



Cambridge International AS Level

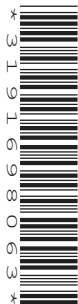
CANDIDATE
NAME

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ENVIRONMENTAL MANAGEMENT

8291/12

Paper 1 Lithosphere and Atmosphere

October/November 2020

1 hour 30 minutes

You must answer **Section A** on the question paper and **Section B** on the answer booklet/paper you have been given.

You will need: Answer booklet/paper

INSTRUCTIONS

- Section A: answer **all** questions. Write your answer to each question in the space provided on the question paper.
- Section B: answer **one** question. Write your answer on the separate answer booklet/paper provided.
- 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.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.
- At the end of the examination, fasten all your work together. Do **not** use staples, paper clips or glue.

INFORMATION

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

For Examiner's use	
Section A	/
1	
2	
Section B	/
Total	

This document has **12** pages. Blank pages are indicated.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 (a) Fig. 1.1 is a cross-section through a plate boundary.

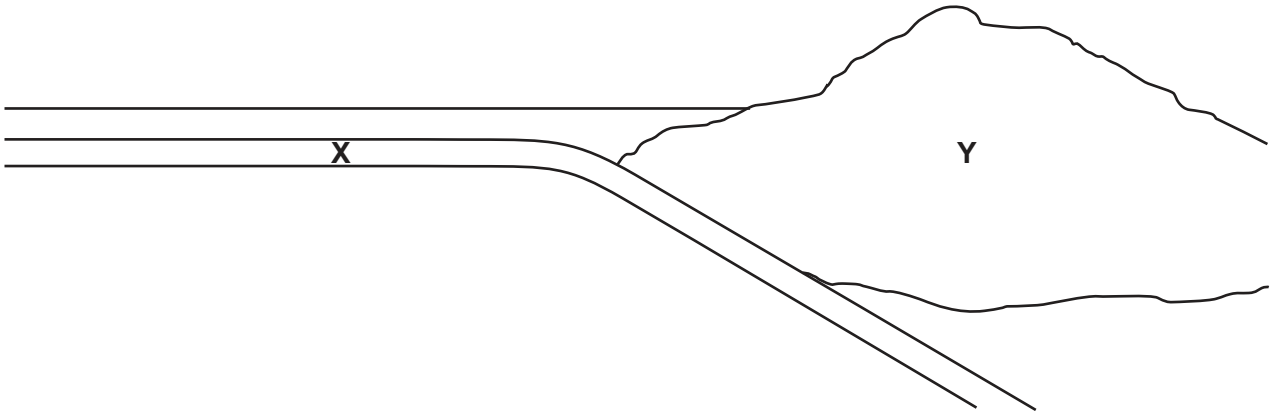


Fig. 1.1

(i) Label the relative movement of the two tectonic plates shown by adding **two** arrows to the diagram shown in Fig. 1.1. [1]

(ii) Name the type of crust in Fig. 1.1 labelled:

X

Y.

[2]

