

Cambridge IGCSE™

MARINE SCIENCE**0697/13**

Paper 1 Theory and Data Handling

October/November 2025

MARK SCHEME

Maximum Mark: 80

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **14** printed pages.

PUBLISHED**Generic Marking Principles**

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Science-Specific Marking Principles

1 Examiners should consider the context and scientific use of any keywords when awarding marks. Although keywords may be present, marks should not be awarded if the keywords are used incorrectly.

2 The examiner should not choose between contradictory statements given in the same question part, and credit should not be awarded for any correct statement that is contradicted within the same question part. Wrong science that is irrelevant to the question should be ignored.

3 Although spellings do not have to be correct, spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. ethane / ethene, glucagon / glycogen, refraction / reflection).

4 The error carried forward (ecf) principle should be applied, where appropriate. If an incorrect answer is subsequently used in a scientifically correct way, the candidate should be awarded these subsequent marking points. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.

5 'List rule' guidance

For questions that require *n* responses (e.g. State **two** reasons ...):

- The response should be read as continuous prose, even when numbered answer spaces are provided.
- Any response marked *ignore* in the mark scheme should not count towards *n*.
- Incorrect responses should not be awarded credit but will still count towards *n*.
- Read the entire response to check for any responses that contradict those that would otherwise be credited. Credit should **not** be awarded for any responses that are contradicted within the rest of the response. Where two responses contradict one another, this should be treated as a single incorrect response.
- Non-contradictory responses after the first *n* responses may be ignored even if they include incorrect science.

6 Calculation specific guidance

Correct answers to calculations should be given full credit even if there is no working or incorrect working, **unless** the question states 'show your working'.

For questions in which the number of significant figures required is not stated, credit should be awarded for correct answers when rounded by the examiner to the number of significant figures given in the mark scheme. This may not apply to measured values.

For answers given in standard form (e.g. $a \times 10^n$) in which the convention of restricting the value of the coefficient (a) to a value between 1 and 10 is not followed, credit may still be awarded if the answer can be converted to the answer given in the mark scheme.

Unless a separate mark is given for a unit, a missing or incorrect unit will normally mean that the final calculation mark is not awarded. Exceptions to this general principle will be noted in the mark scheme.

7 Guidance for chemical equations

Multiples / fractions of coefficients used in chemical equations are acceptable unless stated otherwise in the mark scheme.

State symbols given in an equation should be ignored unless asked for in the question or stated otherwise in the mark scheme.










Annotations guidance for centres




Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	correct point or mark awarded
	incorrect point or mark not awarded
	information missing or insufficient for credit
	incorrect or insufficient point ignored while marking the rest of the response
	benefit of the doubt given
	error carried forward applied
	contradiction in response, mark not awarded
	incorrect point or point rejected
	key point attempted / working towards marking point / incomplete answer / response seen but not credited / blank page seen

Annotation	Meaning
	point has been noted, but no credit has been given or blank page seen
	used to highlight parts of an extended response
	used to highlight parts of an extended response

Question	Answer	Marks
1(a)(i)	J =(first) dorsal fin ; K = operculum ; L = pectoral fin ;	3
1(a)(ii)	to, cover / protect, the gills ;	1
1(b)(i)	(organism that) hunts / eats / feeds on, animals / prey ;	1
1(b)(ii)	to be less visible to, its prey / animals it eats OR camouflage from prey ;	1
1(c)(i)	<i>Any 2 from:</i> stars / sun / moon ; olfaction / smell ; (visible) landmarks ; mental maps ; (Earth's) magnetic field ;	2
1(c)(ii)	to go to, a suitable breeding ground / find a mate / breed / reproduce / fewer predators of juveniles or eggs ;	1
1(d)	(zooplankton) to follow / find, food / (phytoplankton) absorb light for photosynthesis ; to avoid being eaten ;	2

