Cambridge
O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

6915836967

MARINE SCIENCE **5180/03**

Paper 3 Practical Assessment Paper **October/November 2015**

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 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 **all** questions.
Write your answers in the spaces provided on the Question Paper.

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 **12** printed pages.

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Answer **all** the questions in the spaces provided.

1 Fig. 1.1 shows a sea bream (*Spondyliosoma* sp.).

Fig. 1.1

(a) In the space below, make an accurate drawing, magnified ×1, of the specimen shown in Fig. 1.1.

[4]

(b) On your drawing, label each of the following features:

- caudal fin
- dorsal fin
- lateral line
- operculum
- pectoral fin.

[5]

(c) The actual total length of this specimen is 22 cm.

(i) On your drawing, include a suitable scale to show the actual length of the specimen. [1]

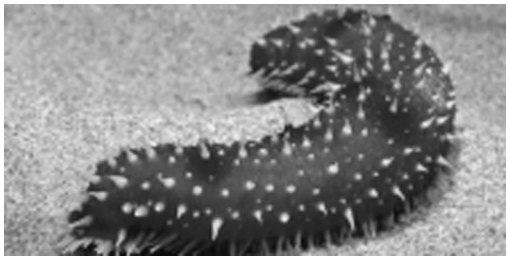
(ii) Calculate the magnification of the specimen shown in Fig. 1.1.

Show your working.

magnification = ... [2]

[Total: 12]

2 **(a)** Fig. 2.1 shows a sea cucumber and a starfish



sea cucumber

starfish

Fig. 2.1

(i) Name the phylum to which both organisms belong.

..... [1]

(ii) Table 2.1 includes three features of the sea cucumber and of the starfish.

For each feature, state the visible difference between the sea cucumber and the starfish.

Table 2.1

feature	sea cucumber	starfish
body shape		
presence of tube feet		
spines		

[3]

(b) Fig. 2.2 shows the relationship between depth and the salinity of water in an estuary.

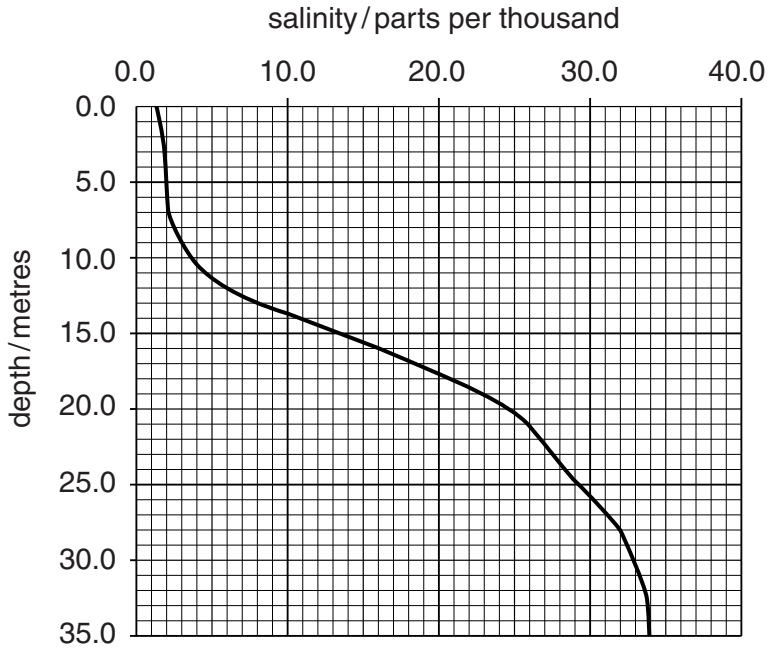


Fig. 2.2

Use Fig. 2.2 to find each of the following:

(i) the salinity at a depth of 16 metres

..... parts per thousand [1]

(ii) the depth of water where the salinity is 8.0 parts per thousand.

..... metres [1]

[Turn over

(c) In the space below, make a labelled drawing of a hydrometer you could use to measure the density of a sample of sea water.

[3]

[Total: 9]

3 **(a)** Explain how you would find out whether a sample of orange juice contains each of the following food substances.

(i) starch

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..... [2]

(ii) non-reducing sugar

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..... [3]

(b) Explain how you would find the mean volume of a sample of 10 small, dead fish.

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..... [5]

[Total: 10]

4 A student carried out a project into the protein content of various types of food.

She researched the protein content of bananas, canned tuna, milk, eggs and dried coconut.