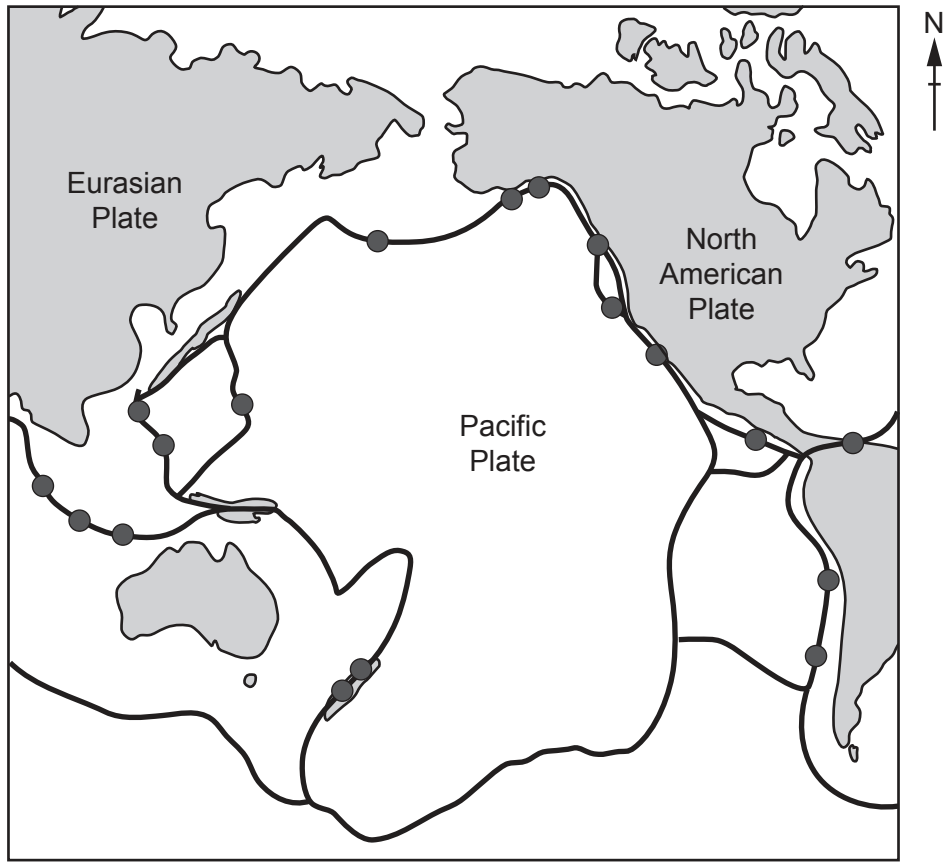
(iii) State the name of the type of plate boundary shown in Fig. 1.1.

..... [1]

(iv) Explain how differences between the two types of crust result in the plate boundary shown in Fig. 1.1.

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..... [4]

(b) Fig. 1.2 is a map of the Pacific Plate and the surrounding area, showing the sites of some major earthquakes.



Key
● site of major earthquake
~ plate boundaries

Fig. 1.2

(i) Describe and explain the distribution of major earthquakes shown in Fig. 1.2.

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..... [4]

- (ii) Suggest **two** reasons why people choose to live close to the Pacific Plate boundary despite the risks involved.

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..... [2]

- (iii) Discuss the strategies used to reduce the scale of damage and loss of life which can be caused by living close to a plate boundary.

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..... [6]

[Total: 20]

2 (a) Describe the difference between *renewable* and *non-renewable* resources.

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..... [1]

(b) Wind energy is an alternative energy resource.

Suggest three reasons why a wind energy farm would **not** be built.

1.
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2.
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3.
..... [3]

- (c) Fig. 2.1 shows the predicted range of carbon dioxide emissions during the production of electricity using different resources for one year.

