



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

MARINE SCIENCE

5180/02

Paper 2

For Examination from 2014

SPECIMEN MARK SCHEME

1 hour 30 minutes

MAXIMUM MARK: 60

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]**