



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

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**MARINE SCIENCE**

**5180/02**

Paper 2

**For Examination from 2014**

SPECIMEN MARK SCHEME

**1 hour 30 minutes**

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**MAXIMUM MARK: 60**

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This document consists of **4** printed pages.



- 1 (a) Axes labelled correctly (species and number caught per hour or catch rate) ;  
Bars labelled / key ;  
Each bar plotted correctly (5 marks) ; [7]
- (b)  $214 \div 5$ ;  
= 42.8 fish per hour ;  
[correct answer only gains both marks] [2]
- (c) (i) Haddock ; [1]  
(ii) Lemon sole ; [1]
- (d) Any two of:  
References to differences in stocks / numbers ;  
Reference to differences in habitat of these fish ;  
Reference to seasons ;  
Reference to mesh size of net ; [2]
- (e) Damage to corals / eq ;  
Catch non-target species / eq ; [2]
- [Total: 15]

## 2 (a) Any three of:

Create new habitat for marine organisms / eq ;  
 Reference to tourism / diving / fishing ;  
 Reduce erosion of shore ;  
 Dissipate energy of waves / eq ;  
 Protect anchorages ;  
 Create waves for surfing ; [3]

(b) (i) Concrete ; [2]  
 Steel ;

(ii) Steel balls / bridge rubble / iron and steel railway engine / steel tower / concrete  
 telephone poles / concrete boxes / steel girders ; [1]

## (c) (i) Any two of:

Reference to availability ;  
 Heavy (so sinks) ;  
 Unlikely to move during a storm ;  
 Large surface area (for attachment of organisms) ;  
 Hollow (to provide habitat) ; [2]

(ii) 291 ; [1]

(iii) South Carolina ; [1]

(iv) Aluminium is lighter / less dense than steel ;  
 Aluminium corrodes in sea water ;  
 Aluminium is more expensive than steel / eq ;  
 Reference to foam making them buoyant ; [2]

(v) Engines contain fuel / oil ;  
 Fuel / oil could leak out ;  
 Reference to oil floating / moving away ;  
 Causing pollution ;  
 Harmful to marine organisms / eq ; [3]

[Total: 15]

- 3 (a)** Carbohydrates ;  
Provide energy ;
- Fats / oils / lipids ;  
Provide energy / insulation / buoyancy ;
- Proteins ;  
Used for growth / repair / body building / eq ;
- Vitamins ;  
Named example (of vitamin) and function ;
- Minerals  
Named example (of mineral) and function ; **[8]**
- (b)** (Fish muscle provides)  
Water ;  
(Small amounts of) glycogen / carbohydrate ;
- Proteins ;
- Fats / oils / lipids ;
- Vitamins ;  
Named example of a vitamin ;
- Minerals ;  
Named example of a mineral ; **[7]**
- [Total: 15]**
- 4 (a)** Reference to exoskeleton / external skeleton ;  
Chitin ;  
Hardened with calcium ;  
Have jointed legs / limbs / appendages ;  
Five pairs ;  
Carapace ;  
Abdomen ;  
Pincers / eq ;  
Walking legs ;  
Antennae ;  
Compound eyes ; **[8]**
- (b)** Separate sexes / male and female ;  
Males produce sperm / females produce eggs ;  
Male transfers spermatophore to female ;  
Reference to external fertilisation ;  
Fertilised eggs held by female ;  
Planktonic larvae ;  
Reference to growth by moulting ;  
Form miniature adults ;  
Which settle on substrate / eq ; **[7]**
- [Total: 15]**