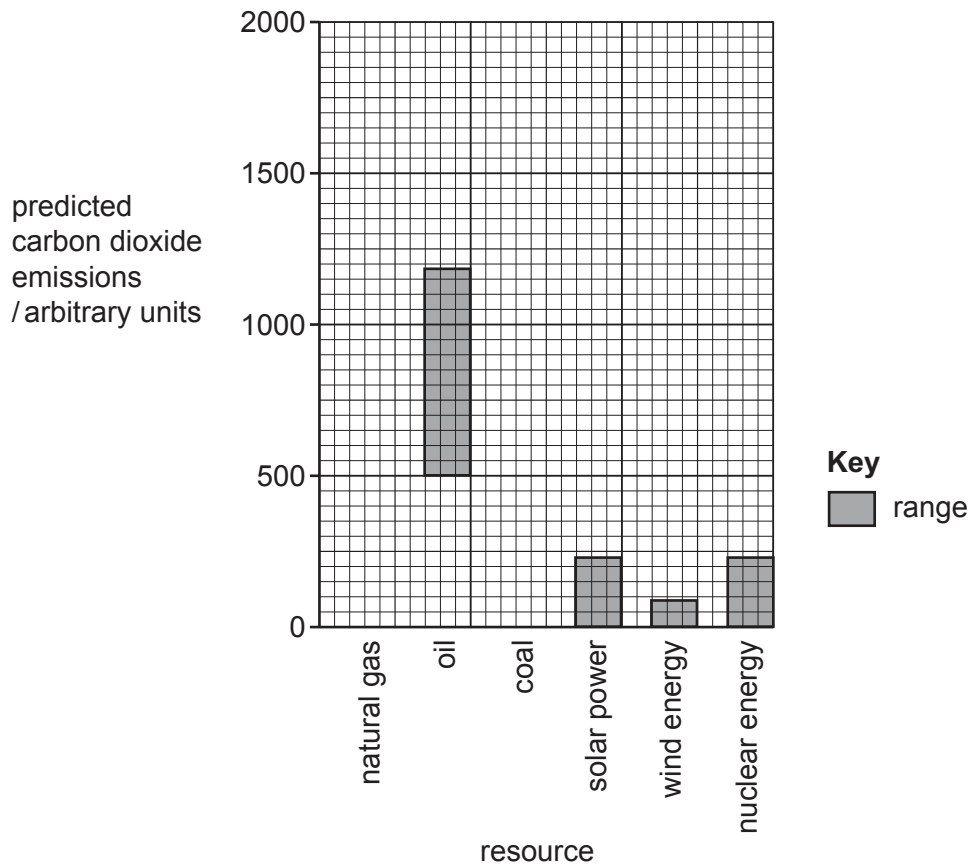


Fig. 2.1

- (i) Complete Fig. 2.1 by using data from Table 2.1 to show the predicted range of carbon dioxide emissions during the production of electricity using:
- coal
 - natural gas.

Table 2.1

	minimum carbon dioxide emissions/arbitrary units	maximum carbon dioxide emissions/arbitrary units
natural gas	300	950
oil		
coal	700	1700
solar power	0	225
wind energy	0	75
nuclear energy	0	225

[2]

- (ii) Calculate the range in predicted carbon dioxide emissions when oil is used to produce electricity.

..... arbitrary units [1]

