

FOR OFFICIAL USE

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Total

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X043/101

NATIONAL
QUALIFICATIONS
2011

MONDAY, 16 MAY
1.00 PM – 2.30 PM

GEOLOGY
INTERMEDIATE 1

Fill in these boxes and read what is printed below.

Full name of centre

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Town

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Forename(s)

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Surname

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Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

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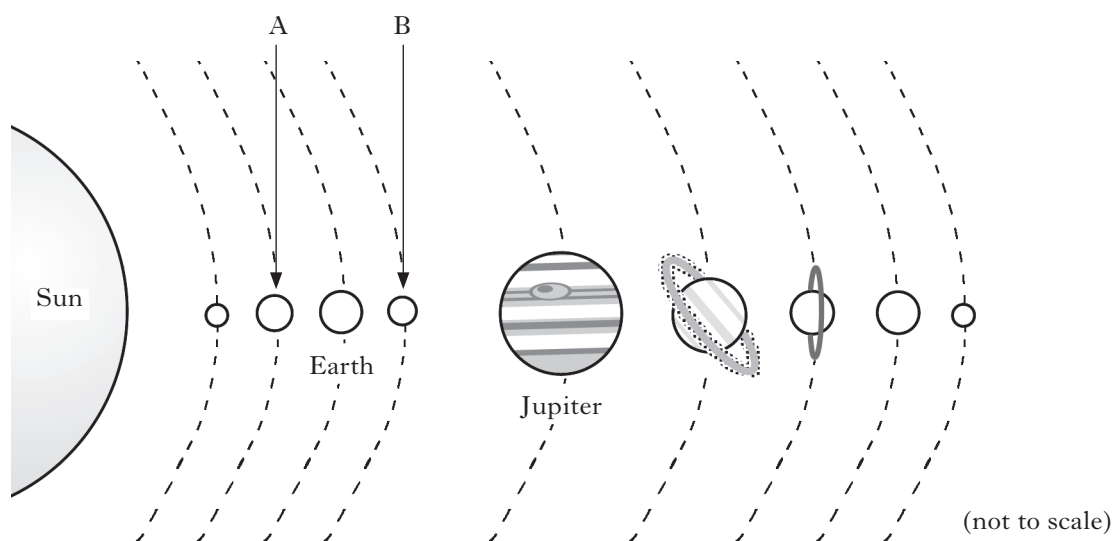
- 1 You should attempt **all** of the questions.
- 2 All answers should be written in the spaces provided in this answer book and should be written clearly and legibly in ink.
- 3 The marks allocated to each question or part of a question are shown at the end of each question or part of a question.
- 4 Before leaving the examination room you must give this book to the Invigilator. If you do not, you may lose all the marks for this paper.



All questions should be attempted.

Marks

1. Look at the diagram below.



- (a) Name planets A and B.

A B

2

- (b) What is the name given to the sun and all its planets?

.....

1

- (c) Jupiter is 318 times bigger than the Earth and the Sun is 1000 times bigger than Jupiter.

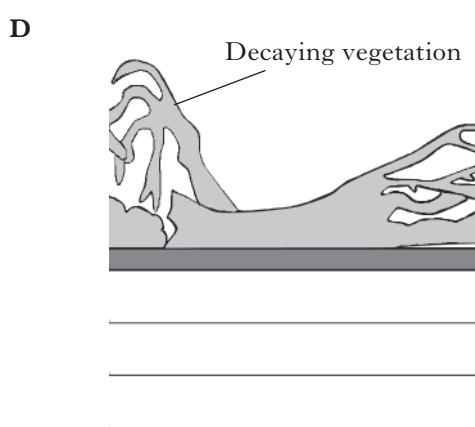
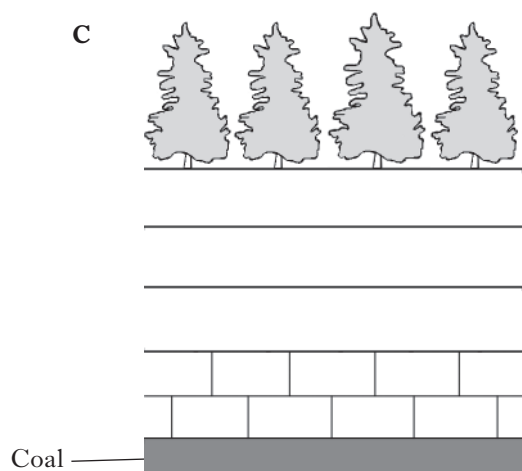
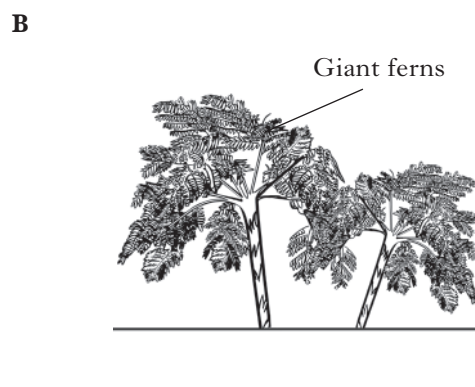
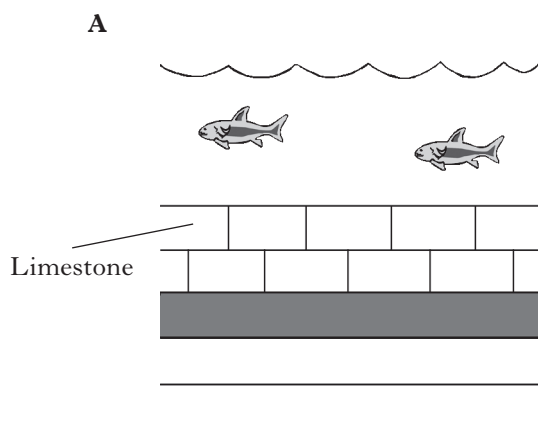
How many times bigger is the Sun than the Earth?

