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MARINE SCIENCE

0697/12

Paper 1 Theory and Data Handling

May/June 2026

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages. Any blank pages are indicated.

1 Figure 1.1 shows the Sun, the Earth and the Moon.

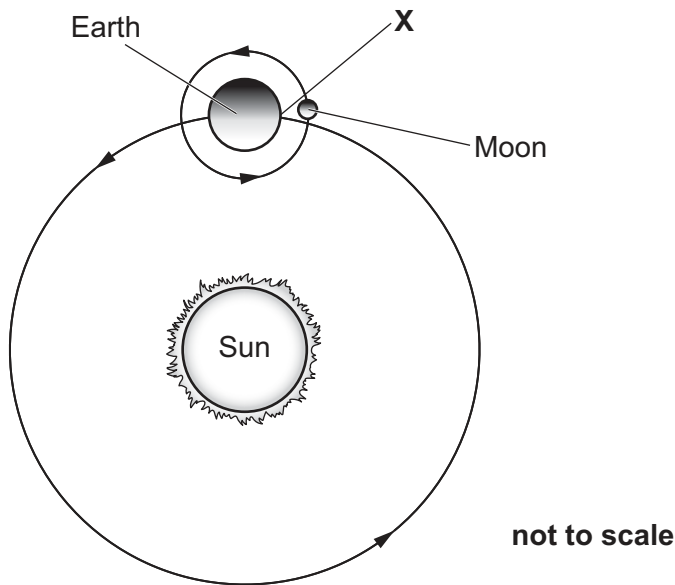


Figure 1.1

(a) Complete the sentences about the Sun, the Earth and the Moon.

The Moon is a which orbits the Earth.

The Earth is a which orbits the Sun.

The Earth and the Moon remain in their orbits due to the force of [3]

(b) (i) Complete Table 1.1 by placing a tick (✓) in the box that describes the type and the height of the tide at point X in Figure 1.1.

Table 1.1

type and height of tide	
neap high tide	
spring high tide	
neap low tide	
spring low tide	

[1]



(ii) Explain the reasons for your answer to 1(b)(i).

.....

.....

.....

..... [2]

(c) Figure 1.2 shows a world map with some features labelled **A** to **H**.

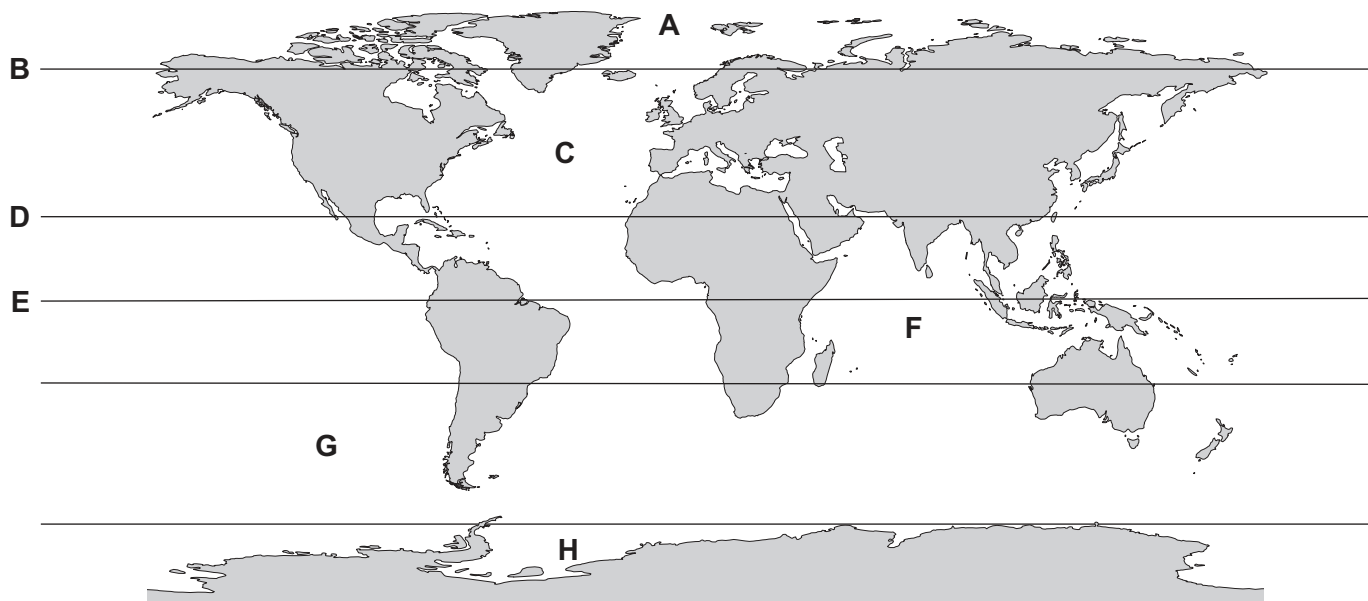


Figure 1.2

Complete Table 1.2 to identify the features on Figure 1.2, using the letters **A** to **H**.

