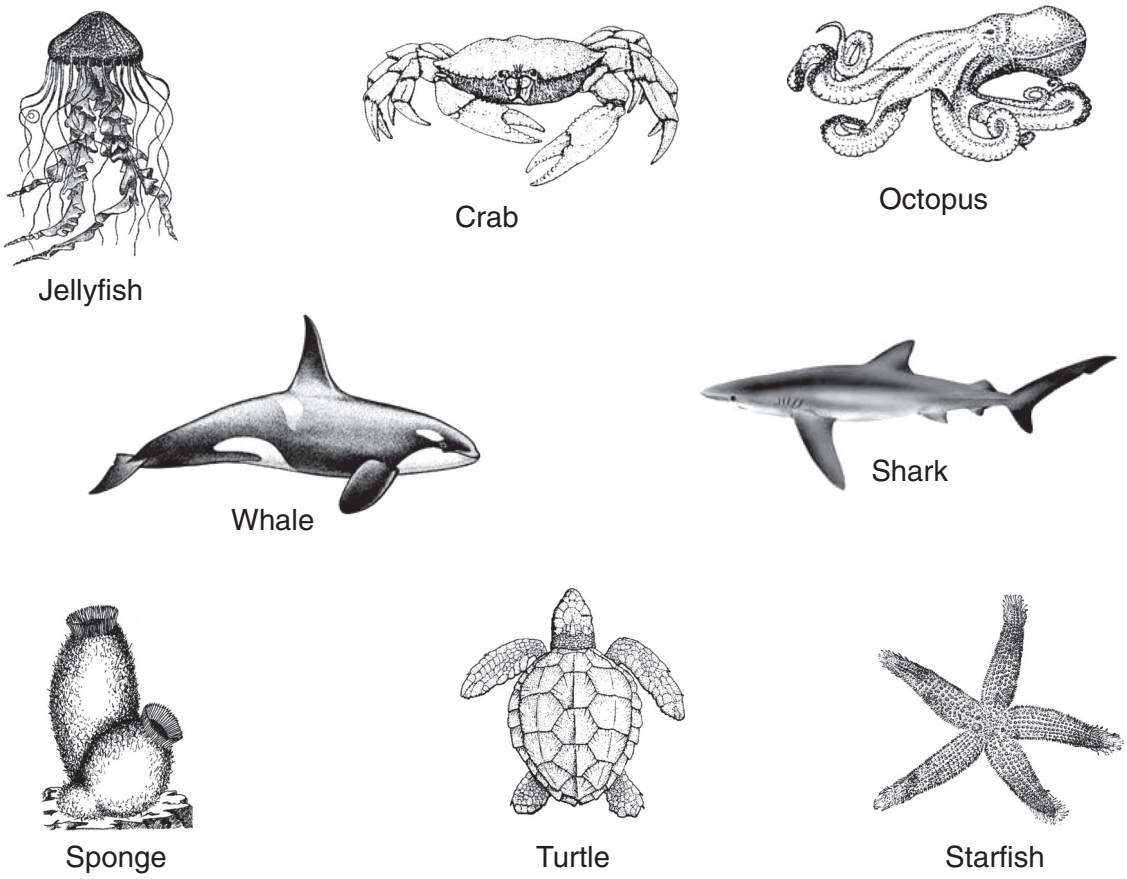

Fig. 1.1

(a) Complete Table 1.2 using the names of the animals from Fig. 1.1.

Table 1.2

Group	Animal
Reptilia	
Mammalia	
Mollusca	
Cnidaria	

[4]

(b) Which **four** of the following species of fish are inshore species?

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barracuda **billfish** **grouper** **rainbow runners**

snappers **trevally** **tuna** **wahoo**

1 .....

2 .....

3 .....

4 ..... [4]

2 **(a)** Table 2.1 gives the fat content of five species of fish.