- (iii) Suggest **two** reasons for the wide range in predicted carbon dioxide emissions for producing electricity using coal.

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..... [2]

- (iv) Biofuels are fuels which can be derived directly from plants.

Suggest why biofuels are **not** considered to significantly contribute to the overall concentration of carbon dioxide in the atmosphere.

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..... [2]

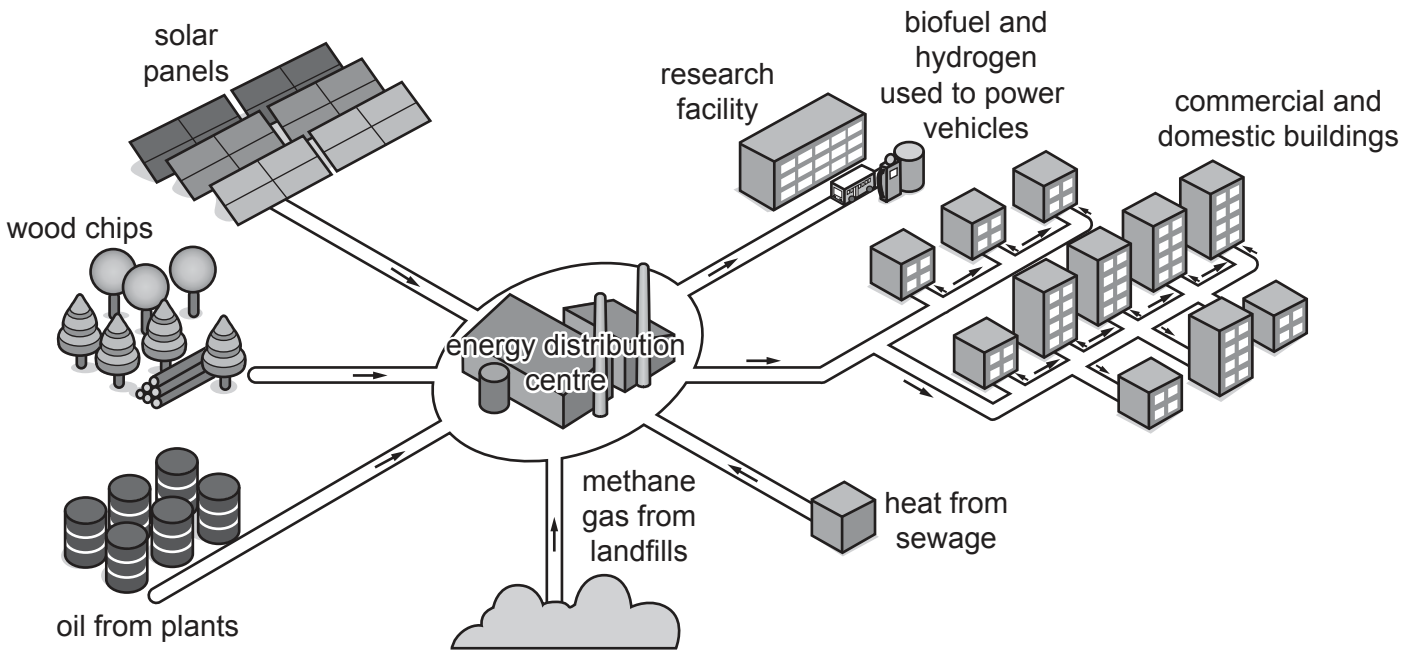
- (v) Explain how the enhanced greenhouse effect leads to increased global temperatures.