Show your working here.

2

2. Look at the diagram below showing the stages in the formation of coal.

Marks



(a) Place the stages of coal formation in order from oldest to youngest.

Give only the letters: → → →
oldest youngest

2

(b) Describe what the climate would have been like at stage B.

.....

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2

(c) What does the limestone above the coal tell us about the changing conditions during the formation of coal?

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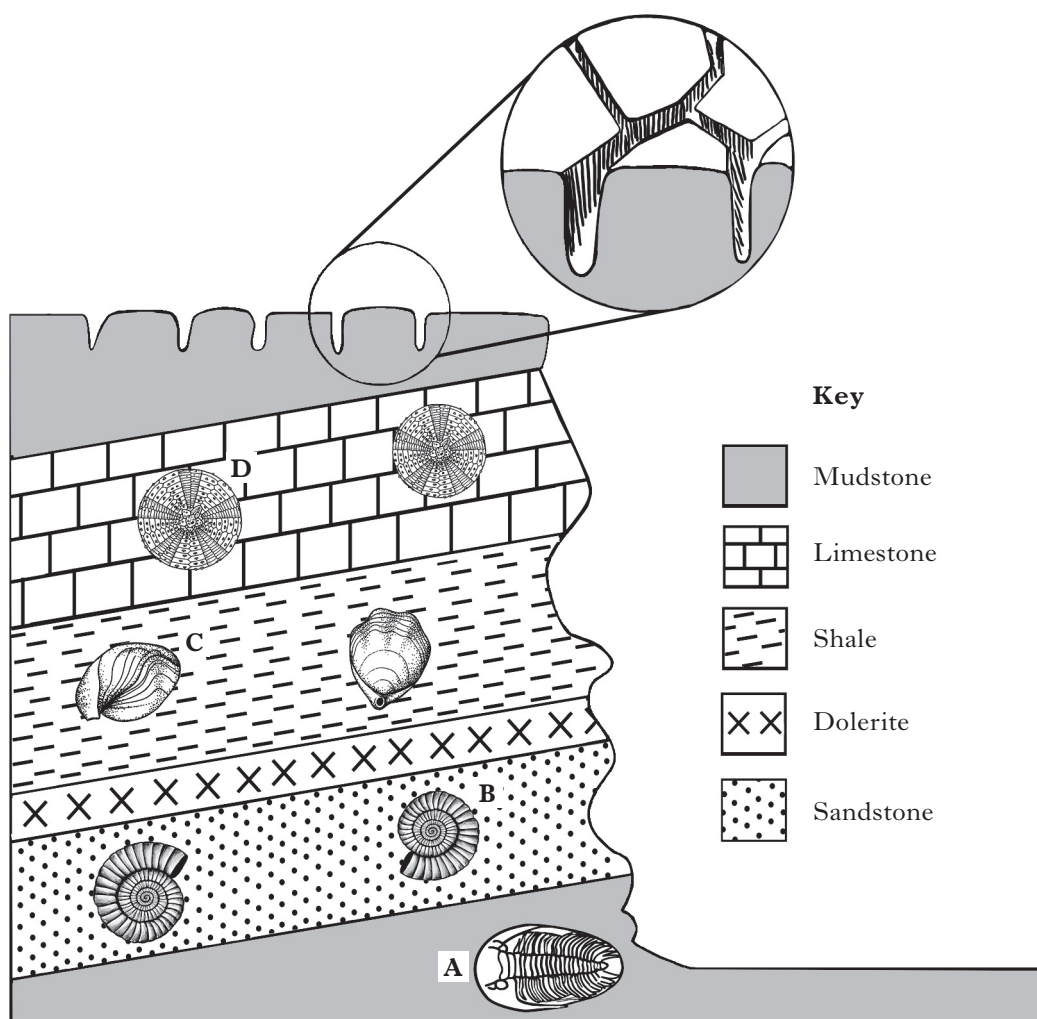
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2

Marks

3. Look at the diagram below.



(a) Complete the table by naming the fossils.