Table 2.1

Fish species	Fat content (%)
Monkfish	1.5
Swordfish	4.1
Scad	5.8
Albacore	7.2
Skipjack	8.4
Mean	

(i) Work out the mean fat content of the five species of fish and complete Table 2.1. [1]

(ii) Some of the figures have been plotted on Fig. 2.2.
Plot the figures for scad and albacore

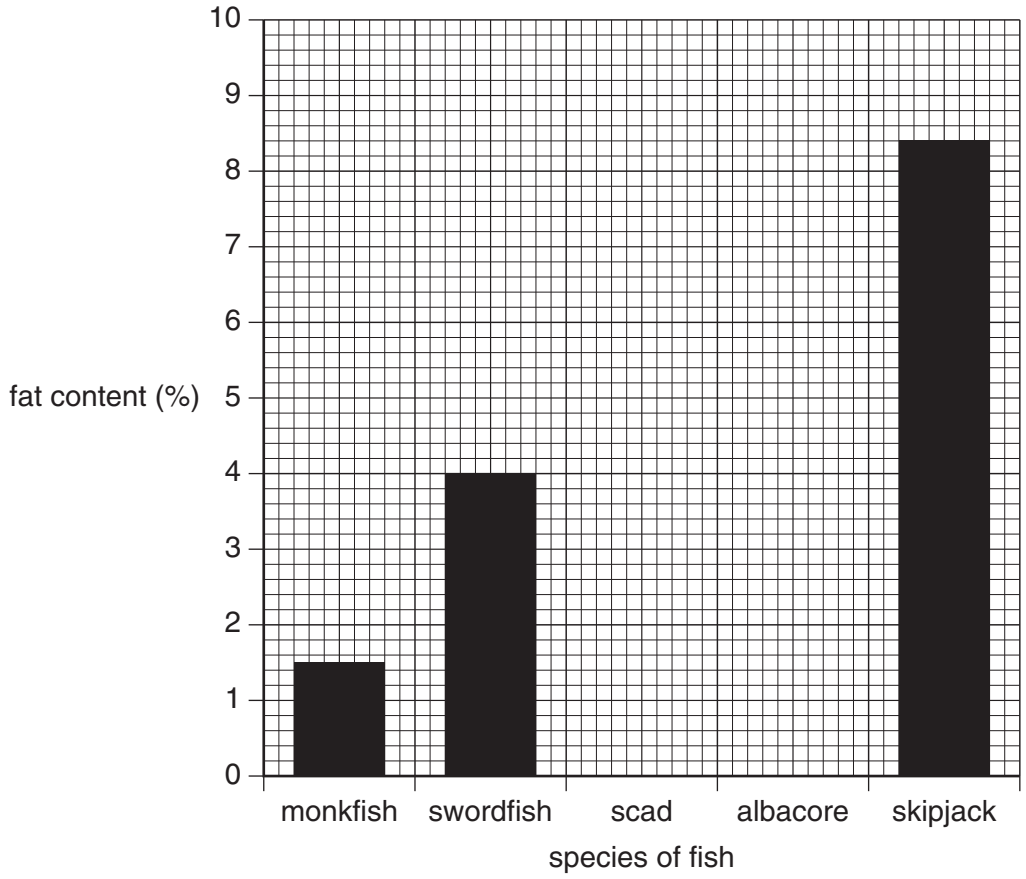

Fig. 2.2

[2]

(b) Give **one** function of each of the following in the body:

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protein .....

.....

carbohydrate .....

.....[2]

(c) Explain how freezing preserves fish.

.....

.....

.....

.....[3]