Question	Answer	Marks
2(a)	MARPOL / International Convention for the Prevention of Pollution from Ships ;	1
2(b)(i)	density = mass ÷ volume ; 0.87 ; g / cm ³ ;	3
2(b)(ii)	<p>1 oil floats (on water) ; 2 oil takes a long time to break down ; 3 oil prevents atmospheric dissolution (of gases) (OWTTE) ;</p> <p><i>max. 4 from:</i></p> <p>4 washes onto / covers, shore(line) ; 5 organisms/gills become covered in oil ; 6 (organisms) ingest oil trying to clean themselves ; 7 (organisms) ingest toxins (from oil on other organisms) when feeding ; 8 disrupting food chains ; 9 (organisms) cannot obtain oxygen for respiration ; 10 death of (named) organisms ; 11 less light for, photosynthesis / producers ; 12 plants unable to absorb carbon dioxide (for photosynthesis) / release oxygen for other organisms (to respire) ; 13 AVP ;;</p>	5
2(b)(iii)	<p><i>Any 2 from:</i></p> <p>skimmers ; booms ; dispersants ; burning ;</p>	2

Question	Answer	Marks
3(a)(i)	at high tide/ incoming tide, salinity increases OR at low tide / falling tide, salinity decreases ; because seawater contains (a lot of) salt(s) OR freshwater does not contain (many) salts ;	2
3(a)(ii)	<p><i>Any 2 pairs from:</i></p> <p>leaves secrete salts ; (as they) live in salt / saline water ;</p> <p>aerial roots / pneumatophores ; as they live in waterlogged soil / soil has low oxygen / to absorb oxygen from the air ;</p> <p>(large) prop roots ; as they live in tidal areas OR for support in unstable, substrate/mud ;</p>	4
3(b)	<p><i>Any 2 from:</i></p> <p>brings income (to the area / to conservation projects) ; brings employment (for locals) ; educates tourists ; encourages reduction in fossil fuel use ;</p>	2
3(c)(i)	<p><i>Any 2 from:</i></p> <p>increased logging, for timber / as fuel ; (removed) for shrimp farms ; invasive species ; new / increased, disease ; change in temperature / global warming / climate change ; increased frequency of, storms / hurricanes ; named pollution ;</p>	2

Question	Answer	Marks
3(c)(ii)	<i>Any 2 from:</i> increased flooding ; increased coastal erosion ; damage to infrastructure ; AVP ;;	2
3(d)	<i>Any 2 from:</i> use, local / native, species ; grow seeds / take cuttings / grow saplings (in protected area) ; with, correct / good, growing conditions (stated) ; (saplings / young trees) planted out (into the forest); rapid, attachment / growth, of saplings ;	2

Question	Answer	Marks
4(a)(i)	Sun / light ;	1
4(a)(ii)	triton (snail) / reef shark / wrasse fish ;	1
4(a)(iii)	(fewer triton) fewer / no, crown of thorns / starfish / COTS, eaten ; (more COTS) mean more coral polyps are eaten (by COTS) / decreases population (of coral polyps) ;	2
4(b)	(outer) shell ;	1
4(c)	specialised mouth parts / mouth like a beak / very hard mouth ;	1

Question	Answer	Marks
4(d)	<p><i>Any 2 pairs of :</i></p> <p>optimum / ideal / warmer, temperature ; stated temp. within range 20 °C – 29 °C ;</p> <p>clear water ; allows high light penetration / light penetration to (stated) depth ;</p> <p>(high) light availability ; for (zooxanthellae) photosynthesis ;</p> <p>hard substrate ; for (polyp) attachment ;</p>	4

Question	Answer	Marks															
5(a)	<table border="1" data-bbox="336 802 1339 1129"> <thead> <tr> <th data-bbox="336 802 557 866">organism</th> <th data-bbox="557 802 752 866">kingdom</th> <th data-bbox="752 802 1339 866">feature</th> </tr> </thead> <tbody> <tr> <td data-bbox="336 866 557 930">diatoms</td> <td data-bbox="557 866 752 930">protocista</td> <td data-bbox="752 866 1339 930">silica skeleton ;</td> </tr> <tr> <td data-bbox="336 930 557 994">seagrass</td> <td data-bbox="557 930 752 994">plants</td> <td data-bbox="752 930 1339 994">leaves / roots / rhizomes / flowers ;</td> </tr> <tr> <td data-bbox="336 994 557 1058">dinoflagellates</td> <td data-bbox="557 994 752 1058">protocista</td> <td data-bbox="752 994 1339 1058">(two) flagella / microscopic / single-celled;</td> </tr> <tr> <td data-bbox="336 1058 557 1121">macroalgae</td> <td data-bbox="557 1058 752 1121">protocista</td> <td data-bbox="752 1058 1339 1121">holdfast / blade / gas bladder / stipe ;</td> </tr> </tbody> </table> <p>All kingdoms correct ; Each correct feature ;;;</p>	organism	kingdom	feature	diatoms	protocista	silica skeleton ;	seagrass	plants	leaves / roots / rhizomes / flowers ;	dinoflagellates	protocista	(two) flagella / microscopic / single-celled;	macroalgae	protocista	holdfast / blade / gas bladder / stipe ;	4
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5(b)(i)	float with currents / limited mobility ; consumers ;	2															

