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Answer **THREE** questions.

If you answer Question 1 put a cross in this box .

1. (a) Study Figure 1(a) in the Resource Booklet.

(i) Suggest **one** hypothesis that the students could test.

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(1)

(ii) How might the students have measured the velocity of the river?

Equipment used

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Method

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(4)

(iii) The students wanted to work out the **discharge** of the river. Explain what is meant by discharge. How would you calculate it?

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(3)



(iv) How and why do load quantity and particle size change downstream in a typical river?

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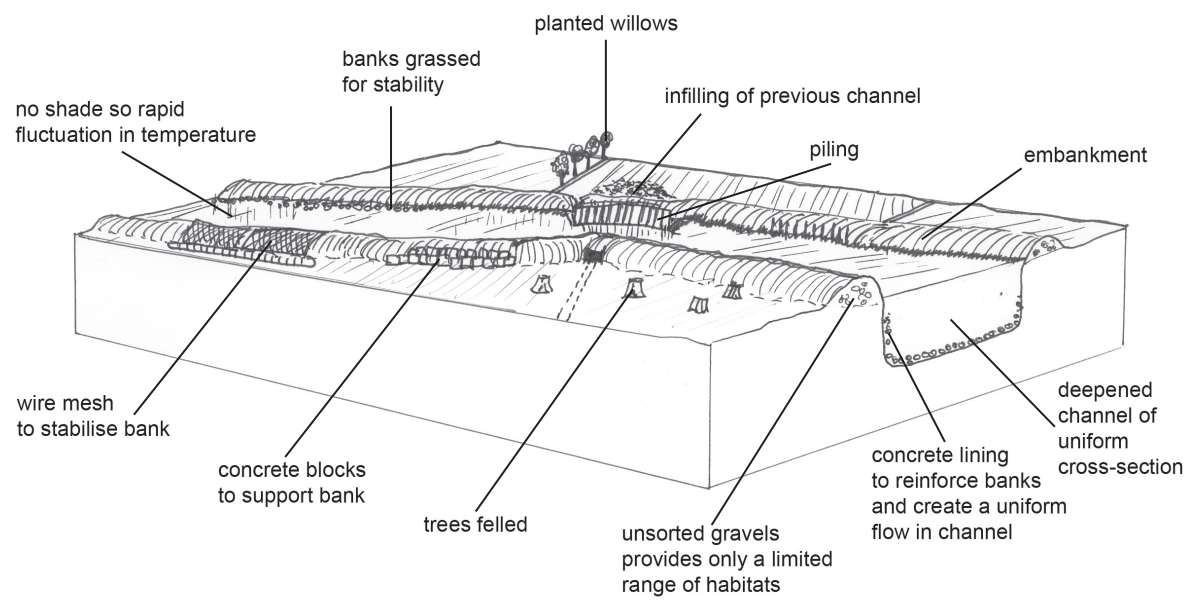
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(b) Study Figure 1(b) below. It shows two stretches of a river that have been managed in different ways.

A



B

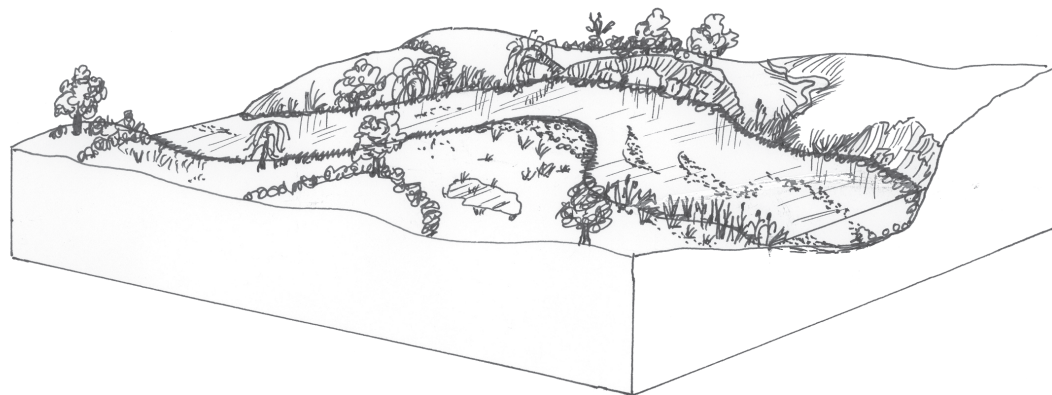


Figure 1(b)



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(i) Annotate Figure 1(b) to explain how stretch B of the river shows sustainable management. **(4)**

(ii) Identify **one** group of people who may **not** be in favour of sustainable river management.

