Cambridge International **AS Level**

Cambridge International Examinations
Cambridge International Advanced Subsidiary Level

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

7737395594

ENVIRONMENTAL MANAGEMENT **8291/12**

Paper 1 Lithosphere and Atmosphere **May/June 2016**

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

Section A
Answer **all** questions in this section.
Write your answers in the spaces provided on the question paper.

Section B
Answer **one** question from this section.
Answer the question on the separate answer paper provided.

At the end of the examination,
1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid opposite.

	For Examiner's Use
Section A	
1	
2	
Section B	
Total	

This document consists of **12** printed pages.

CAMBRIDGE International Examinations

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 **(a)** Fig. 1.1 shows solar radiation striking the Earth's surface at two different latitudes.

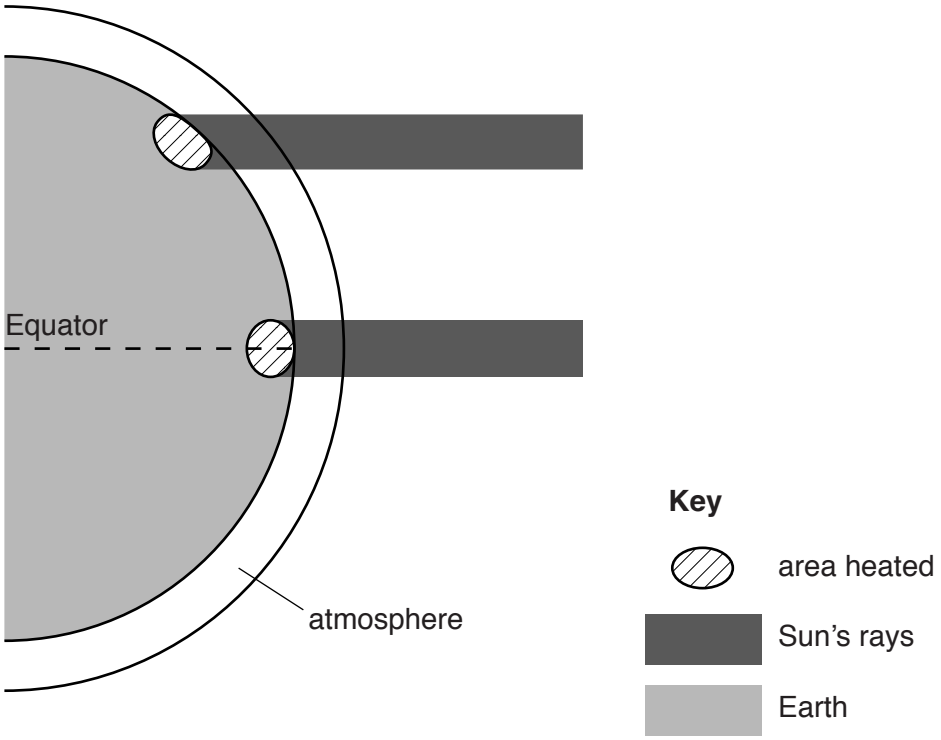

Fig. 1.1

(i) Place an **X** on Fig. 1.1 at the point on the Earth's surface where you would expect the heating effect of the Sun's rays to be most intense. [1]

(ii) Give **two** reasons for your answer to **(a)(i)**.

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.....[4]

(iii) Outline **two** reasons why not all of the solar energy received in the stratosphere reaches the Earth's surface.

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.....[4]

(b) Fig. 1.2 shows seasonal variations in solar radiation received on the Earth's surface at two different times of the year.