<i>Fossil</i>	<i>Name</i>
A	
B	
C	
D	

4

Marks

3. (continued)

(b) Which fossil was preserved first?

Give only the letter:

1

(c) Explain why there are no fossils in the dolerite.

.....

.....

1

(d) How were the mud cracks at the top of the cliff formed?

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.....

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2

[Turn over

Marks

4. Look at the diagrams below.

Diagram A

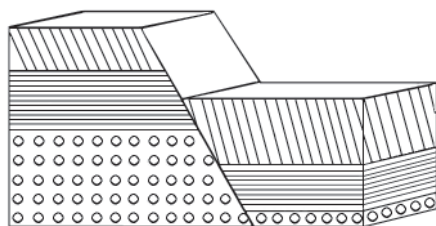
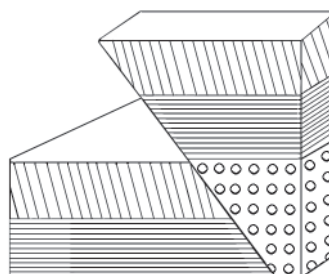
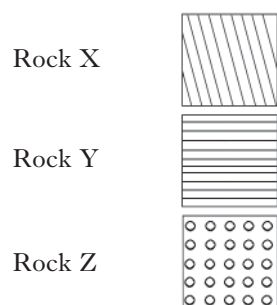


Diagram B



Key



- (a) What forces have caused the type of fault in diagram A and diagram B?

A B

2

- (b) Name the type of fault in diagram A.

.....

1

- (c) Scree is produced by weathering. Use labelled diagrams to describe the process by which scree is formed.

Space for diagrams.

2

Marks

5. Look at the diagram below.

Use the word box to complete the table to show the correct pairing of ore mineral and metal.

Haematite	Bauxite	Copper	Lead
Zinc	Cassiterite	Galena	Iron

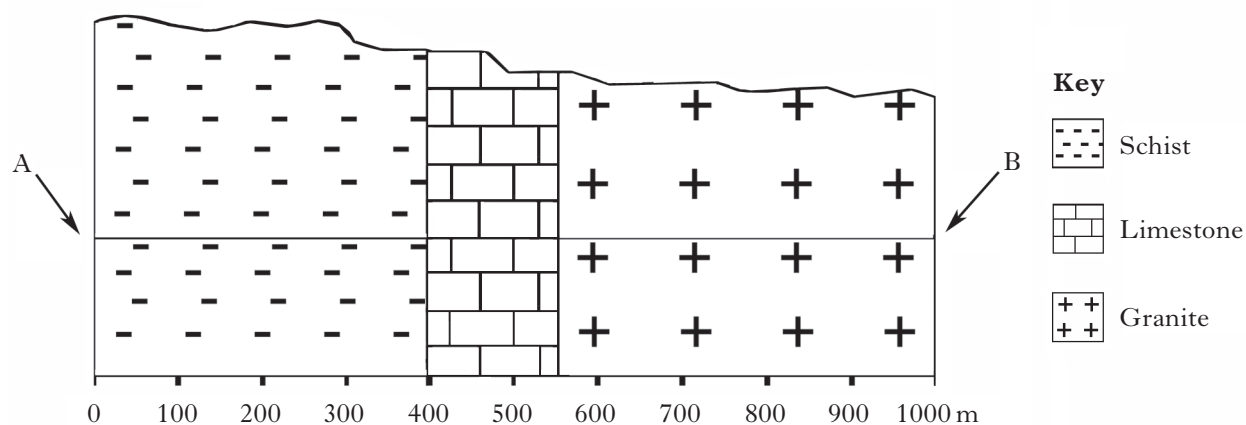
<i>Ore mineral</i>	<i>Metal</i>
Chalcopyrite	
	Tin
	Aluminium
Sphalerite	

4

[Turn over]

Marks

6. Look at the diagram below and the table showing the cost of tunnelling through rocks.



<i>Cost per 100 m</i>	<i>Rock type</i>
£3000	Granite
£1000	Limestone
£5000	Schist

- (a) Calculate the cost of constructing a rail tunnel from A to B.