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..... [4]

- (vi) Describe **one** consequence of increased global temperatures.

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..... [1]

(d) Fig. 2.2 is a plan of a renewable energy scheme that supplies commercial and domestic buildings.



Key
→ direction of energy transfer

Fig. 2.2

Describe how the scheme in Fig. 2.2 aims to manage atmospheric pollution on a local scale.

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[4]
[Total: 20]

Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

- 3 Fig. 3.1 shows the global urban population and global rural population from 1950 to 2030 (predicted).

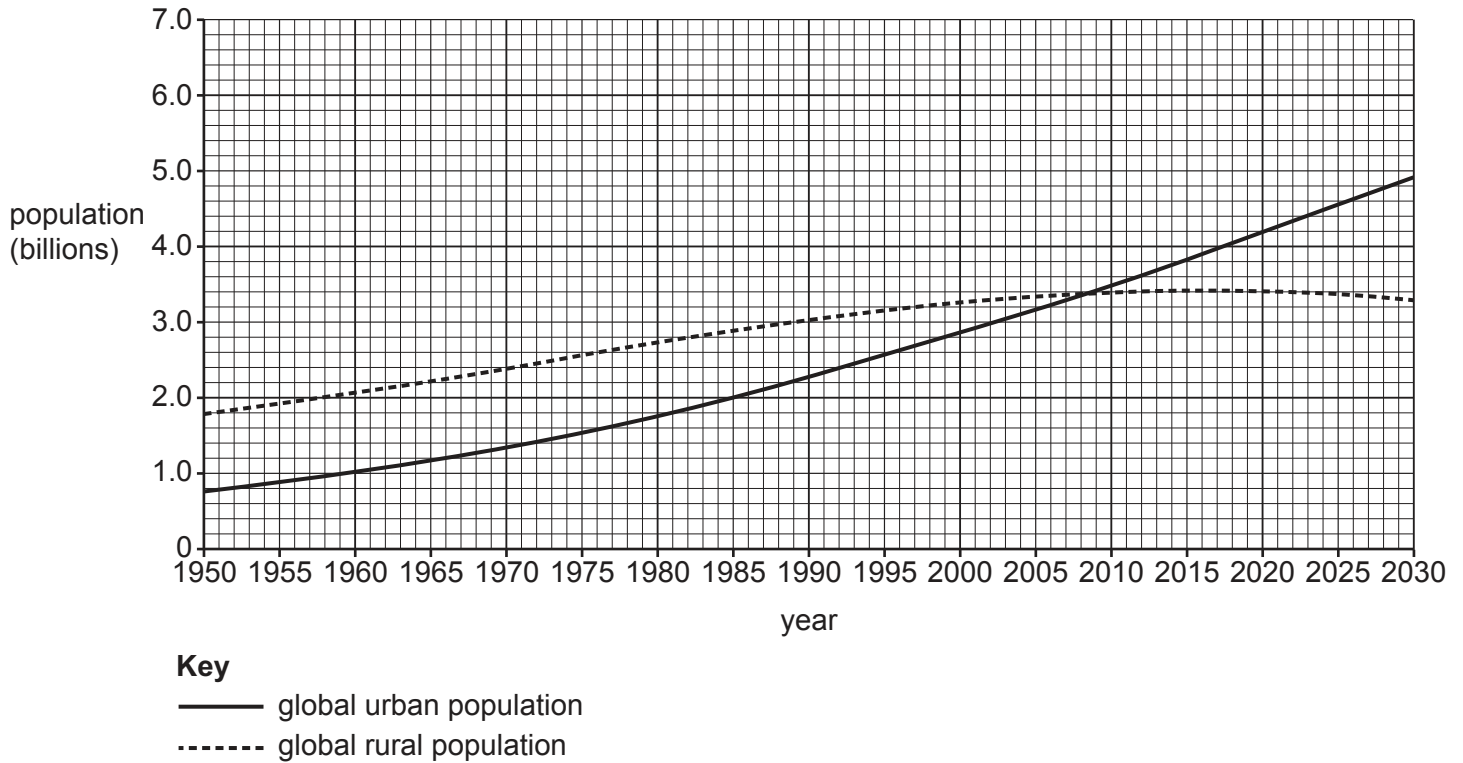


Fig. 3.1

- (a) Describe the challenges associated with the change in global urban population shown in Fig. 3.1. [10]
- (b) 'By creating conservation areas and National Parks, land is protected from the challenges of an increasing urban population.'

Discuss the extent to which you agree with this statement.

[30]

[Total: 40]