3 Fig. 3.1 shows part of a marine food web.

For Examiner's Use

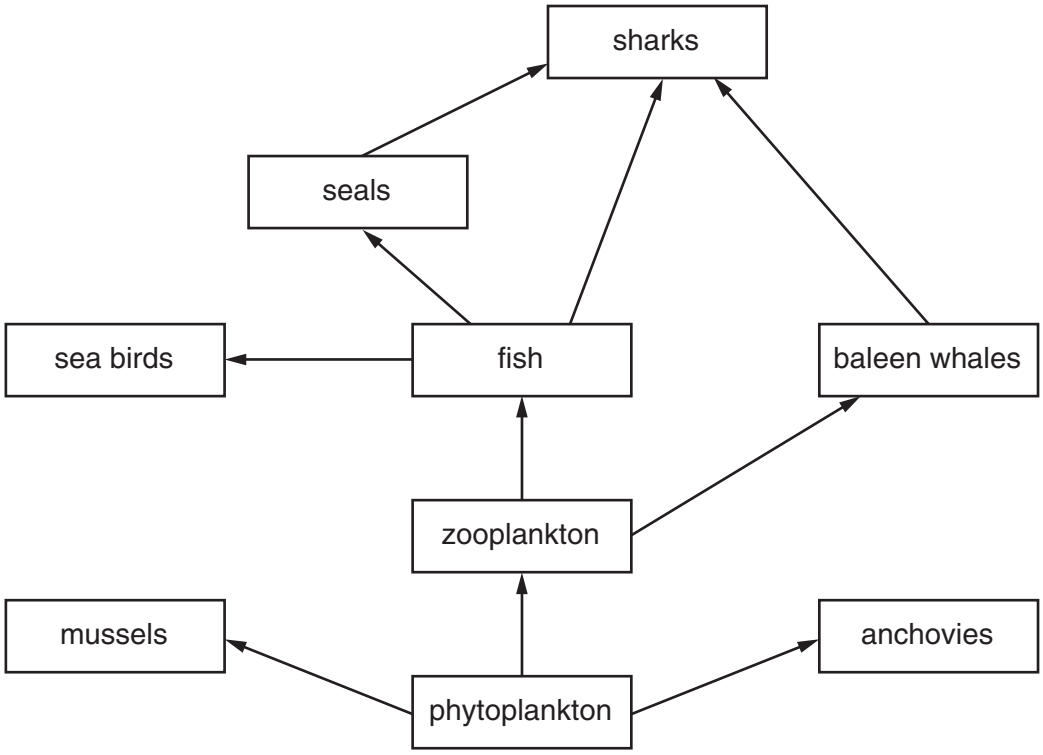

Fig. 3.1

(a) (i) State the energy source for the food web.

.....[1]

(ii) Explain the role of the phytoplankton in the food web.

.....

.....

.....

.....

.....

.....[3]

(iii) What do the arrows in the food web represent?

.....

.....

.....

.....[2]

(iv) Draw a pyramid of numbers for the food chain:

[2]

(b) Give the meaning of the following:

(i) predator .....

.....

.....[2]

(ii) herbivore .....

.....

.....[1]

4 **(a)** The Earth is made up of different layers.
Draw and label a section through the Earth to show these layers.

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[3]

(b) Fig. 4.1 shows a section through the ocean floor.

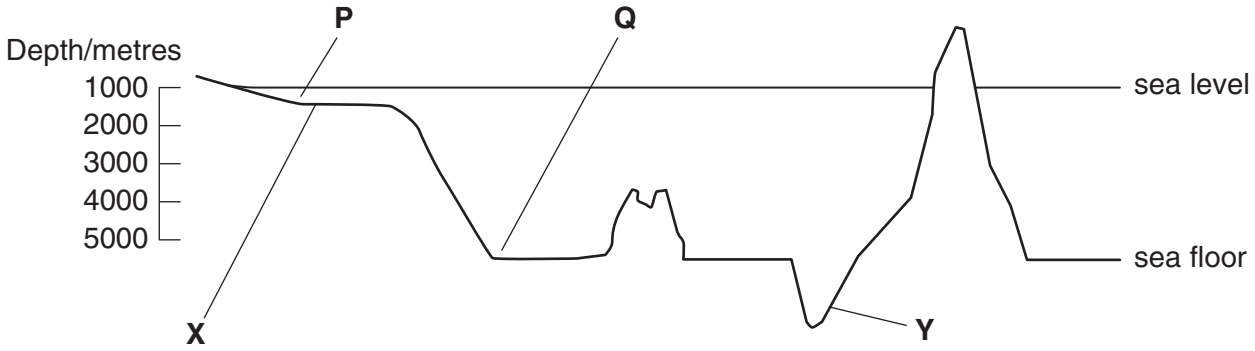

Fig. 4.1

(i) Name the structures labelled **X** and **Y**.

X .....

Y .....[2]

(ii) Samples of seawater taken from **P** and **Q** differ in their physical and chemical properties.
State **two** ways in which the sample taken from **P** would differ from the sample taken at **Q**.

1 .....

.....

2 .....

.....[2]

(c) Fig. 4.2 shows the temperature of seawater from 0 to 100 metres.