Space for working.

Marks

6. (continued)

- (b) Each train is to be charged £500 to use the tunnel. How many trains will need to use the tunnel to equal the construction costs?

Space for working.

Answer trains

2

- (c) In the first year, 95 trains used the tunnel. Calculate the profit made by the construction company in the first year.

Space for working.

2

- (d) Rockfall in the tunnel may be a problem. Give **two** ways engineers could prevent this from happening.

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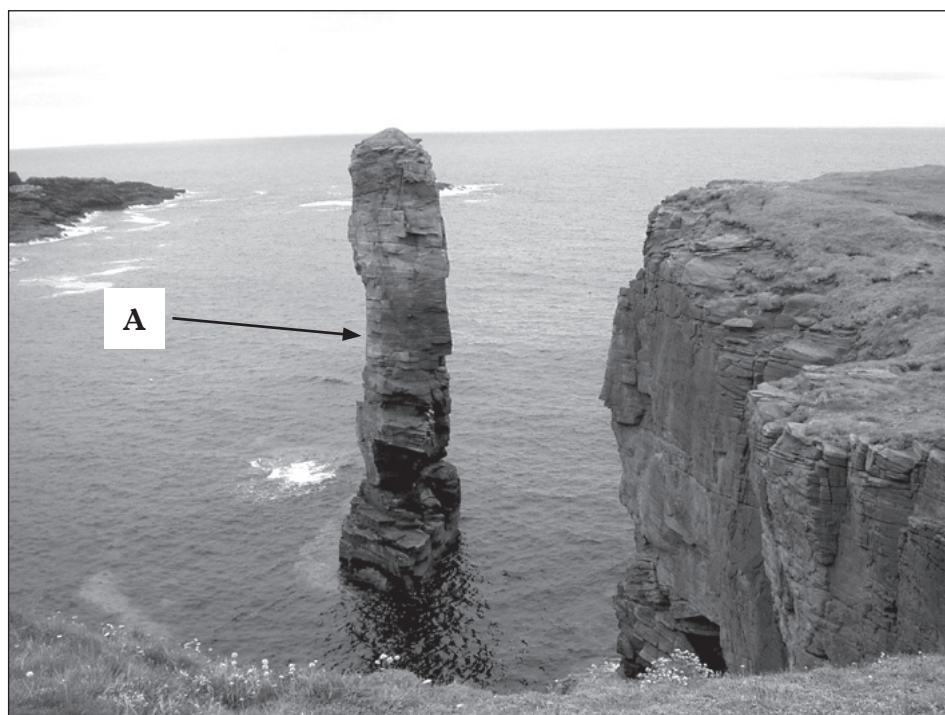
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2

[Turn over

Marks

7. Look at the photograph below showing a coastline.



(a) Name feature A

1

(b) Using labelled diagrams, show how feature A was formed.

Space for diagrams.

3

Marks

7. (continued)

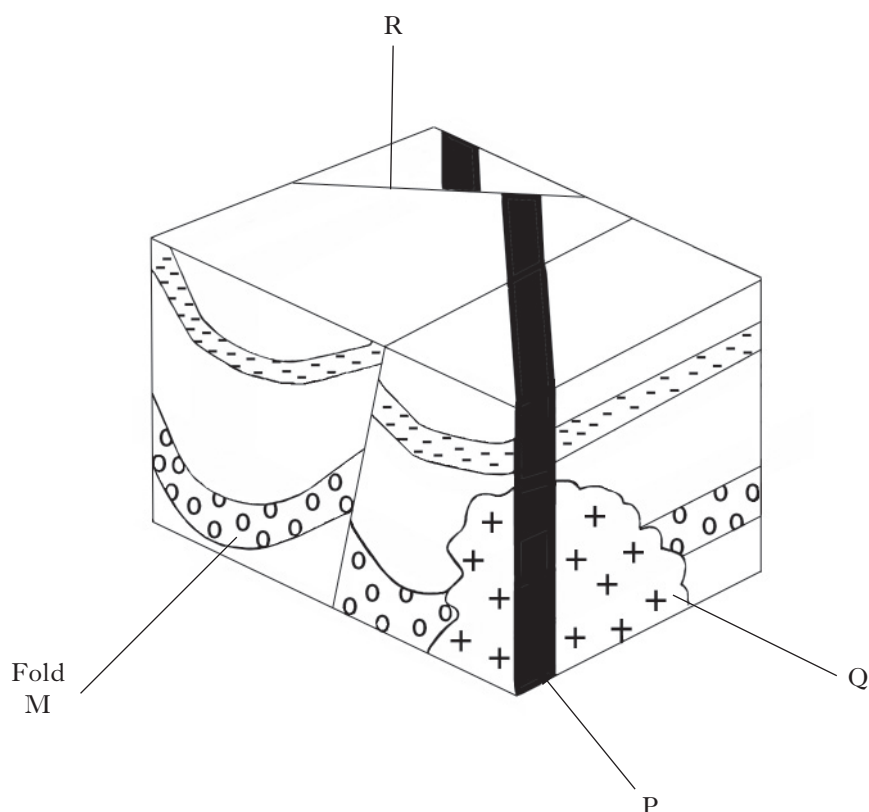
- (c) Draw a labelled diagram to show how the coastline might look in the future.