Each letter may be used once, more than once, or not at all.

Table 1.2

feature	letter(s)
equator	
temperate regions	 and
polar regions	 and
Atlantic Ocean	
Indian Ocean	

[4]

[Total: 10]

[Turn over]



- 2 (a) A scientist collects samples of water from four different locations, **K**, **L**, **M** and **N**. The scientist measures the pH of each sample of water.

Table 2.1 shows the results.

Table 2.1

location	pH
K	6.6
L	8.2
M	3.8
N	7.1

- (i) State the **two** locations in Table 2.1 where the water is acidic.
 and [1]

- (ii) The scientist measures the volume and mass of the sample of water from location **M**. The volume is 1200 cm^3 and the mass is 1236 g .

Calculate the density of the sample of water from location **M**.

State the units.

density = ... [3]

- (b) The scientist suggests that climate change can lead to increased precipitation in some parts of the world.

Explain the effect of climate change on the processes in the water cycle that can lead to increased precipitation.

.....

.....

.....

.....

.....

.....

.....

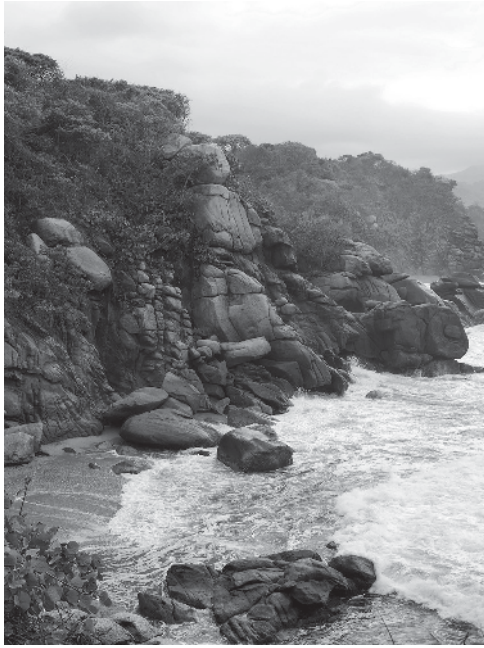
.....

..... [5]

[Total: 9]



- 3 Figure 3.1 shows two different marine ecosystems: ecosystem **P** and ecosystem **Q**.



ecosystem **P**



ecosystem **Q**

Figure 3.1

- (a) (i) Name ecosystem **P** and ecosystem **Q**.

ecosystem **P**

ecosystem **Q** [1]

- (ii) Describe **three** ways in which ecosystem **P** is different from ecosystem **Q**.

.....

.....

.....

.....

..... [3]

- (iii) Suggest **one** way human activities can cause damage to ecosystem **Q**.

.....

..... [1]

- (b) State the names of the **two** ecological components that form an ecosystem.

..... and [1]

[Total: 6]

[Turn over]



4 Figure 4.1 shows a coastal food chain.

macroalgae → butterflyfish → grouper fish → sharks

Figure 4.1

(a) (i) The macroalgae are producers.

Explain the meaning of the term producer.

.....

.....

.....

..... [2]

(ii) Name **two** other **groups** of organisms that are also producers in the marine environment.

1

2 [2]

(iii) Suggest changes to **three** named factors that would lead to increased productivity in the food chain shown in Figure 4.1.

.....

.....

.....

.....

.....

..... [3]



(b) Some coastal areas have large populations of grouper fish which are harvested as human food.

(i) Explain why **sustainable** harvesting of fish stocks is important.

.....

.....

.....

..... [2]

(ii) State **two** different strategies for sustainable harvesting of fish stocks.