For Examiner's Use

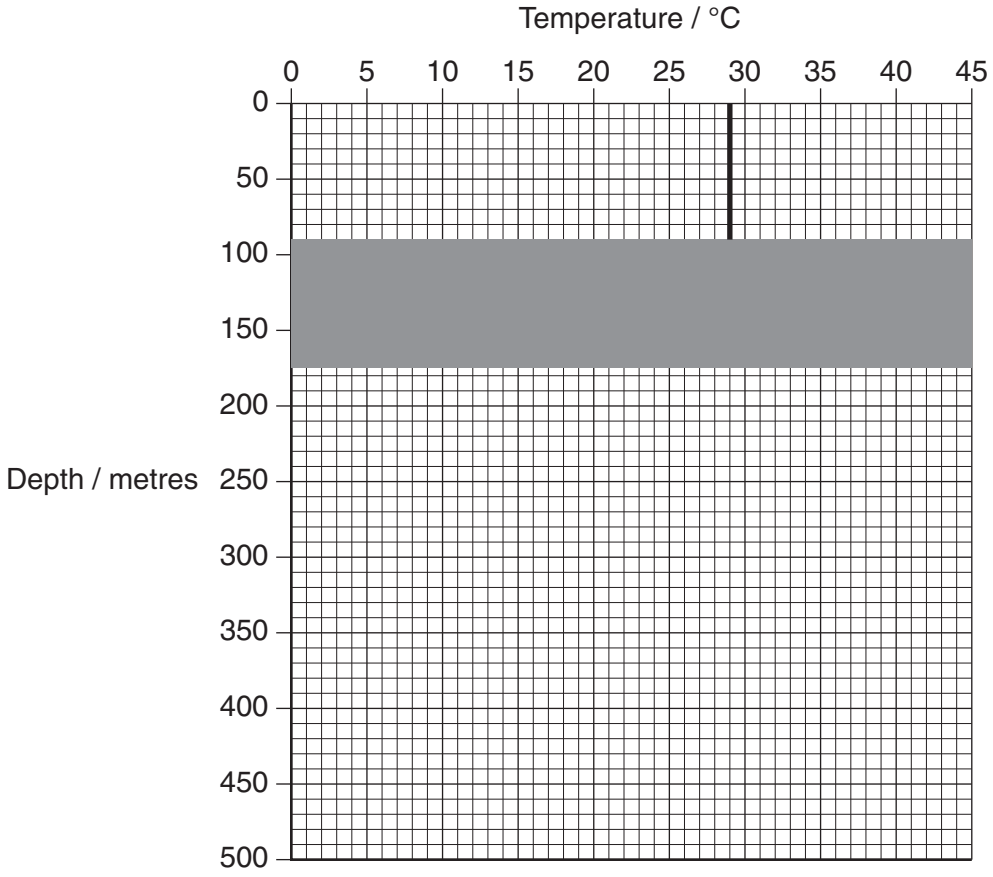

Fig. 4.2

(i) State the name of the shaded area in Fig. 4.2.

.....[1]

(ii) Complete Fig. 4.2 to show how the temperature changes from a depth of 100 metres to a depth of 500 metres. [2]

(d) Scientists believe global warming is due to greenhouse gases.

(i) Name **two** greenhouse gases.

1 .....

2 .....[2]

(ii) State **one** possible effect of global warming.

.....

.....[1]

5 Fig. 5.1 shows a skipjack tuna.

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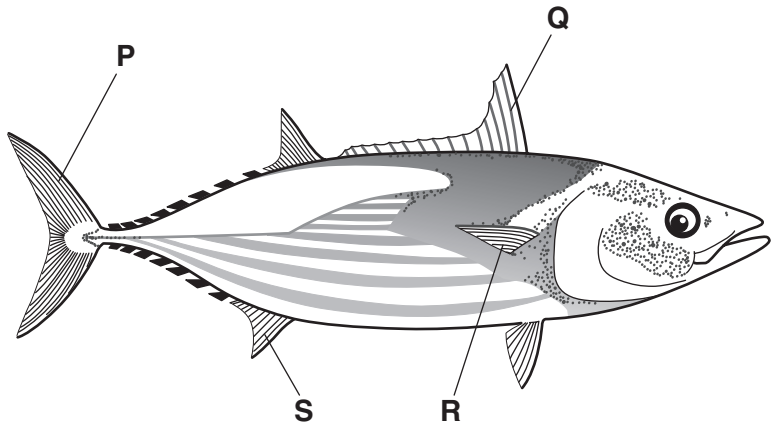

Fig. 5.1

(a) Name the fins labelled **P**, **Q** and **S**.

P .....

Q .....

S .....[3]

(b) **(i)** State **three** ways in which tuna is adapted for movement in water.