2

[Turn over

Marks

8. Look at the diagram below.



(a) What type of fold is shown on the diagram?

..... 1

(b) Name structure P. 1

(c) Put the following in the correct order from oldest to youngest.

Intrusion of Rock Q

Formation of Fold M

Formation of Structure R

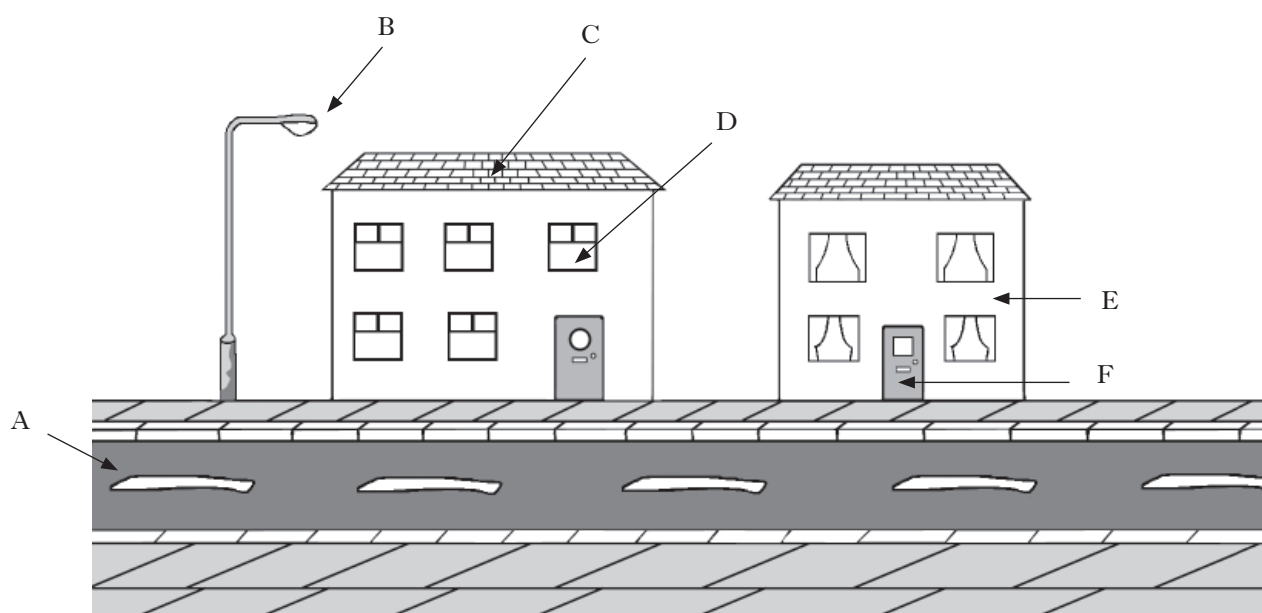
Formation of Structure P

Give only the letters: → → →
oldest youngest

2

9. Look at the diagram below showing a street in a village.

Marks



- (a) Complete the table by using the correct letter from the diagram to show a use for each of the construction materials.

<i>Construction Material</i>	<i>Use (use letter only)</i>
Slate	
Granite	
Aggregate	
Sand	
Copper	
Wood	

3

- (b) From the table above name a renewable resource.

.....

1

- (c) Many construction materials are extracted from quarries. Give **three** ways this can affect the environment.