Her results are shown in Fig. 4.1.

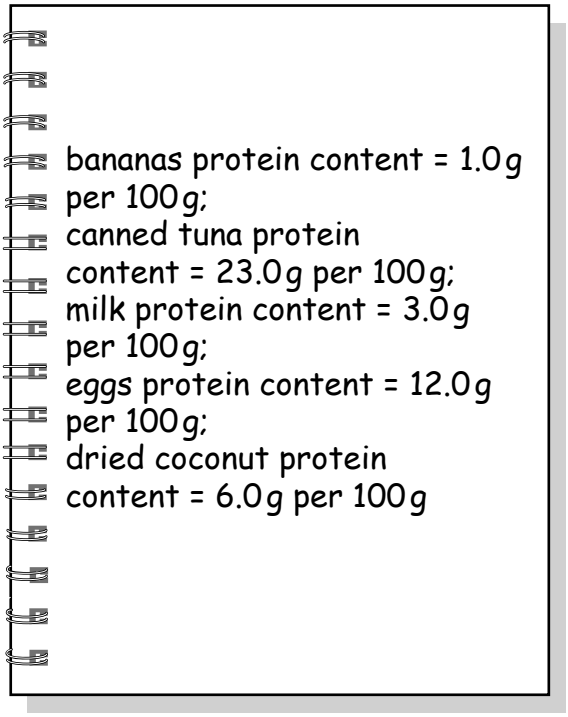
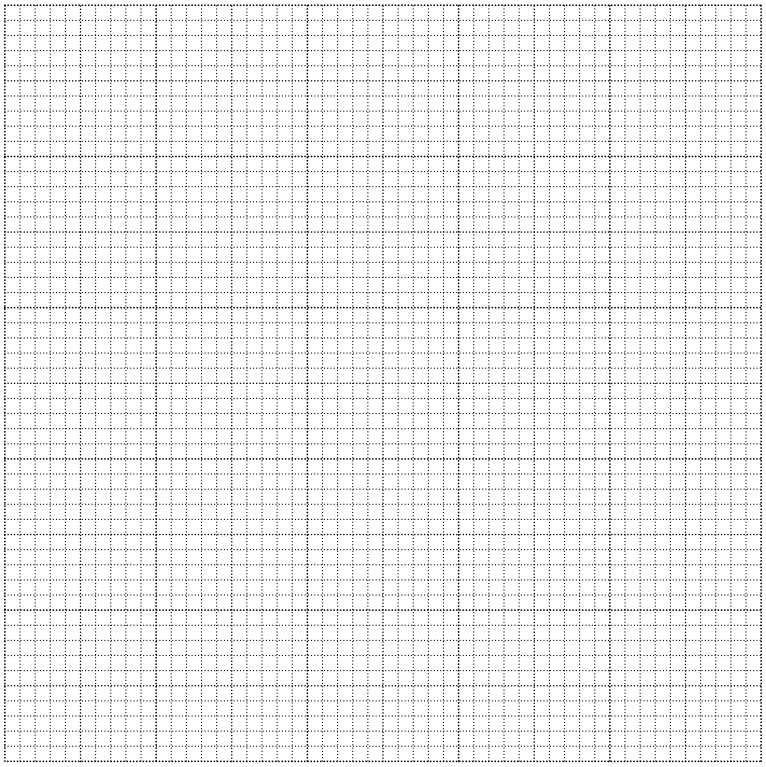


Fig. 4.1

(a) In the space below, prepare a suitable table of these results with the protein content ranked from highest to lowest.

[4]

(b) Plot a bar chart of these results.



[4]

(c) A meal includes 150 g of canned tuna, 150 g of banana and 200 g of milk.

Using the information in Fig. 4.1, calculate the total protein content of this meal.

Show your working.

total protein content = ... [2]

[Total: 10]

5 A student noticed that the water on the west side of an island appeared to be more cloudy than the water on the east side of the island.

He formed the following hypothesis:

Light can penetrate further in the water on the east side of the island than on the west side.

Design and describe an investigation which you could carry out to test this hypothesis, using the headings given below to structure your answer.

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

(a) Method, including any apparatus required and safety precautions.

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(b) Presentation and evaluation of results.

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(c) Limitations of your method and suggestions for further work to extend the study.

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..... [5]

[Total: 19]