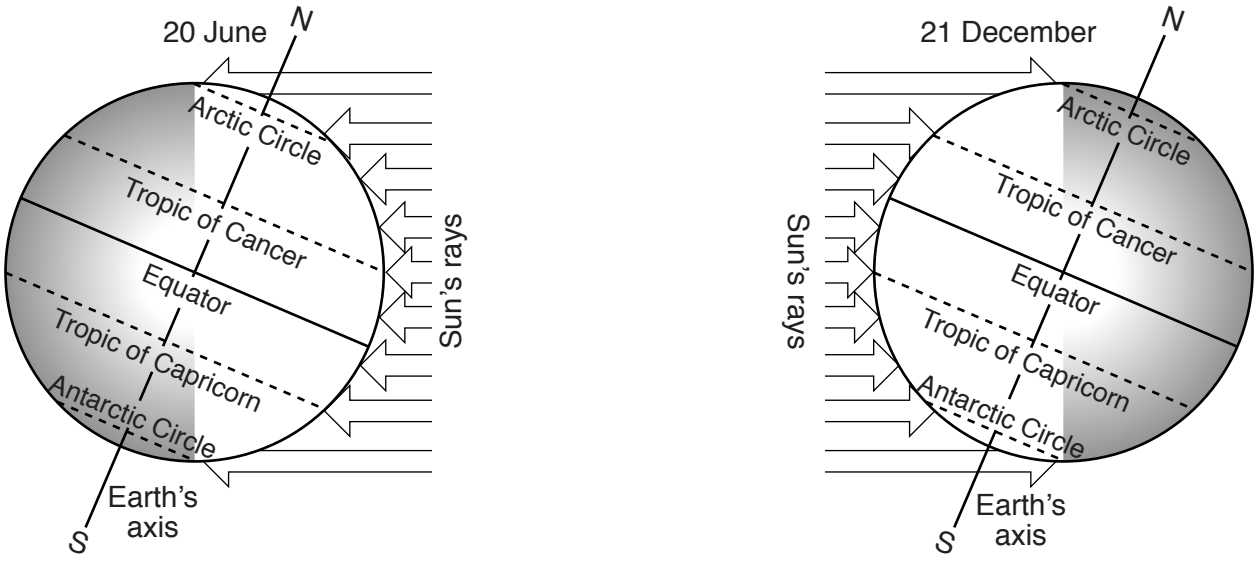

Fig. 1.2

(i) With reference to Fig. 1.2, explain why the Earth's surface experiences seasonal variations in solar radiation.

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.....[3]

(ii) Suggest reasons why surface temperatures are very low within the Arctic Circle in December. Include information from Fig. 1.2 in your answer.

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.....[4]

(iii) Give **two** examples of the effects of extreme polar (sub-Arctic) climates on human activity.

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.....[4]

[Total: 20]

2 **(a)** Fig. 2.1 shows the effect of mass movement on a coast.

Fig. 2.1

(i) Describe the slope profile shown in Fig. 2.1.

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.....[2]

(ii) Name and describe **one** mass movement process that might be responsible for the accumulation of debris on the slope in Fig. 2.1.

process name .....

description .....

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.....[4]

(b) Fig. 2.2 shows a 1000-year-old sandstone monument at Leshan in Sichuan Province, China which is threatened by weathering.

