



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

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MARINE SCIENCE

5180/01

Paper 1

For Examination from 2014

SPECIMEN MARK SCHEME

1 hour 30 minutes

MAXIMUM MARK: 80

This document consists of **6** printed pages.



- 1 (a) Reference to gravitational effect ;
Of the Sun and Moon ; [2]
- (b) (i) Tide with the greatest change in sea level / highest high tide / Sun, Moon and Earth at
180°, occurs when there is a full or new Moon ; [1]
- (ii) Tide with the least change in sea level / lowest high tide / Sun, Earth and Moon at 90°,
occurs when there is a half Moon ; [1]
- (c) Quality of drawing showing three concentric circles ;
Crust labelled correctly ;
Mantle labelled correctly ;
Core labelled correctly ; [4]
- [Total: 8]
- 2 (a) (y-axis labelled) temperature / °C ;
(x-axis labelled) percentage of water frozen ; [2]
- (b) (i) Accept answers in range 87 to 88 °C ; [1]
- (ii) -8 °C ; [1]
- (c) Presence of salt / dissolved substances in the water in the fish / eq ; [1]
- (d) Any two of:
Fish would begin to spoil / decay ;
Reference to autolysis / action of enzymes ;
Reference to putrefaction / bacterial growth ;
Reference to rancidity / oxidation of fats ; [2]
- [Total: 7]

3 (a) Organisms without a (true) nucleus ; [1]

(b)

Phylum	Letter
Arthropods	B ;
Chordates	E ;
Cnidaria	A ;
Echinoderms	C ;
Molluscs	D ;

[5]

(c) An animal that catches and kills ;
Another animal / prey ; [2]

[Total: 8]

4 (a) Species in danger of becoming extinct / dying out / eq ;
Rare / eq ;
Too few to maintain population ;
Over-exploited / eq ; [2]

(b) Safe place for turtles to lay eggs / for nesting ; [1]

(c) Ban catching turtles / extend current ban ;
Ban use of turtle shell ;
Do not collect eggs ;
Ban use of turtle meat ; [2]

(d) Any two of:
Giant clam ;
Sea cucumber ;
Mother of pearl shells ;
Black-naped tern ;
Whale shark ;
Black coral ;
Thresher shark ; [2]

[Total: 7]

- 5 (a) (i) 1987 ; [1]
(ii) 1989 ; [1]
- (b) Large numbers caught ;
Fall in exports ;
Reduced demand ; [2]
- (c) (i) *H. atra* ; [1]
(ii) *T. ananas* ; [1]
- (d) Any two of:
Reference to quotas ;
Ban collection in some areas ;
Only catch most abundant species / eq ;
Collect up to MSY ;
Do not collect by SCUBA diving ; [2]
- [Total: 8]
- 6 (a) Pectoral ;
Pelvic ; [2]
- (b) (i) Dorsal / anal ; [1]
(ii) Pectoral ; [1]
(iii) Dorsal / anal ; [1]
- (c) Swim continuously ;
Have elongated pectoral fins ;
(Which) provide lift ; [2]
- [Total: 7]
- 7 (a) Atmosphere ;
Warms ;
Infra-red ;
Carbon dioxide ; [4]
- (b) Any two of:
Rise in sea level / flooding / eq ;
Reference to climate change ;
Death of corals ;
Reference to effect on food supply ; [2]
- [Total: 6]

- 8 (a) Wood ;
Aluminium ;
Fibreglass / GRP ; [3]
- (b) Boats can go further ;
Faster ;
Reference to increased catch ; [2]
- (c) Any four of:
Boat building / repair / maintenance ;
Provide navigational aids ;
Utilities / fuel / water / oil / electricity / eq ;
Fishing gear manufacture / supply ;
Deep water landing / deep channel / wide entrance ;
Quays / cranes / loading / unloading facilities ;
Means of handling / processing catch / freezing ;
Markets / selling ;
Good road connections / transport facilities ; [4]
- [Total: 9]
- 9 (a) (i) Sun / light ; [1]
- (ii) They are producers ;
Trap light ;
Produce food / eq ;
By photosynthesis ;
Provide food for consumers / mussels / zooplankton / anchovies ; [3]
- (iii) Arrows represent the movement of energy / biomass ;
Reference to one animal feeding on another ; [2]
- (iv) Pyramid drawn the correct shape ;
Three trophic levels labelled correctly ; [2]
- (b) Energy lost as heat ;
Respiration / movement ;
Not all parts eaten / eq ;
Energy losses in faeces ; [3]
- [Total: 11]

- 10 (a)** Production / rearing / growing / eq ;
Of aquatic organisms / eq ;
In enclosures / cages / eq ;
In freshwater / sea water ;
Environment controlled ; **[4]**
- (b) (i)** No need for expensive fishing vessels / does not deplete wild stocks / more predictable yield ; **[1]**
- (ii)** Water of good quality needed / large area of land needed for ponds / may be difficult to control diseases ; **[1]**
- (c)** Any two of:
- Japanese carpet shell ;
 - Pacific cupped oyster ;
 - Carp ;
 - Kelp ;
 - Scallop ;
 - Prawns ;
 - Sea cucumbers ;
- [credit will be given for other correctly named examples] **[2]**
- (d)** Grows quickly / easy to feed / lives in shallow water / tolerates wide range of temperatures / high demand / eq **[1]**

[Total: 9]