

Cambridge IGCSE™

MARINE SCIENCE**0697/22**

Paper 2 Theory and Practical Skills

February/March 2026

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 February/March 2026 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **19** 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
	correct point or mark awarded from marking point 1 similar numbered ticks are used for marking point 2, 3, 4 etc.
	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

Mark Scheme abbreviations

;	separates marking points
/	alternative responses for the same marking point
R	reject the response
A	accept the response
I	ignore the response
ECF	error carried forward
AVP	any valid point / alternative valid point
ORA	or reverse argument
AW	alternative wording
<u>underline</u>	actual word given must be used by candidate (grammatical variants excepted)
()	the word / phrase in brackets is not required but sets the context
max	indicates the maximum number of marks that can be given
OR	separates two different routes to a mark point and only one should be awarded
MP	marking point

Question	Answer	Marks														
1(a)(i)	drawing size is at least as big as image ; no broken lines or shading ; proportions and positions of head, legs and antennae correct ; head segment, second segment, four legs, and two antennae clear ;	4														
1(a)(ii)	9.6 (cm) ;	1														
1(a)(iii)	19 ;	1														
1(a)(iv)	<table><tr><th>Feature</th><th>Present or absent</th></tr><tr><td>Two pairs of antennae</td><td>Present</td></tr><tr><td>Tube feet</td><td>Absent</td></tr><tr><td>Abdominal segments with jointed legs</td><td>present</td></tr><tr><td>Bilateral symmetry</td><td>present</td></tr><tr><td>Exoskeleton</td><td>present</td></tr><tr><td>Setae</td><td>absent ;;</td></tr></table> Award two marks for four correct, one mark for two or three correct	Feature	Present or absent	Two pairs of antennae	Present	Tube feet	Absent	Abdominal segments with jointed legs	present	Bilateral symmetry	present	Exoskeleton	present	Setae	absent ;;	2
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Two pairs of antennae	Present															
Tube feet	Absent															
Abdominal segments with jointed legs	present															
Bilateral symmetry	present															
Exoskeleton	present															
Setae	absent ;;															
1(a)(v)	Eukarya ; Crustacea(n) ;	2														

Question	Answer	Marks
1(b)(i)	<i>any 2 of:</i> animal ; that obtain energy from dead material / dead organic matter ; <i>idea that they break (waste) up into small pieces / AW ;</i>	2
1(b)(ii)	<i>any 3 of:</i> 1 no / low, light ; 2 no / few, producers / low productivity / AW ; 3 no / low, photosynthesis ; 4 <i>ref. to</i> little energy, fixed / enters (from photosynthesis), / AW ; 5 waste / organic matter / dead material / AW, falls from surface ; 6 so, <u>food chains / webs / ecosystems</u>, start with waste material ; 7 AVP ;	3

Question	Answer	Marks
2(a)(i)	10–100 (kg km ⁻²) ;	1
2(a)(ii)	<i>any 2 of:</i> increases towards the middle / highest in centre / centre is more than 100 / ORA / AW ; (more) gradual reduction on west side / spreads out further to west / steeper decrease on East / spread is uneven / spreads different on East compared with West / AW ; several / 6 / 7, areas (in centre) with, highest / more than 100 / AW ;	2
2(a)(iii)	North Atlantic / South Atlantic / Indian / South Pacific ;	1
2(a)(iv)	<i>any 3 of:</i> 1 (oceanic) <u>currents</u> ; 2 generated by winds / spinning of the Earth / tides / changes in water density / temperature gradients / AW ; 3 circle / rotate / spin, (around gyres) / AW ; 4 moves / transport, plastic into centre (of gyre) / AW ; 5 no current to move plastic out (from gyre / centre) / cannot escape from centre / plastic accumulates in centre / plastic stays in centre / AW ;	3
2(b)(i)	linear y axis that uses at least half grid ; both axes labelled ; bars plotted correctly ; neat bars with straight lines and gaps between time periods ; key for bars and bars labelled ;	5

Question	Answer	Marks
2(b)(ii)	<i>any 2 of:</i> both increase (over time) / AW ; (always) more plastic inside / concentration / mass, is (always) higher inside / AW ; credit correct manipulation of data, e.g. 0.75 increase for water inside GP GP / 0.14 outside GP GP ;	2
2(b)(iii)	<i>any 3 of:</i> 1 large sample sizes (for both areas) / repeats / more samples / multiple areas / AW ; 2 sample for same length of time ; 3 sample at same, times of year / season / AW ; 4 sample at, same weather conditions / stated weather conditions / AW ; 5 same sizes of areas sampled / AW ; 6 similar locations / areas ; 7 same collection methods / same effort used to collect / AW ; 8 use <u>random</u> sampling / AW ; 9 AVP ;	3

Question	Answer	Marks
3(a)(i)	community and environment <u>interacting</u> / the organisms and their environment <u>interacting</u> ;	1
3(a)(ii)	Any 2 from: • wetlands ; • coral reefs ; • sandy (shores) ; • muddy (shores) ; • rocky (shores) ; • kelp forests ; • seagrass beds ;	2
3(b)(i)	38% = 2 marks ;; One mark for: 38.1..... OR 19 808 – 12 258 OR 7550 OR division by 19 808	2

Question	Answer	Marks
3(b)(ii)	<i>any 3 of:</i> 1 less photosynthesis ; 2 so less carbon dioxide removed / more carbon dioxide in atmosphere / AW ; 3 less carbon store in roots / stems / less carbon <u>fixed</u> / less carbon locked up / AW ; 4 enhanced greenhouse effect / more greenhouse effect / carbon dioxide is a greenhouse gas / AW ; 5 trapping heat / trapping IR light / AW ;	3
3(c)(i)	aerial roots / pneumatophores / AW ; for gas exchange / to take in oxygen, (when submerged) ; OR leaves excrete salt ; to prevent dehydration / osmotic damage / cells shrinking / AW ; OR AVP ; AVP ;	2