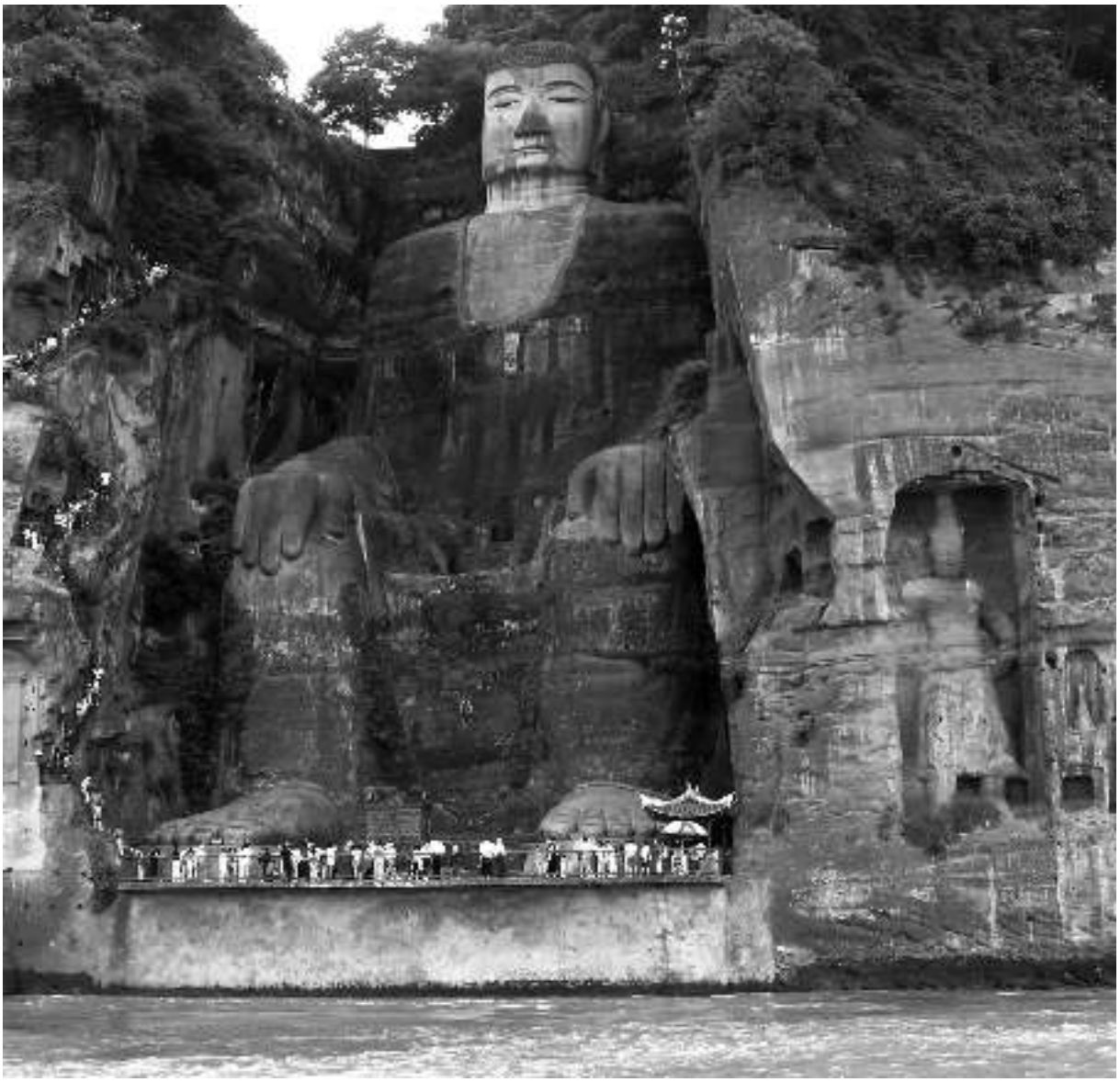

Fig. 2.2

(i) Referring to Fig. 2.2, state **two** pieces of evidence to suggest that this monument is being weathered.

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.....[2]

(ii) Describe and explain **one** type of mechanical weathering which may be occurring on the rock surface in Fig. 2.2.

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(iii) With reference to Fig. 2.2 describe the ways that human activity may be accelerating the natural rate of weathering.

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(c) Fig. 2.3 shows the distribution of acid rain in mainland China in 2010 and the location of the monument shown in Fig. 2.2.

