

Answer THREE questions

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

1. (a) Study Figure 1(a) below which shows stream velocity values within a meandering channel.

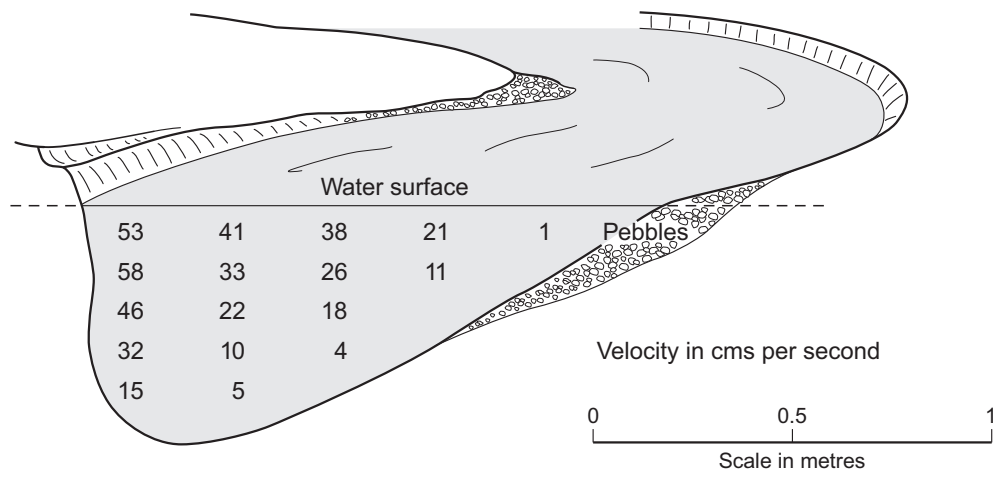


Figure 1(a)

- (i) Describe how stream velocity varies within the river channel.

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- (ii) Suggest how these variations in velocity affect features of the river channel.

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(ii) Explain how stream velocity controls the **load** carried by a stream.

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(iv) Suggest how physical factors in a river's catchment area can affect its load.

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(b) Study Figure 1(b) on page 2 of the Resource Booklet. The photograph shows students investigating how **discharge** changes downstream.

Briefly describe the methodology used and the students' probable conclusions.

Methodology.....

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Conclusions.....

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(c) With reference to named examples, examine the impacts of river flooding on people's daily lives.

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

2. (a) Study Figure 2(a) on page 3 of the Resource Booklet. It shows the response of the River Wye to a short spell of heavy rainfall near its source.

(i) Name the drainage basin features X and Y.

1. Point X

2. Boundary Y.....

(2)

(ii) Describe and explain the downstream changes in peak flow, lag time and volume of storm flow.

Peak flow

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Lag time.....

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Volume of storm flow

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(iii) Suggest how the Environment Agency might use this hydrograph data.

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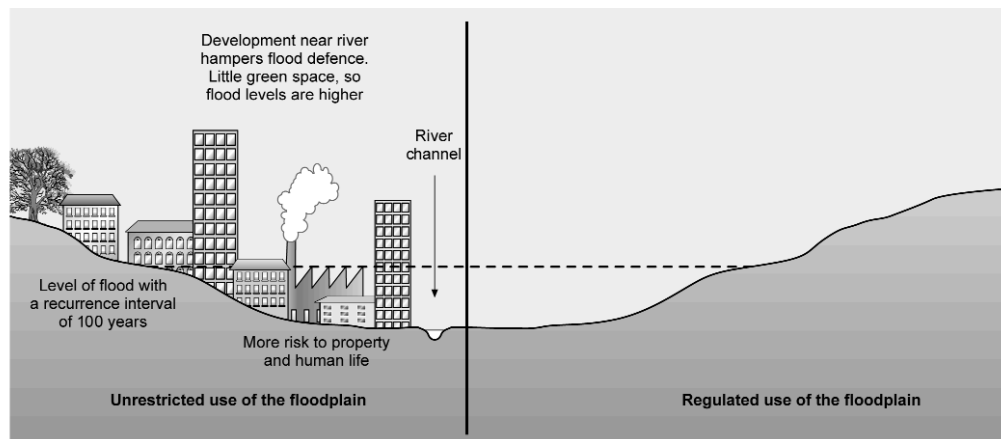
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(b) Study Figure 2(b) below which identifies the flood risk in a river valley.