1

2 [2]

[Total: 11]



5 Figure 5.1 shows a cross-section of a typical coral polyp.

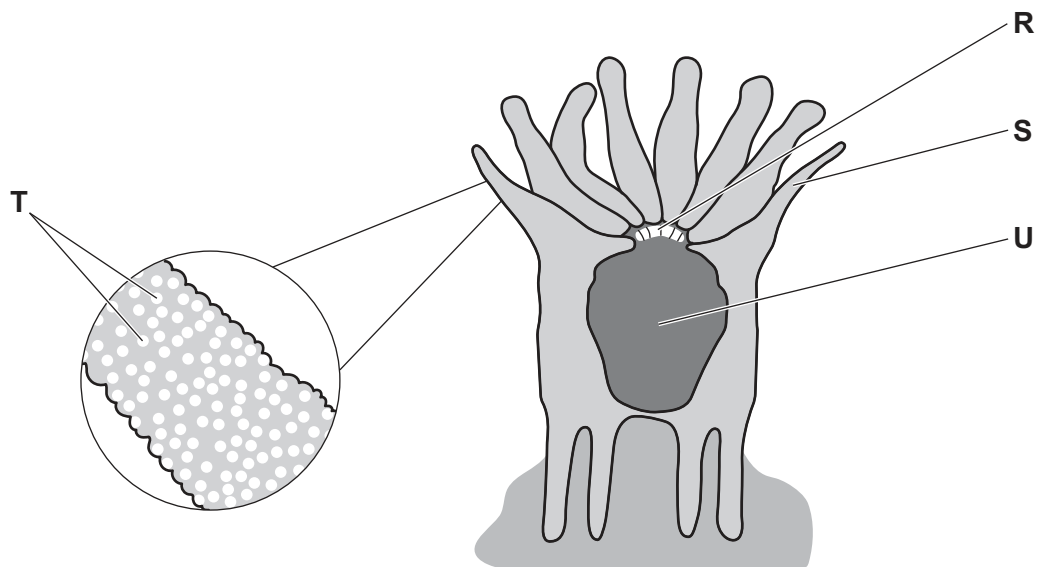


Figure 5.1

(a) State the name and function of each structure, **R**, **S**, **T** and **U**, in Figure 5.1. Write your answers in Table 5.1.

Table 5.1

structure	name	function
R		
S		
T		
U		

[4]



(b) (i) Describe asexual reproduction in coral polyps.

.....

.....

.....

.....

.....

..... [3]

(ii) Suggest **one** reason why asexual reproduction can be a disadvantage for coral polyps.

.....

..... [1]

(c) Many species with specialised adaptations live on coral reefs.

Describe **one** adaptation of nudibranchs to live on coral reefs.

.....

.....

.....

..... [2]

[Total: 10]



- 6 Many marine organisms, such as plankton, tuna fish and pollock fish, undertake migration during their lifetime.

(a) Zooplankton are important organisms in the marine environment. They are one type of plankton.

(i) State **one** feature which is common to **all** plankton.

..... [1]

(ii) Copepods are one type of zooplankton.

Pollock fish only feed on copepods and other zooplankton.

Circle the type of consumer that describes pollock fish.

carnivore

detritivore

herbivore

omnivore

[1]

(b) Figure 6.1 shows the migration pattern of copepods during a 24-hour period.