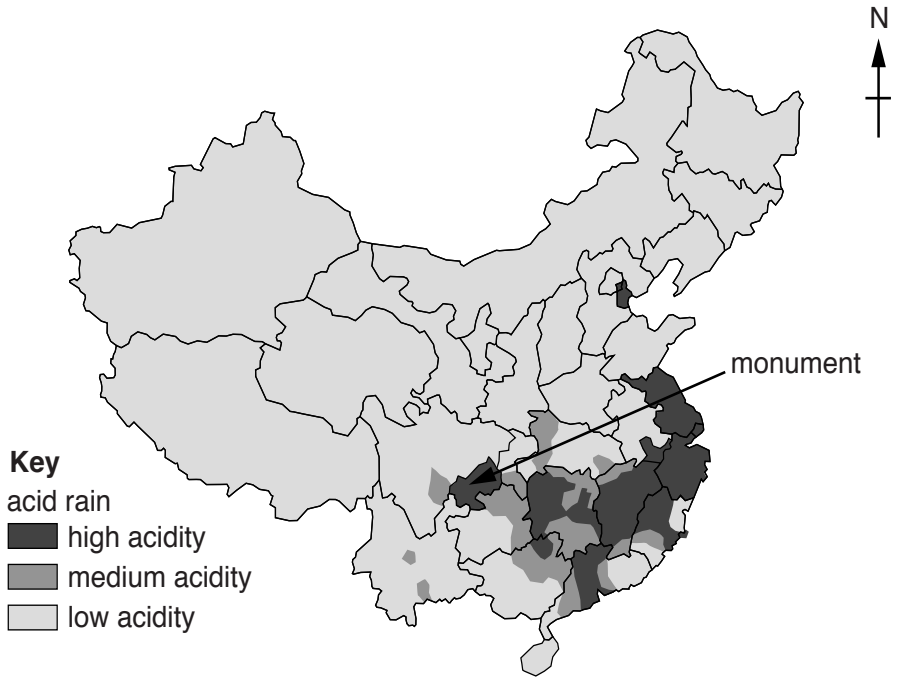

Fig. 2.3

(i) Suggest a link between the distribution of acid rain shown in Fig. 2.3 and damage to the monument at Leshan.

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(ii) Suggest strategies to reduce the damage to monuments from acid rain.

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.....[4]

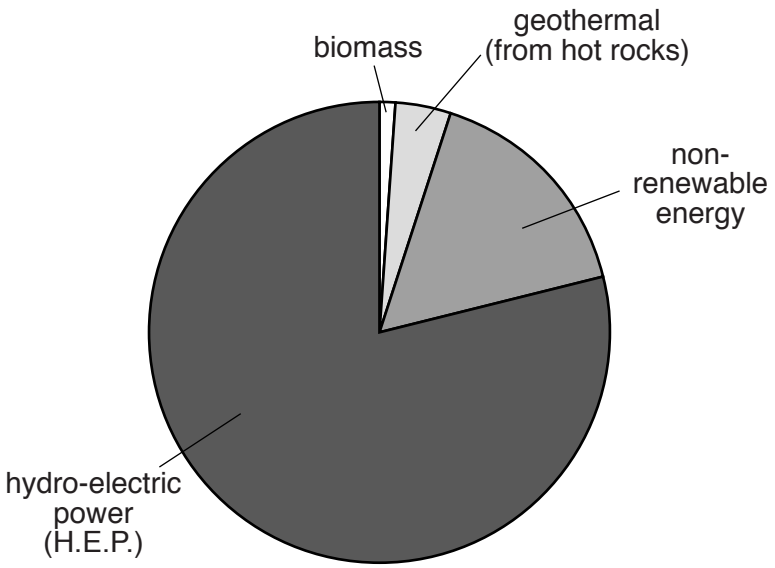
[Total: 20]

Section B

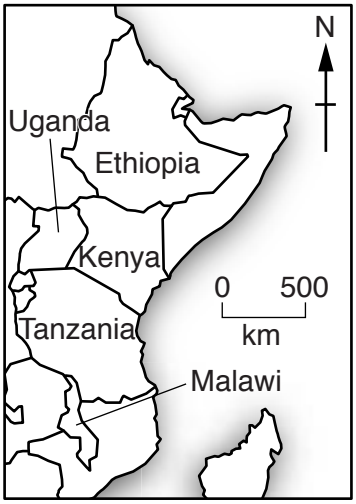
Answer **one** question from this section.

3 Fig. 3.1 shows information about electricity generation in some countries of East Africa.

pie chart to show sources of electricity generation in East Africa



map of East Africa



effects of drought on H.E.P. generation

country	period	effects
Ethiopia	2006–2008	more than six months of power cuts due to low water levels
Uganda	2004–2005	reduction in water levels in Lake Victoria resulted in a drop in H.E.P.
Kenya	2000	massive drought decreased H.E.P. by 25 percent
Malawi	1997–1998	amount of H.E.P. generated was 6 percent less than normal
Tanzania	1997	Mtera dam reaches its lowest ever level resulting in a 17 percent drop in H.E.P.

Fig. 3.1

(a) Using the information in Fig. 3.1, describe the current sources of electricity generation in East Africa. Examine the argument for reducing dependence on hydro-electric power (H.E.P.). [10]

(b) Using examples, evaluate how energy resources can be managed sustainably for future generations. [30]

[Total: 40]

4 Fig. 4.1 is a map showing the pattern of daytime aircraft noise around London Heathrow Airport in the United Kingdom. The region shown includes major urban areas, including Greater London.