Explain why they hold this view.

Group of people

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(3)





(c) Using examples, examine the river management challenges caused by periods of **either** low flow **or** flooding.

Choice

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Lined writing area consisting of 28 horizontal dotted lines.

(10)

(Total 30 marks)

Q1

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If you answer Question 2 put a cross in this box ☒.

2. (a) Study Figure 2(a) in the Resource Booklet.

(i) Define the term **storm hydrograph**.

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(2)

(ii) Describe how precipitation might reach the river in landscape **A**.

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(4)

(iii) Explain how agriculture affects the shape of the hydrograph in landscape **B**.

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(3)





(iv) Explain why some people may be concerned about the risk of flooding in landscape C.

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(3)



M 2 8 8 3 6 A 0 9 2 8



(b) Study Figure 2(b) in the Resource Booklet.

(i) What is a **river regime**?

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(2)

(ii) Match the following descriptions to the river regimes shown in Figure 2(b).

A large river fed by glaciers

A river flowing over permeable rock in a Mediterranean climate

A river affected by hot summers and cold winters

A river affected by winter depressions in a temperate climate

(3)

(iii) For **one** of the river regimes shown explain your answer to (b)(ii).

Regime

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(3)



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(c) For a named river basin, show how human pressures create a need for river management.

Named river basin

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If you answer Question 3 put a cross in this box ☒.

3. (a) Study Figure 3(a) in the Resource Booklet.

- (i) Outline the likely benefits and problems that may have been caused by the north and south breakwaters.

Benefits

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Problems

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(4)

- (ii) Suggest how the various methods of sea defence shown **combine** to protect the coastline.

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(5)



(b) Study Figure 3(b) below. It shows a cross section across a typical sand dune system.

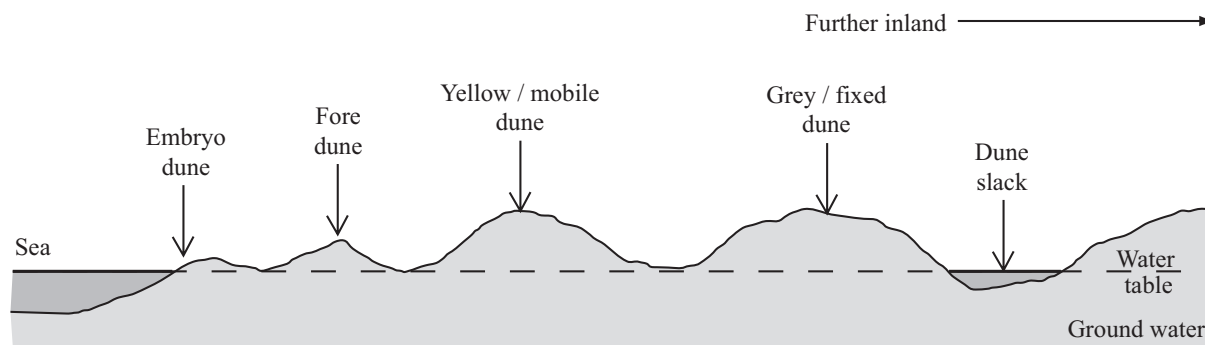


Figure 3(b)

(i) Describe **two** changes in the vegetation that may occur across the dunes.

1

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2

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(2)

(ii) Suggest reasons for the changes that you have identified in (b)(i).

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(5)



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(iii) For a named **river** or **coastal** ecosystem draw a diagram to show its trophic structure.

Named ecosystem

(4)

(c) Examine the threats to a named **river** or **coastal** ecosystem.

Named ecosystem

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(10)

(Total 30 marks)

Q3



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If you answer Question 4 put a cross in this box ☒.

4. (a) Study Figure 4(a) in the Resource Booklet.

(i) Describe the coastal features shown in the photograph.

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(4)

(ii) Suggest how sub-aerial processes affect the cliff face.

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(4)



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(iii) Suggest how rock type and structure appear to affect erosion on this coastline.

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(4)

(iv) Suggest how a single storm event, such as a winter storm, may affect this coastline.