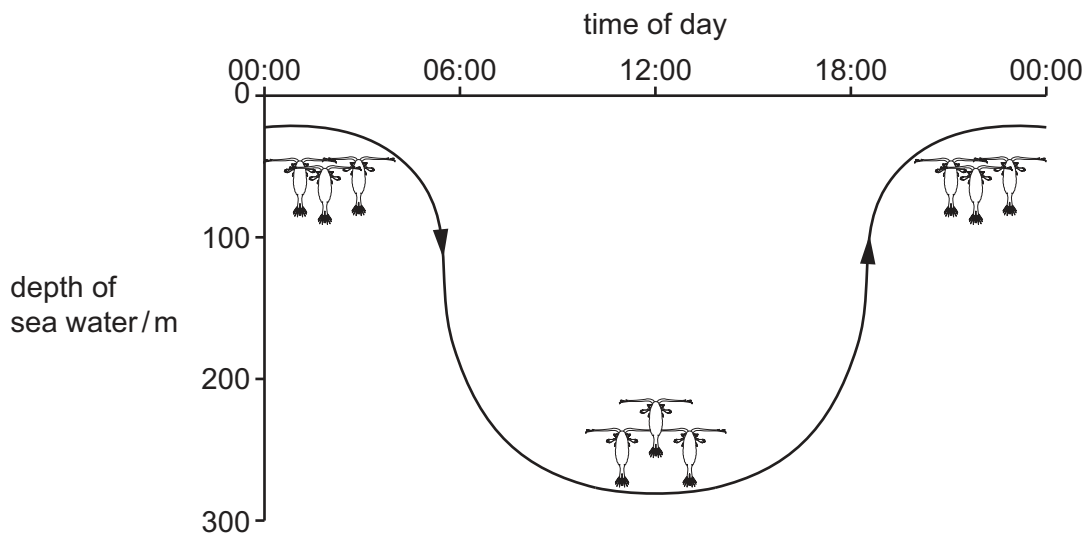


Figure 6.1

Copepods migrate vertically between the sunlight zone at night and the twilight zone during the day.

(i) State **two** ways in which the twilight zone is different to the sunlight zone.

- 1
-
- 2
-

[2]





(ii) Explain why copepods migrate in the pattern shown in Figure 6.1.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(c) Tuna fish also migrate.

(i) Explain how tuna fish migration differs from plankton migration.

.....

.....

.....

..... [2]

(ii) Suggest **two** methods tuna fish may use to find their way to their destination.

.....

.....

.....

..... [2]

[Total: 12]



7 Human activities can have a large impact on marine ecosystems.

(a) Scientists have noticed a change in atmospheric temperature over the last 100 years. Some scientists believe that burning fossil fuels contributes to the change in atmospheric temperature.

(i) Explain how a change in atmospheric temperature can lead to rising sea levels.

.....

.....

.....

.....

.....

..... [3]

(ii) Describe how the extraction of a named fossil fuel can affect the marine environment.

.....

.....

.....

..... [2]

(b) Fishing nets are often made from plastics. Ghost nets are discarded fishing nets. Figure 7.1 shows a ghost net in the ocean.

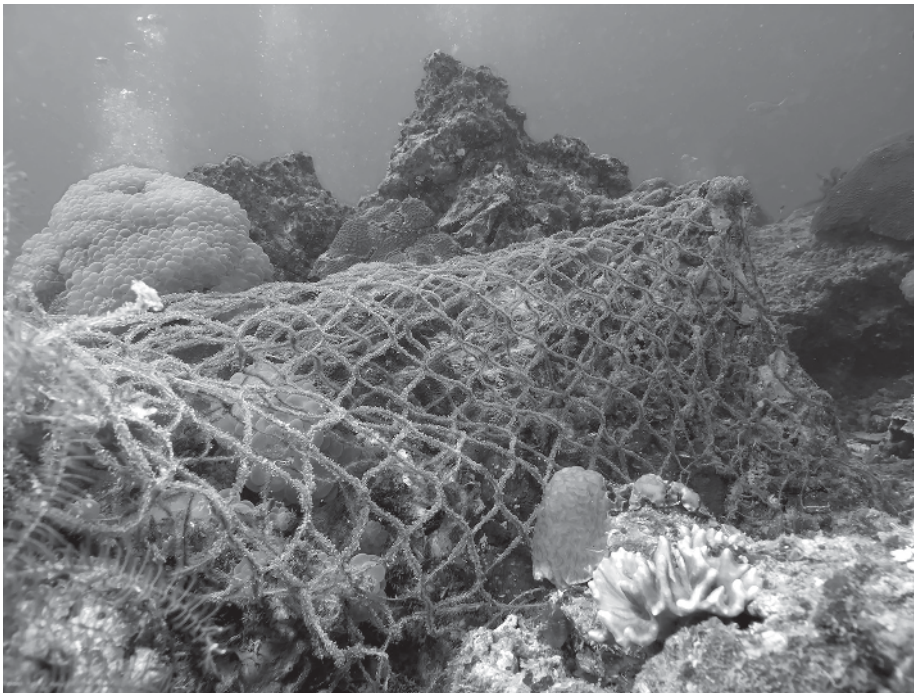


Figure 7.1





(i) Suggest how ghost nets are a problem for some marine organisms.

.....

.....

.....

.....

.....

..... [3]

(ii) Suggest how tourism impacts the problem of ghost nets.

.....

.....

.....

..... [2]

(iii) Suggest why tourism may be impacted by the presence of ghost nets.

.....

.....

.....

..... [2]

[Total: 12]



-

Identify and state the functions of **three** other external features of a bony fish.

[6]



(b) Explain **two** adaptations shown by fish living in areas with no light.

1

.....

2

.....

[4]

[Total: 10]





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