1 .....

.....

2 .....

.....

3 .....

.....[3]

(ii) Give the letter of the fin that is used to

propel the tuna through water .....

prevent the fish pitching up and down. ..... [2]

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6 Fig. 6.1 shows the freshwater fish catch and aquaculture production between 1970 and 2000.

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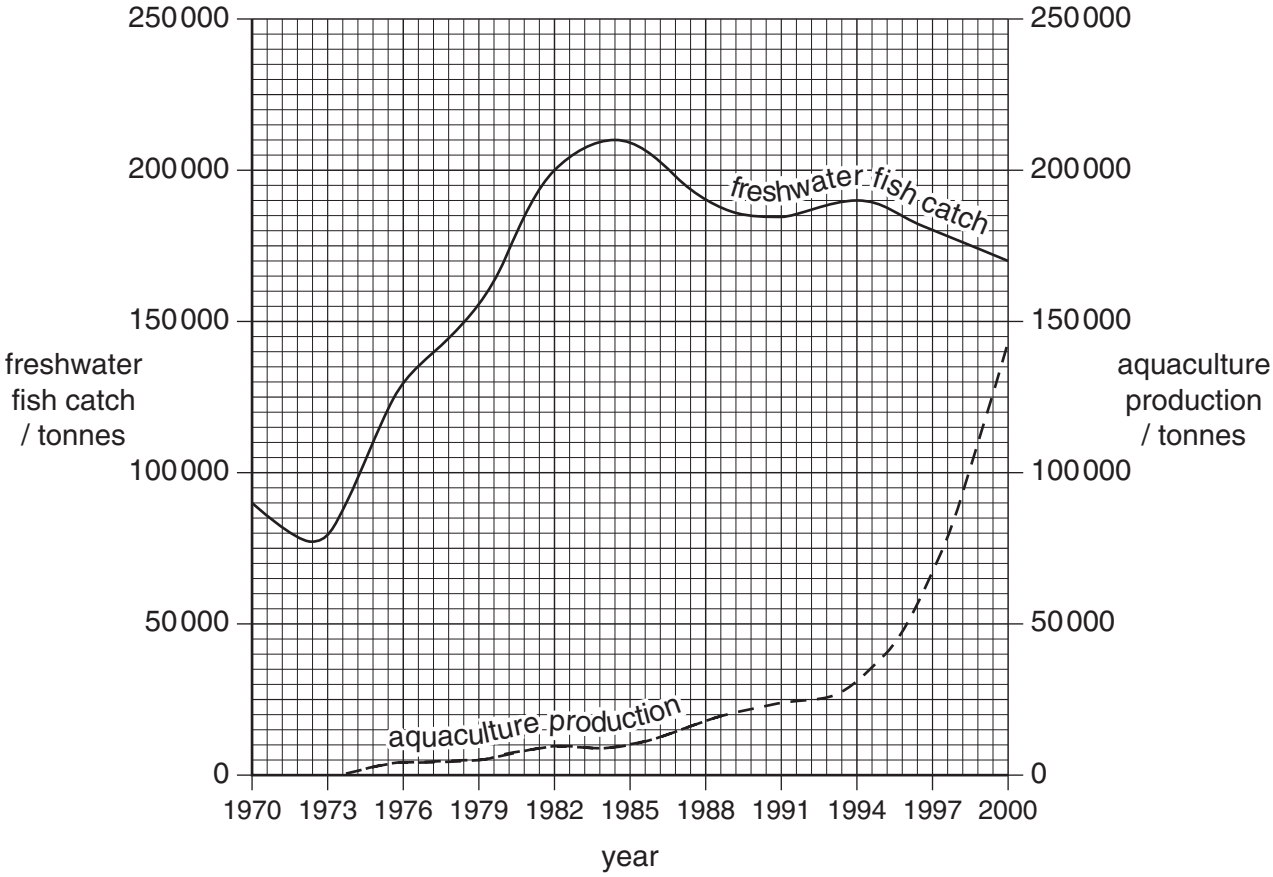

Fig. 6.1

(a) Explain what is meant by the term aquaculture.

.....

.....

.....

.....

.....

.....[3]

(b) **(i)** Find the difference between the freshwater fish catch and aquaculture production in each of the following years:

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1982 …… tonnes.