Question	Answer	Marks
3(c)(ii)	<i>any 3 of:</i> use of a <u>Secchi</u> disc ; lower disc into water until it disappears / AW ; measure distance / mark point on rope / AW ; bring up until it is visible <u>and</u> measure distance again / AW ; calculate, mean / average, of the two distances / AW ;	3

Question	Answer	Marks
4(a)(i)	<i>any 3 of:</i> 1 place two (ranging) poles apart / AW ; 2 measure distance between poles / lay a tape measure between the poles / lay a graduated tope between poles / AW ; 3 <i>idea of</i> lining up marks on poles / line up tops of poles / AW ; 4 use, clinometer / protractor, to measure, angle / slope / AW ; 5 repeat at intervals along the shore / AW ;	3
4(a)(ii)	appropriate safety precaution e.g. appropriate footwear / take a whistle / know tide times / work in group / have adult / keep an eye on tides / hi-vis jacket / life jacket / AW ;	1
4(b)(i)	(height above low tide) increases ; less steep / AW, from, 2 m ; levels off after 8 m / levels off after 3.2 m / AW ;	2

Question	Answer	Marks
4(b)(ii)	38(%) = 2 marks ;; One mark for: 1.4 (m) OR ecf from wrong reading from first graph.	2
4(b)(iii)	<i>any 4 of:</i> 1 more mussels in lower shore / mussels decrease up the shore / ORA / AW ; 2 mussels near sea more covered by water / less exposed / less wind / less likely to dry out / dehydrate / AW / ORA ; 3 temperature more stable closer to sea / ORA / AW ; 4 mussels close shells (when uncovered) to prevent drying out ; 5 <i>ref. to</i> wave action / tidal action, affecting mussels / AW ; 6 mussels attach to rock (with threads) (to prevent being washed away) ; 7 mussels cannot feed when closed / out of water / mussels feed when under water / feed less when higher up shore / ORA / AW ; 8 shell protects from predation (when uncovered) / AW ;	4

Question	Answer	Marks
5(a)(i)	<i>any 1 of:</i> open uses, cages / nets, / ORA / AW ; closed uses tanks / AW ;	1
5(a)(ii)	<i>any 4 of:</i> 1 (water) currents / continuous flow of water / wave action / water movement / AW ; 2 maintain oxygen / salinity / pH / AW ; 3 (currents) remove wastes / AW ; 4 size sorting (of fish) / regular feeding / AW ; 5 low stocking density / do not keep too many fish in cage / cages have plenty of space / AW ; 6 control, bacteria / fungi / parasites ; 7 use of antibiotics / fungicides / pesticides / cleaner species / wrasse / AW ; 8 provide balanced diet / feed with correct protein : lipid mix / do not overfeed / AW ; 9 remove dead / remove diseased, fish ;	4
5(b)(i)	<i>any 2 of:</i> reduce respiration / oxygen is needed for respiration / AW ; so less energy (release) / respiration releases energy / AW ; so less able to, move / grow / AW ;	2

Question	Answer	Marks									
5(b)(ii)	any 3 of: weigh <u>carbonated</u> water / find mass of <u>carbonated</u> water / use a stated mass of <u>carbonated</u> water / AW ; place samples in different temperatures / AW ; leave for stated time / same time / until it stops fizzing / until it goes flat / AW ; re-weigh / AW ; AVP ; OR place <u>carbonated</u> water into test-tube and attach (bung and) syringe / AW ; place samples in different temperatures / AW ; use same volumes of <u>carbonated</u> water / AW ; leave for stated / same time and measure volume of gas produced ; AVP ;	3									
5(c)	<table border="1"> <thead> <tr> <th>Test</th><th>Final colour of solution</th><th>Nutrient present</th></tr> </thead> <tbody> <tr> <td>Add biuret solution and leave for ten minutes</td><td>lilac / purple</td><td>protein ;</td></tr> <tr> <td>Dissolve in ethanol, add water and shake</td><td>white emulsion</td><td>lipid / fat / oil ;</td></tr> </tbody> </table>	Test	Final colour of solution	Nutrient present	Add biuret solution and leave for ten minutes	lilac / purple	protein ;	Dissolve in ethanol, add water and shake	white emulsion	lipid / fat / oil ;	2
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Add biuret solution and leave for ten minutes	lilac / purple	protein ;									
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Question	Answer	Marks
6(a)(i)	water ; oxygen and glucose ;	2
6(a)(ii)	chlorophyll ;	1
6(a)(iii)	(add) universal indicator / universal indicator paper ; compare colour with chart / AW ; <i>ref to</i> a correct colour change linked to pH, e.g. green is neutral / 7 ; OR use pH meter ; 7 is neutral / less than 7 is acidic / more than 7 is alkaline ;	2

Question	Answer	Marks
6(b)	<i>max 5 of:</i> 1 change pH / AW ; 2 count (number of) bubbles / measure volume of oxygen ; 3 stated time / same time / AW ; 4 repeats / calculate means / calculate averages / AW ; 5 use of, water bath / heat shield / AW ; 6 cut end of shoot pointing up / paperclip on end of plant / use of (inverted) funnel (to collect gas) / AW ; 7 appropriate safety precautions e.g. eye protection / gloves / wipe up spills ; <i>max 2 of:</i> 8 control temperature / AW ; 9 control light intensity / place lamp at set distance / control light colour / AW ; 10 control carbon dioxide / add sodium hydrogen carbonate / AW ; 11 same, species / type / age / size, of plant ;	6