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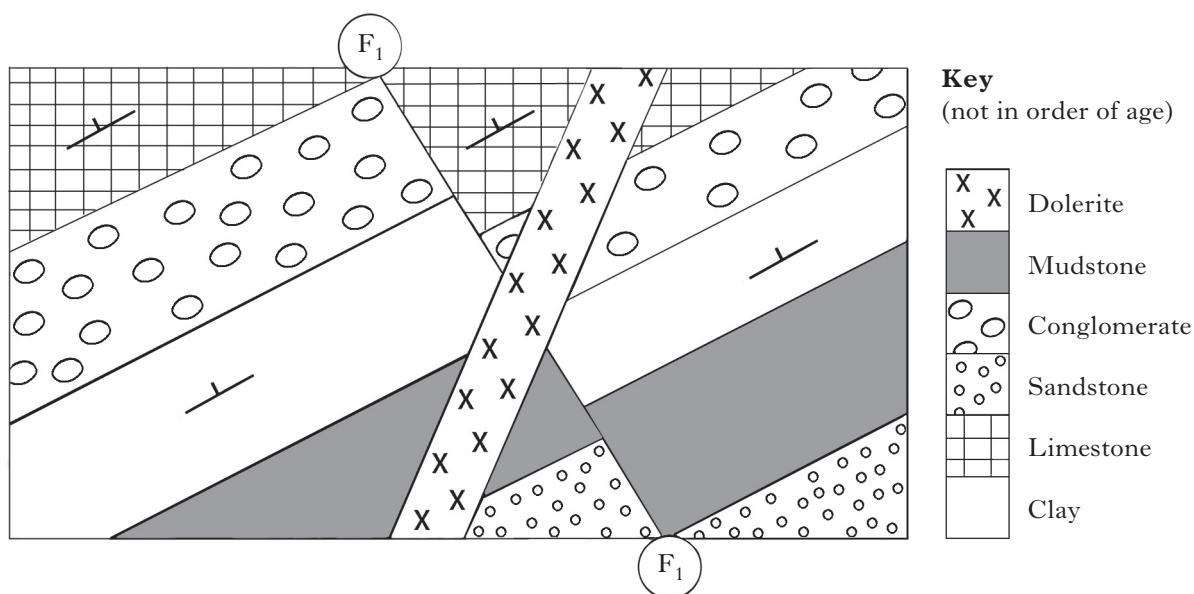
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3

Marks

10. Look at the geological map below.



(a) Place the following events in the correct order from oldest to youngest.

- A Intrusion of dyke
- B Deposition of mudstone
- C Movement on fault
- D Tilting of sedimentary rocks

Give only the letters: → → →
oldest youngest

2

(b) Which rock would be the most difficult to erode?

.....

1

(c) Describe how this would affect the landscape in the future.

.....

.....

1

[Turn over for Question 11 on *Page sixteen*

Marks

11. Look at the table below showing countries and percentage of world oil production.

<i>Country</i>	<i>Percentage of world oil production</i>
Saudi Arabia	13%
USA	
Russia	10%
Iran	6%
Mexico	5%
Others	53%

- (a) Calculate the percentage of world oil production for the USA.

Space for working.

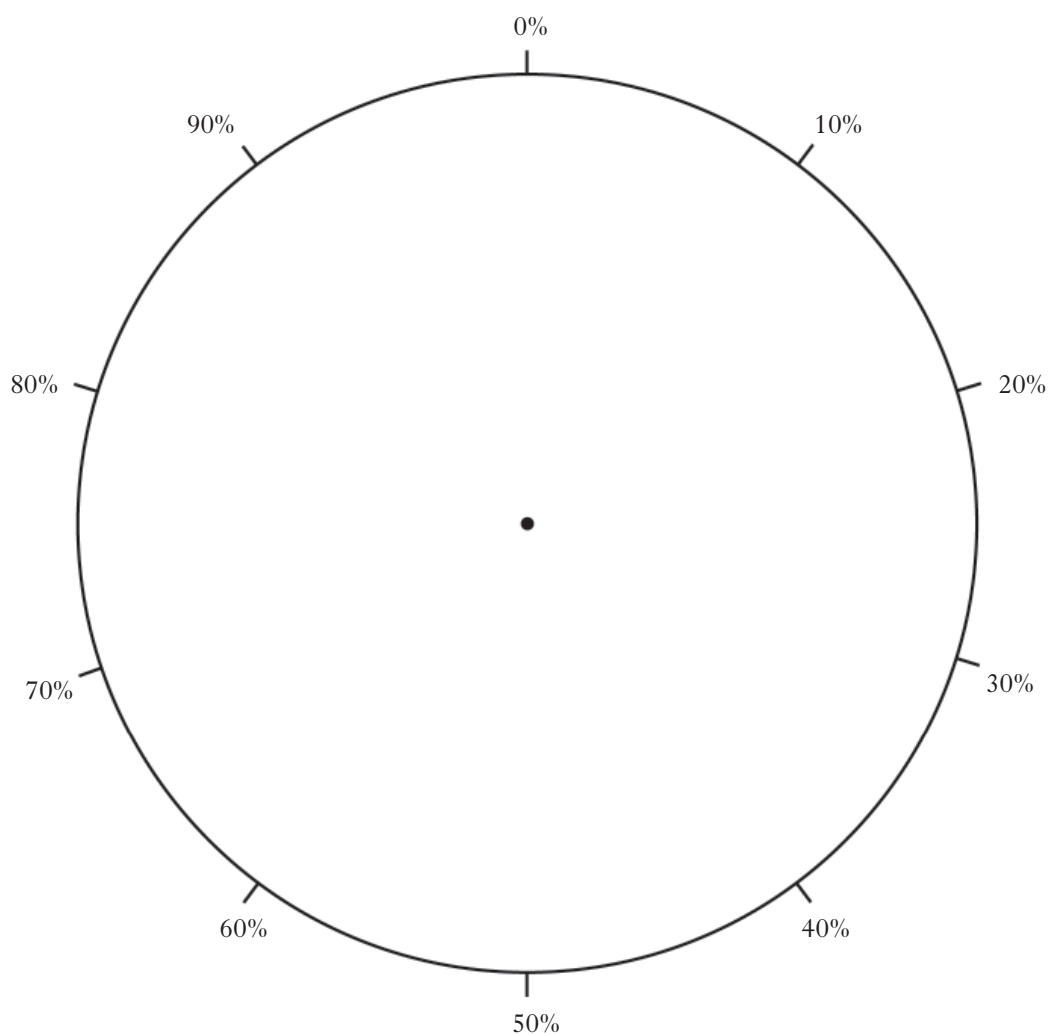
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1