2000 …… tonnes. [2]

(ii) Name **one** organism produced by aquaculture in the Maldives.

.....[1]

(c) Give **one** advantage and **one** disadvantage of aquaculture compared to methods used to capture wild stock.

Advantage .....

.....

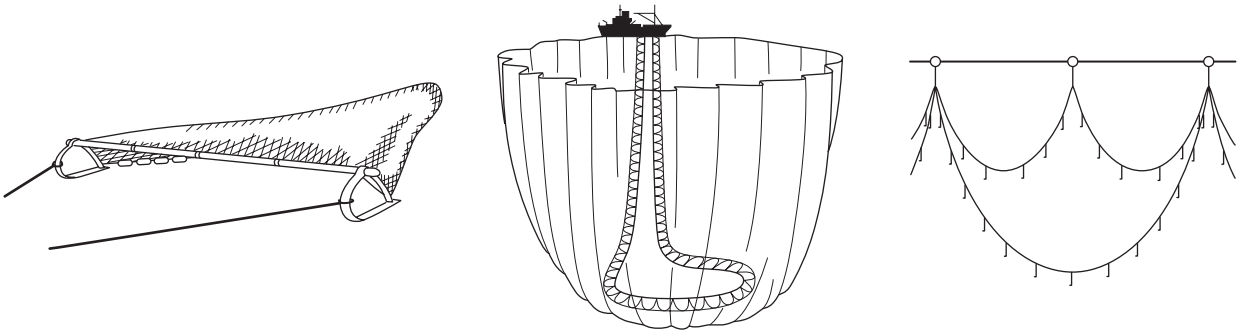
.....

Disadvantage .....

.....

.....[2]

7 **(a)** Fig. 7.1 shows three types of fishing gear. (Diagrams are not to scale)



A **B** **C**

Fig. 7.1

Give the name of the fishing gear labelled **A**, **B** and **C**.

A .....

B .....

C .....[3]

(b) Fig. 7.2 shows a Gill net.

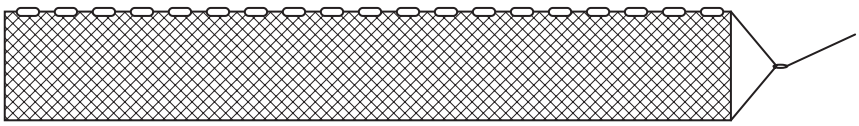


Fig. 7.2

(i) Explain how Gill nets can be set at different depths in the sea.

.....

.....

.....

.....[2]

(ii) Explain how this type of net catches fish.

.....

.....[1]

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8 **(a)** Table 8.1 shows the Marine Protected Areas (MPAs) of the Maldives in 2005.

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Table 8.1

Atoll	Marine Protected Area
Alifu	Faruhuruvalhi Beyru
	Karibeyru Thila
	Kudarah Thila
	Maya Thila
	Mushimasmigili Thila
	Orimas Thila
Baa	Dhigali Haa/Horubadhoo Thila
Lhaviyani	Fusheevaru Thila
	Kureddhoo Kandu Olhi
Dhaalu	Fushi Kandu
Vaavu	Miyaru Kandu
	Vattaru Kandu
Faafu	Filitheyo Kandu
Kaafu	Dhekunu Thilafalhuge Miyaruvani
	Emboodhoo Kandu Olhi
	Gaathugiri/Ad'dhashugiri
	Giraavaru Kuda Haa
	Gulhifalhu/Kollavani
	Guraidhoo Kandu Olhi
	Lankan Thila
	Makunudhoo Kandu Olhi
	Rasfari Faru
	Thamburudhoo Thila
Meemu	Lhazikuraadi
Raa	Vilingili Thila

Calculate the number of MPAs that are on Kaafu Atoll, as a percentage of the total number of MPAs.

..... [2]

(b) (i) What is the purpose of the MPAs?

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.....

.....

.....

.....

.....[2]

(ii) Suggest **two** activities that are banned in the MPA's.

1 .....

.....

2 .....

.....[2]

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9 **(a)** Fig. 9.1 shows a FAD.