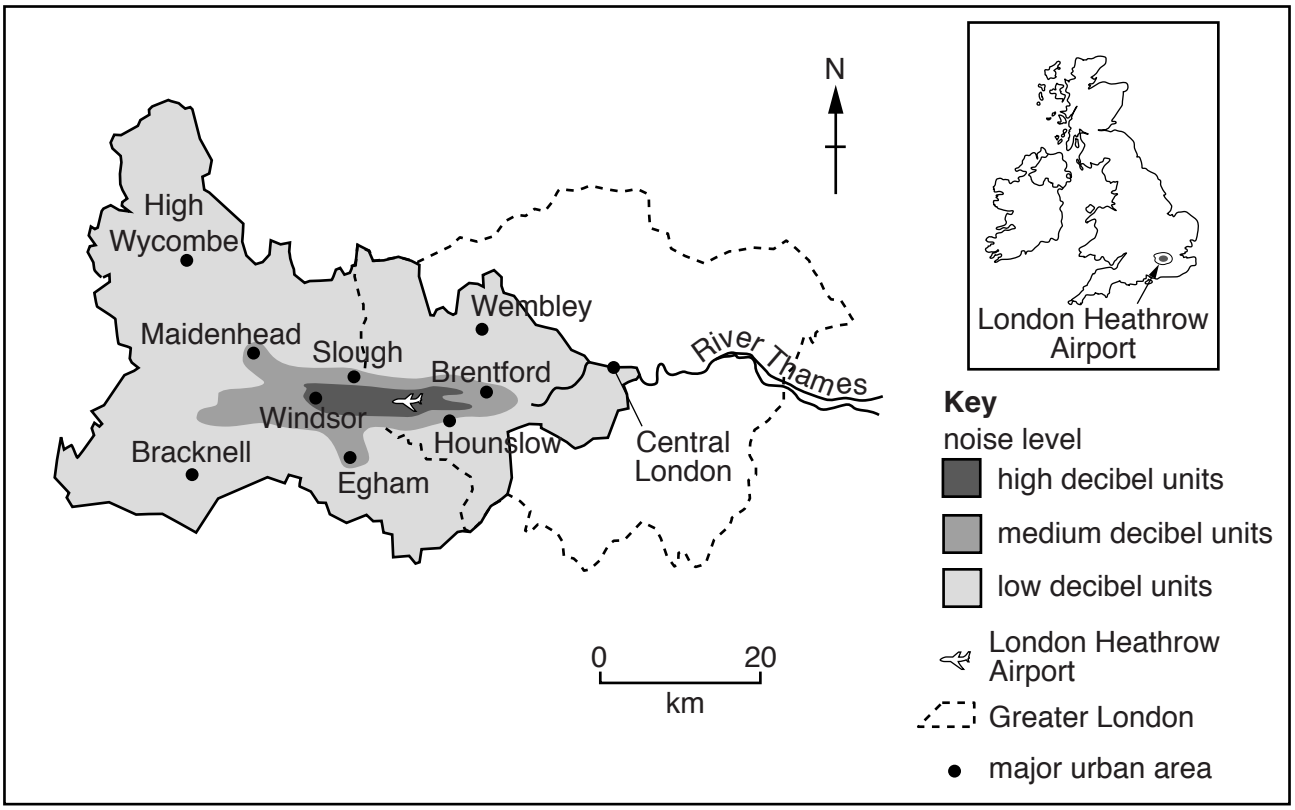


Fig. 4.1

(a) Describe the pattern of noise pollution around the airport shown in Fig. 4.1 and suggest the likely effects of aircraft noise on the surrounding area. [10]

(b) Using examples, assess the success of strategies for managing the reduction of noise in urban areas. [30]

[Total: 40]

[Turn over

5 Fig. 5.1 shows information about Europe's largest granite 'super quarry' at Glensanda. It is situated in an area of outstanding natural beauty in Scotland in the United Kingdom.

At the quarry, crushed rock is dropped down a 300 m vertical shaft to another crushing machine. It is moved on a 1.8 km long conveyor belt to a rock stockpile. The quarry produces over six million tonnes of crushed rock that is shipped all over the world for use in the construction industry.