4 Fig. 4.1 is a plan of a house designed for locations at risk from tropical cyclones (hurricanes).

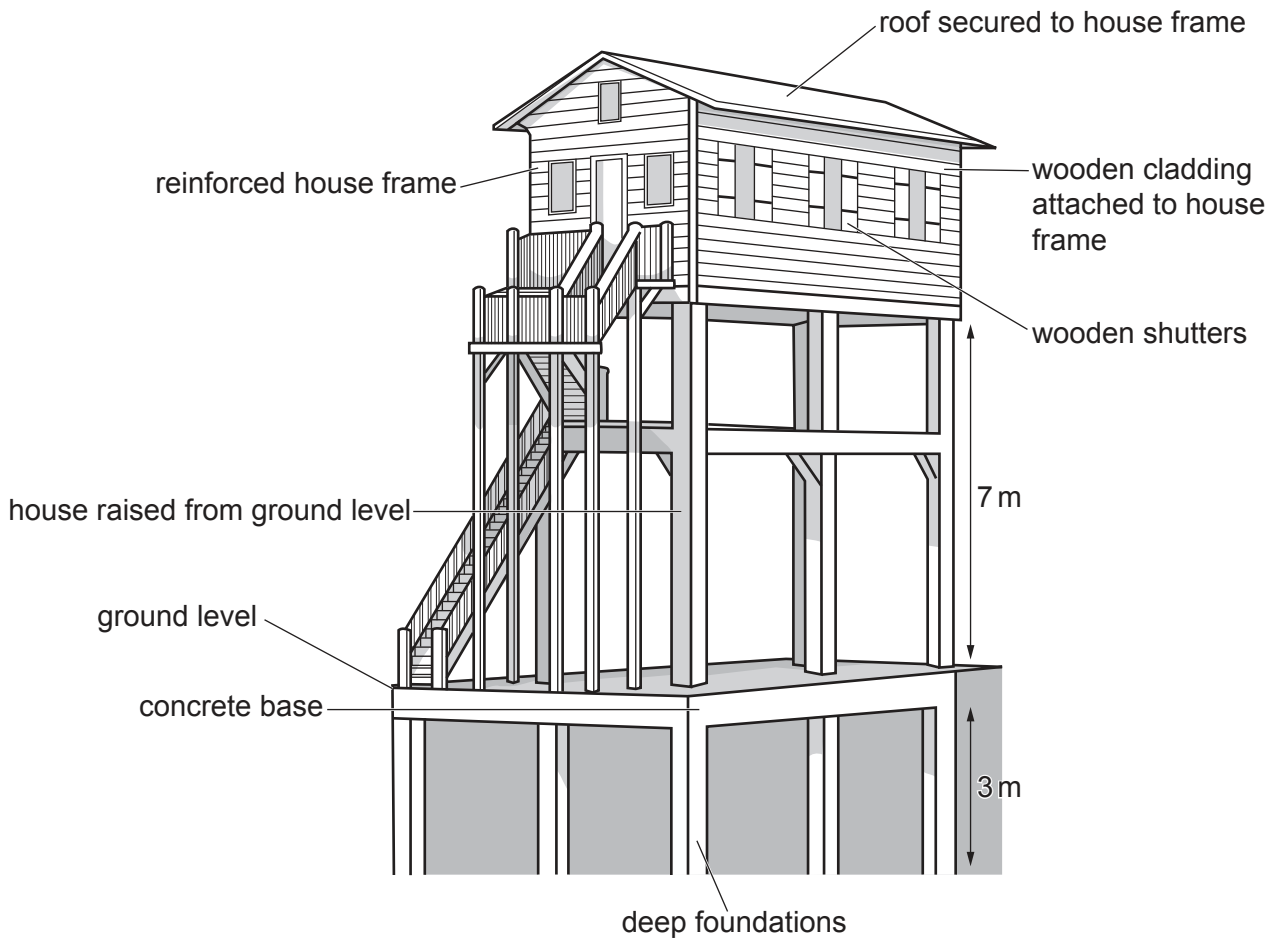


Fig. 4.1

- (a) Describe the effects a tropical cyclone has on an area and explain how the house design shown in Fig. 4.1 may help to manage the effects of tropical cyclones. [10]
- (b) Compare the impacts of a widespread drought on countries of contrasting levels of economic development. [30]

[Total: 40]

5 Fig. 5.1 shows a range of natural factors which influence mass movement processes.

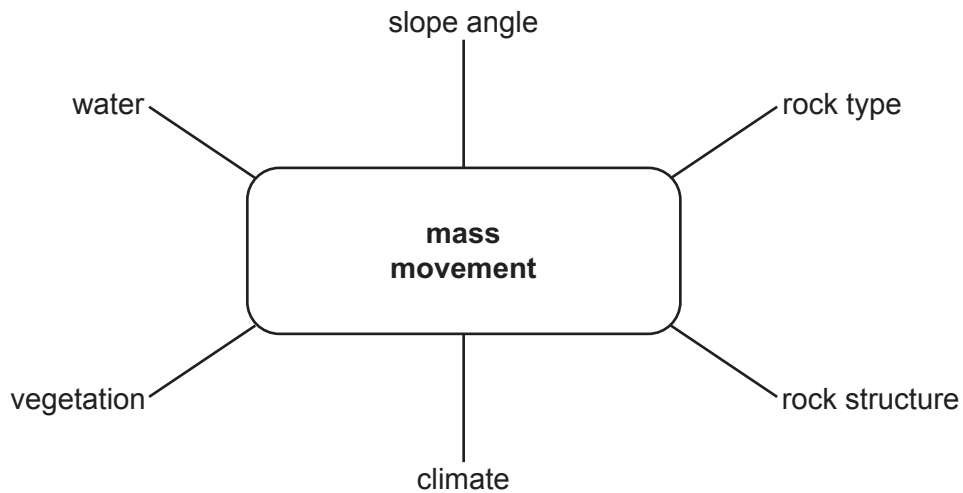


Fig. 5.1

- (a) Describe how **three** of the factors shown in Fig. 5.1 would influence the risk of mass movement processes. [10]
- (b) 'Large-scale farms could learn from small-scale farms when aiming to manage soil in a sustainable way.'

Using examples, discuss the extent to which you agree with this statement. [30]

[Total: 40]

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