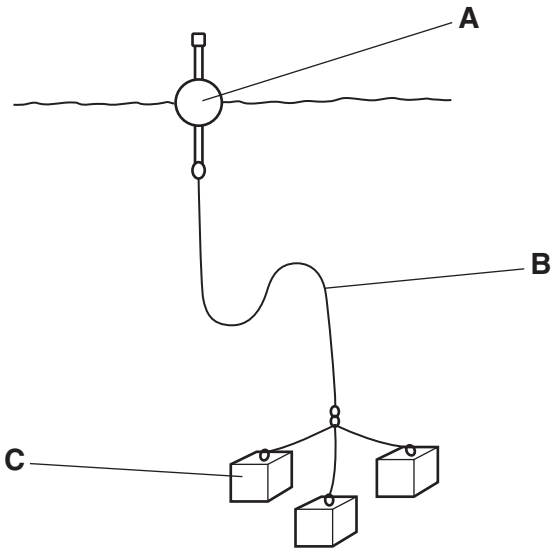

Fig. 9.1

(i) What is a FAD?

.....

.....[1]

(ii) Identify the parts labelled **A**, **B** and **C**.

A .....

B .....

C .....[1]

(iii) Explain why FADs attract tuna.

.....

.....

.....

.....

.....

.....[3]

(b) Fig. 9.2 shows the relationship between the length of time spent fishing at a FAD and the money earned from fishing.

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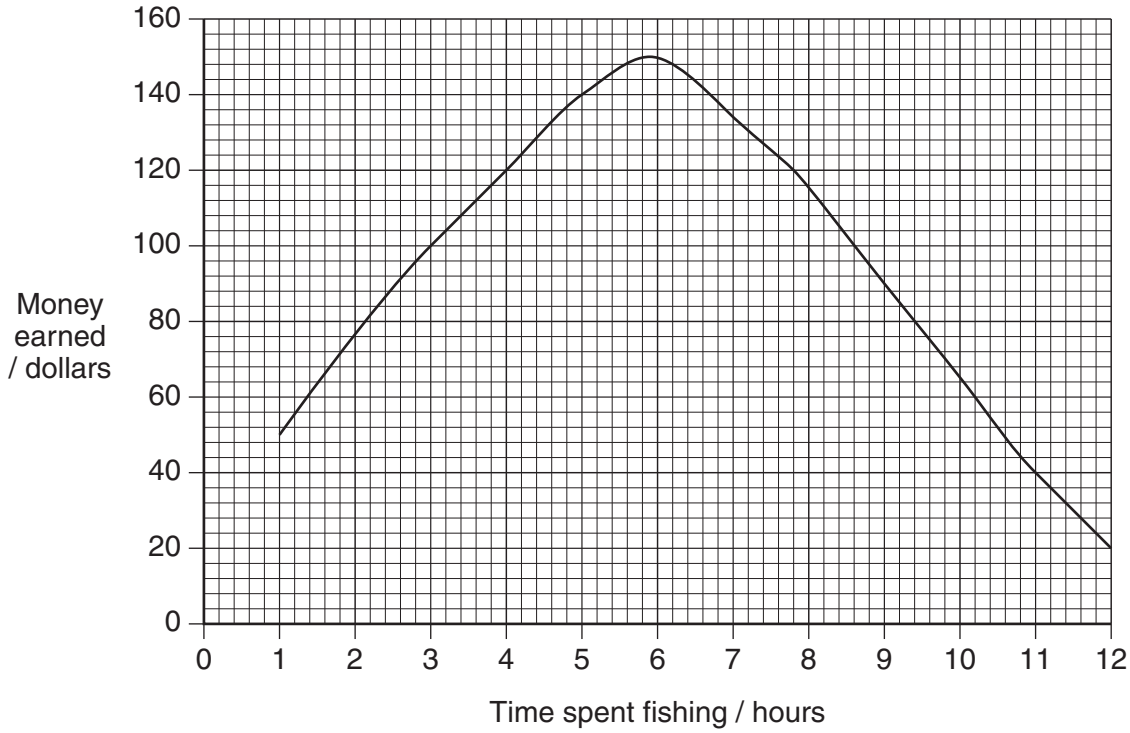

Fig. 9.2

Which length of time spent fishing gives the greatest revenue?

.....[1]

10 (a) (i) Explain what is meant by the Maximum Sustainable Yield (MSY).

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.....

.....

.....

.....[2]

(ii) What will happen to a fish population if the MSY is exceeded?

.....

.....[1]

(b) State **three** ways by which fishing may be regulated to maintain fish stocks.

1 .....

.....

2 .....

.....

3 .....

.....[3]