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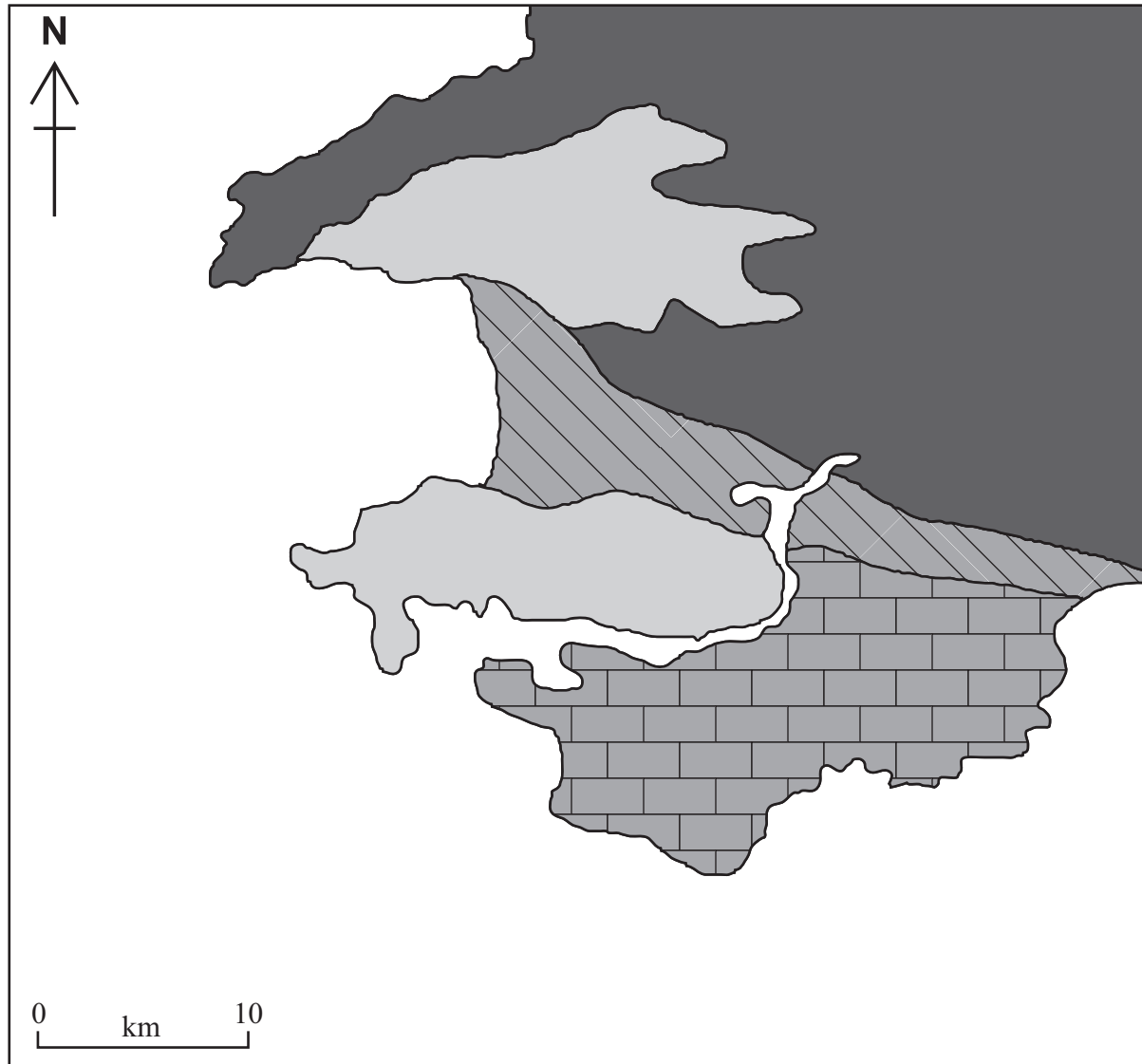
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(4)



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(b) Study Figure 4(b) below. It shows a stretch of coastline.



Key



Volcanic Basalt



Coal



Old Red Sandstone



Limestone

Figure 4(b)

Annotate the diagram to explain the effects of differential erosion.

(4)



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(c) With reference to named countries, examine the likely impacts of global warming on coastal environments.

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If you answer Question 5 put a cross in this box ☒ .

5. (a) Study Figure 5(a) in the Resource Booklet.

(i) What factors influence the choice of management options shown?

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(4)

(ii) Options 2 and 3 are considered to be sustainable. Explain why.

Option 2

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Option 3

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(6)



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(b) Study Figure 5(b) in the Resource Booklet.

(i) Suggest the possible impacts of the pressures on the coastal environment.

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(6)

(ii) Suggest ways in which these impacts could be managed.

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