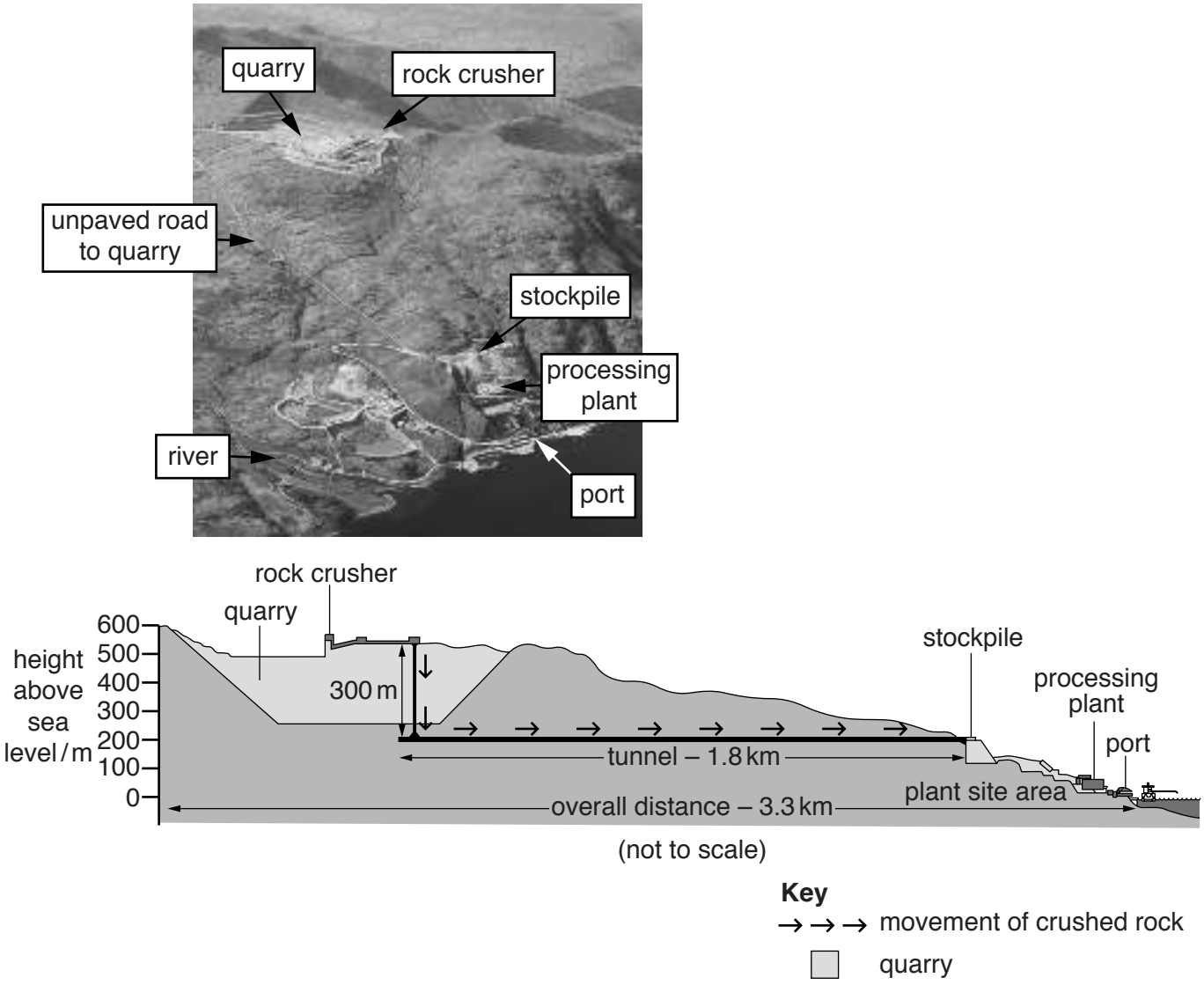


Fig. 5.1

(a) With reference to Fig. 5.1, explain the problems associated with exploiting non-renewable resources. [10]

(b) Using examples, evaluate strategies for conserving and protecting areas of outstanding natural beauty. [30]

[Total: 40]