(Source: *Changing Environments*, ed. Sue Warn and Michael Naish, Longman, 2000)

Figure 2(b)

(i) Annotate the right-hand side of the diagram to show how you would plan land use and buildings to minimise the risk of flood damage.



(ii) Justify your plans.

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(c) With reference to one or more named examples, explain the benefits of environmentally sensitive river management.

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

3. (a) Study Figure 3(a) on page 4 of the Resource Booklet. It shows a multi-purpose river management scheme.

(i) State why this scheme is described as **multi-purpose**.

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(ii) Outline the factors taken into account when siting large dams.

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(iii) Suggest one advantage and one disadvantage of the scheme **upstream** of the dam.

Advantage.....

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Disadvantage.....

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(iv) Explain why there may be concerns about ecosystems and water quality **downstream** of some large river management schemes.

Ecosystems

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Water quality.....

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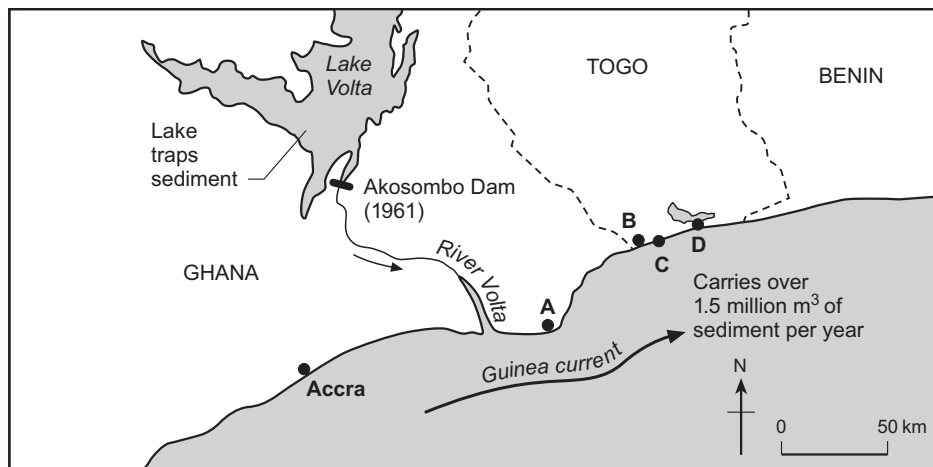
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(b) Study Figure 3(b) below which shows the problem of coastal erosion to the east of the Volta estuary.



Key
A The town of **Keta** is falling into the sea
B The breakwater at **Lomé** makes matters worse
C The holiday resort of **Tropicana** is losing its beach
D The jetty at **Kpeme** is being undermined

(Source: *AS Geography*, Bob Hordern and Sue Warn, Philip Allan Updates, 2001)

Figure 3(b)

Suggest how river **and** coastal management have contributed to this problem of coastal erosion.

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- (c) A number of **hard engineering** methods have traditionally been used to combat **coastal** erosion.

Briefly describe **two** of these methods and for a named location explain why each was chosen.

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

4. (a) Study Figure 4 on page 5 of the Resource Booklet. It gives information about Mele Beach on Vanuatu (a small island in the South Pacific).

(i) Name the coastal feature shown on the sketch at C, and **one** process leading to its formation.

1. Feature

2. Process

(2)

(ii) Suggest how this coastal feature may change over time.

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(3)

(iii) Referring to Figure 4, describe **how** the following beach features change from points A to D.

The beach profiles

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The beach materials

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(iv) Suggest why these changes have occurred.

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(b) New hotels are proposed for this coast. Suggest how this development may damage the coastal environment.

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

5. (a) Study Figure 5(a) on page 6 of the Resource Booklet. It shows changes along a lowland coastline.

(i) Describe how this coastal landscape changed between stages 1 and 2.

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(ii) Suggest **two** reasons for these changes.

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(2)

(iii) Suggest why the situation in stage 3 is **not** sustainable.

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(4)



(iv) Name the sustainable strategy in stage 4 that 'deliberately lets in the sea', and give reasons why this strategy is especially suitable for this coast.

Strategy

Reasons

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(4)

(b) Study Figure 5(b) on page 6 of the Resource Booklet. It shows a **sustainable** coastal management scheme in Essex which has received widespread support from local oyster fishermen, Essex Wildlife Trust, local farmers, the District Council and the Environment Agency.

Choose two of these groups and suggest why each supports the scheme.

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Group 2

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(c) For a located coastal **ecosystem**, explain how a study of the vegetation pattern can illustrate the process of succession.

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