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Question	Answer	Marks
5(b)(ii)	<p><i>Any 2 from:</i></p> <p>low light availability ; high pressure ; stable temperature ; some dissolved oxygen ;</p>	2
5(b)(iii)	<p>asexual involves one organism ; asexual produces exact / identical copies ;</p> <p><i>max 2 from:</i></p> <p>sexual involves 2 sexes / male and female ; sexual (male and female) gametes fuse ; (sexual) offspring have features of both parents / variation (in offspring) ;</p>	3
5(c)	<p>sandy ; nest ; 10 ; temperature ; 55 – 60 ;</p>	5

Question	Answer	Marks
6(a)	<p><i>Any 2 from:</i></p> <p>maintain / greater, <u>variety</u> of food supply ; higher, fish catch / availability of fish ; maintain food webs ; sources of organisms with possible medicinal benefit ; attracts tourists ; AVP ;</p>	2

Question	Answer	Marks
6(b)(i)	<p><i>Any 2 from:</i></p> <p>fewer caught as by-catch ; not being, illegally caught or targeted for catch ; abundance of food available (for the sharks) (as many large fish present) ; AVP ;</p>	2
6(b)(ii)	<p><i>Any 2 from:</i></p> <p>may take, animals / named organism, some years to reach (sexual) maturity to breed ; some fish may be territorial and need large areas as territory ; smaller fish need time to breed and increase to be food for larger fish ; a wider variety of food sources attracts more species / provides more niches ; in a 10-year period, more / other / new, species, will enter / be able to live in / move to, the MPA ;</p>	2
6(b)(iii)	<p><i>Any 2 from:</i></p> <p>(monitoring) help prevent / deters, illegal fishing ; banning fishing prevents by-catch OR allowing some (legal) fishing may result in by-catch ; banning all fishing means monitoring does not need to discriminate (between legal and illegal fishing) OR may be hard to, detect / tell the difference between illegal and legal fishing ; monitoring is needed to fine, any fishing in the area / illegal fishing ;</p>	2
6(c)	<p><i>Any 2 from:</i></p> <p>method to ensure sustainable harvesting / harvesting to MSY ; ; national marine parks ; aquaculture of endangered species ; aquaculture of commercially-caught species ; ban fishing in breeding seasons ;</p>	2

Question	Answer	Marks
7(a)	<p><i>Any 2 from:</i></p> <p>noise / light pollution ; removal of organisms for souvenirs ; (over) fishing ; trampling of organisms ; collision with, tourist boats / fishing boats / oil tankers ; loss of shoreline for infrastructure (named) ; removal of resources (named) ; cleared for, aquaculture / agriculture ; fertiliser runoff (from farming) ; burning fossil fuels ; endangered (fish) species bred for, reintroduction / release ; AVP ;</p>	2
7(b)	<p><i>At least one from:</i></p> <p>1 (ocean) gyres are large circular current(s) ; 2 gyres / circular currents, cause the garbage to be pulled in(to the centre of the gyre) ;</p> <p><i>Plus up to 5 from:</i></p> <p>3 animals tangle in the plastics / ghost nets ; 4 (animals caught in plastic) and then drown ; 5 garbage can be eaten OR trapped in the garbage ; 6 (filling stomach so) animals starve OR cannot feed OR choke ; 7 plastics / garbage, breakdown to form microplastics ; 8 (microplastics) passed along the food chain ; 9 forms a habitat for (some) species ; 10 reduced light reduces photosynthesis ; 11 AVP ;</p>	6