

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS General Certificate of Education Ordinary Level

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CANDIDATE NAME		
CENTRE NUMBER		CANDIDATE NUMBER
MADINE COLEN	ICE	5190/02

MARINE SCIENCE 5180/03

Paper 3

SPECIMEN PAPER

For Examination from 2014

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 the work you hand in.

Write in dark blue or black pen.

You may use a pencil for any diagrams, graphs or rough working.

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

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.

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Total	

This document consists of 12 printed pages and 2 blank pages.



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For Examiner's Use

1 Fig. 1.1 shows a rainbow trout (*Oncorhynchus* sp.).

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Fig. 1.1

(a)	In the box below, make a	n accurate drawing	, magnified \times 1.5,	of the specimen showr
	in Fig. 1.1.			[4]

(b) (i) On your drawing, label five visible, external features.

- (ii) The actual length of this specimen is 30 cm. On your drawing, include a scale to show the actual length of the specimen. [1]
- (c) Rainbow trout are bony fish. State two features, visible in Fig. 1.1, which are characteristic of bony fish.

1	***************************************

2 ______[2]

[Total: 12]

2 (a) Fig. 2.1 shows five fish labelled A, B, C, D and E. They are not all shown to the same scale.

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Use the key on the opposite page to identify the fish A to E. Write the letter of each fish in the box next to its scientific name.

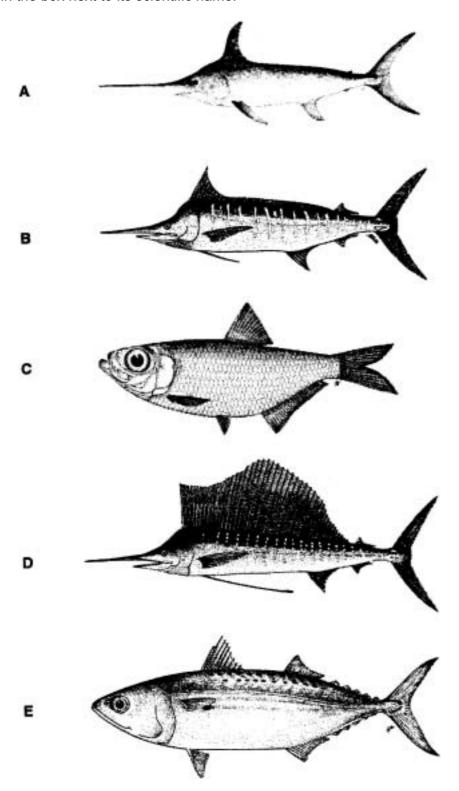


Fig. 2.1

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1	Upper jaw extended beyond lower jaw	2		Use
	Upper jaw not extended beyond lower jaw	4		
2	Dorsal fin like a sail	Istiophorus platypterus		
	Dorsal fin not like a sail	3		
3	Pelvic fins absent Pelvic fins present	Xiphias gladius Makaira nigricans		
		gg		
4	Finlets present	Rastrelliger kanagurta		
	Finlets absent	Pellona ditchela		
			[5]	

(b) Fig. 2.2 shows two specimens of marine organisms which both belong to the same phylum.

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Sea urchin

Starfish

Fig. 2.2

Complete the table below to show **three** visible differences between these two organisms.

sea urchin	starfish

[3]

(c) Fig. 2.3 shows a mollusc shell.

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Fig. 2.3

(i)	Measure and record the length of the shell in Fig. 2.3.
	[1]
(ii)	The actual length of this shell is 14 cm. Calculate the scale (magnification) of the shell in Fig. 2.3.
	Show your working.
	Answer [2]
	[Total: 11]

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a)	Starch
	[2]
	Protein
	[2]
)	Non-reducing sugar

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4 A student carried out an investigation into the relationship between the length and mass of a sample of 8 fish. He measured the fork length and mass of each fish. His record of results is shown in Fig. 4.1.

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fish 1 = 19.3 cm, 18.0 g	fish 2 = 11.7 cm, 27.5 g	fish 3 = 13.7 cm, 28.0 g
fish 4 = 6.2 cm, 5.5 g	fish 5 = 7.6 cm, 12.5 g	fish 6 = 8.0 cm, 7.5 g
fish 7 = 7.0 cm, 12.0 g	fish 8 = 7.2 cm, 5.0 g	

Fig. 4.1

(a) In the space below, prepare a suitable table of these results.

[3]

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5 Ghost crabs are common on sandy beaches of many countries. Ghost crabs live in burrows in the sand, which can be seen as small holes on the surface of the sand.

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A student noticed that there seemed to be more ghost crab burrows higher up on a beach than there were further down, close to the sea.

She formed the following hypothesis:

The numbers of ghost crabs increases as the distance away from the water's edge increases.

Design an investigation which you could carry out to test this hypothesis.

Your answer should be given under the following headings.

- Method, including any apparatus required.
- Presentation and interpretation of results.
- Limitations of your method and suggestions for further work to extend the study.

(a)	Method, including any apparatus required.
	[8]

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(b)	Presentation and interpretation of the results.	For Examiner's Use
		030
(c)		
	[6]	
	Limitations of your method and suggestions for further work to extend the study.	
	[5]	
	[Total 19]	

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