Marks

11. (continued)

- (b) Show the percentages of world oil production on the pie chart below and label the countries.



3

- (c) Give **two** ways in which the transport of oil can cause environmental problems.

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2

- (d) Oil is an example of a fossil fuel. Give **two** other examples.

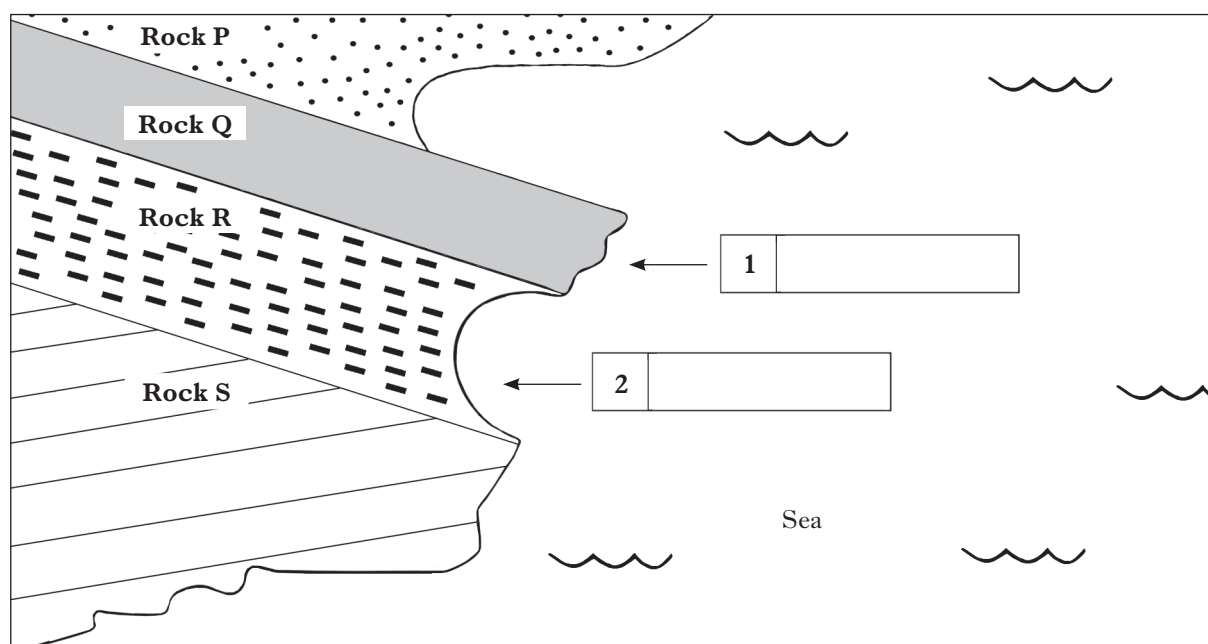
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2

Marks

12. Look at the map below showing part of a coastline.



(a) Label features **1** and **2** on the map.

2

(b) Name **one** harder rock shown on the map.

Give only the letter: Rock

Give a reason for your answer.

.....

.....

2

Marks

12. (continued)

- (c) Longshore drift moves material along a beach. Use a labelled diagram to show how this happens.

3

[Turn over

Marks

13. Look at the diagrams below showing two types of submerged coast.

Diagram A

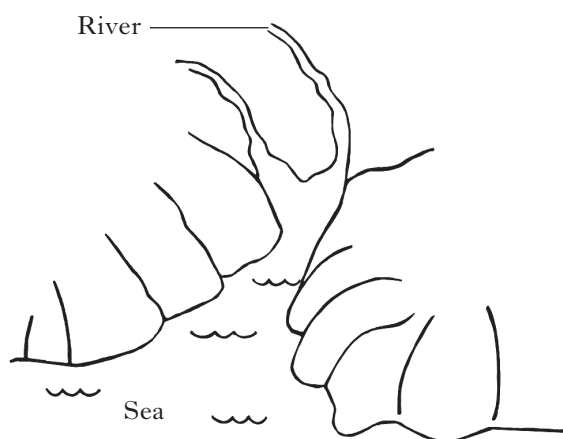
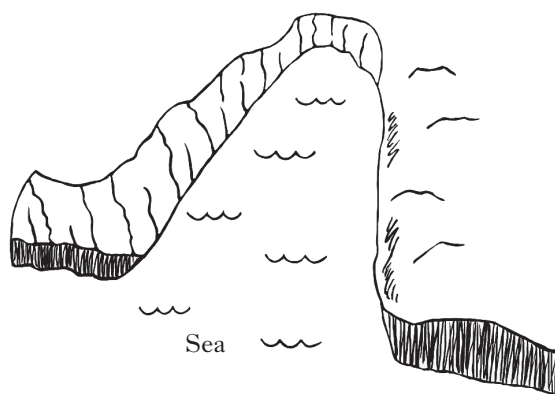


Diagram B



- (a) Name the type of coastline in **Diagram A** and **Diagram B**.

A **B**

2

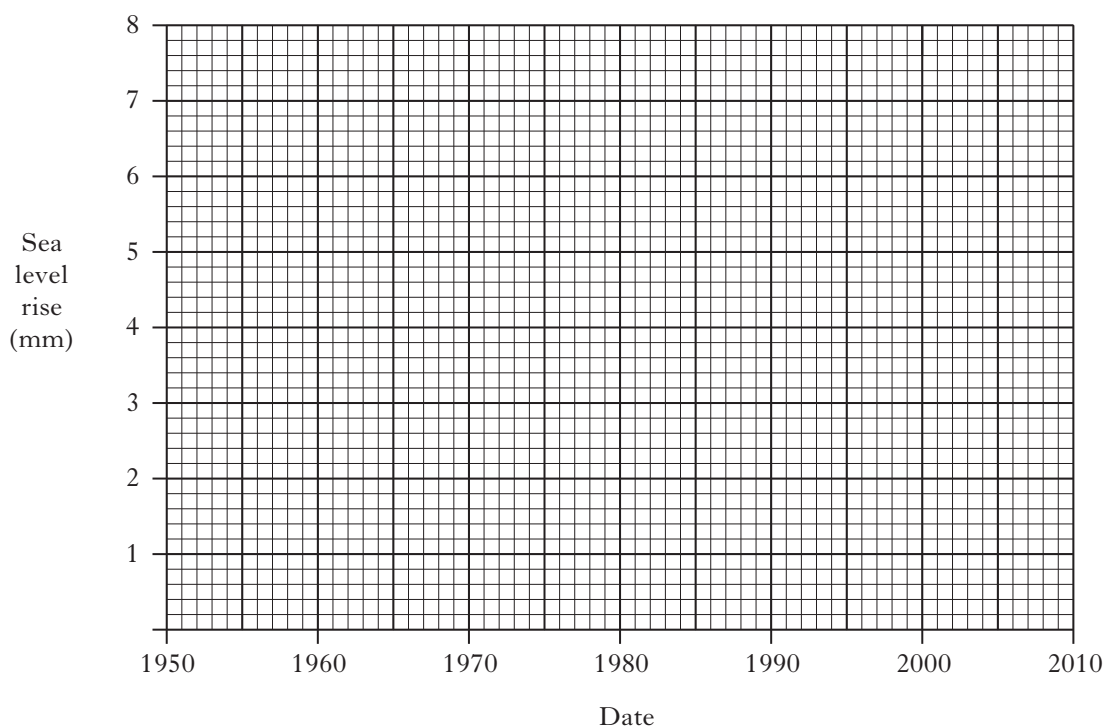
- (b) Look at the table below showing sea level rise in recent years.

<i>Date</i>	<i>Sea level rise (mm)</i>
1950	0
1960	0
1970	0.5
1980	1
1990	2
2000	4
2010	6

Marks

13. (b) (continued)

On the graph paper below draw a line graph to show the rate of sea level change from 1950 to 2010.



2

(c) Give **two** reasons why sea levels have been rising.

Reason 1

.....

Reason 2

.....

2

[END OF QUESTION PAPER]

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