

FOR OFFICIAL USE

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Total

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X043/10/01

NATIONAL
QUALIFICATIONS
2012

THURSDAY, 3 MAY
9.00 AM – 10.30 AM

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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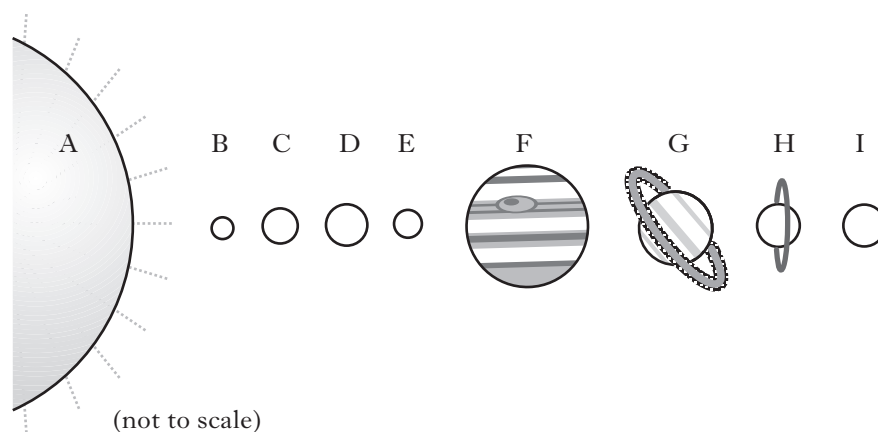
- 1 You should attempt **all** of the questions.
- 2 All answers should be written in the spaces provided in this answer book and should be written clearly and legibly in ink.
- 3 The marks allocated to each question or part of a question are shown at the end of each question or part of a question.
- 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 showing the Solar System.



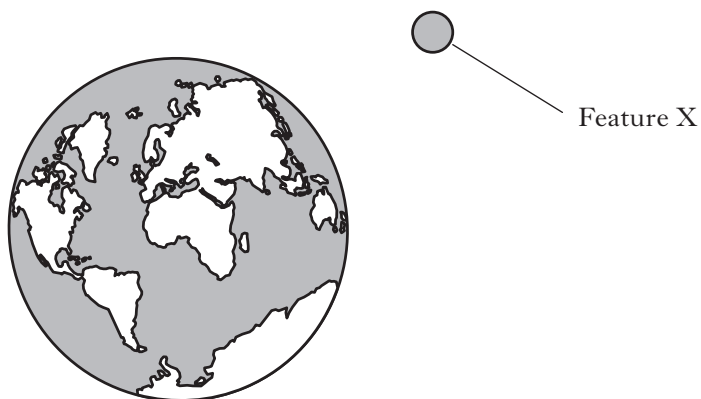
- (a) Give **two** differences between objects A and E.

1

2

2

- (b) Look at the diagram below showing a close up view of object D.



What is feature X?

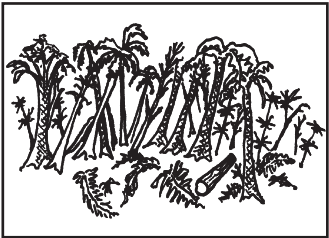
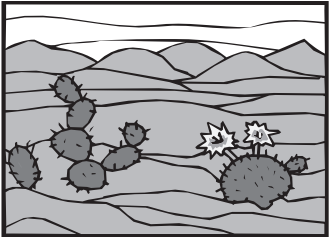
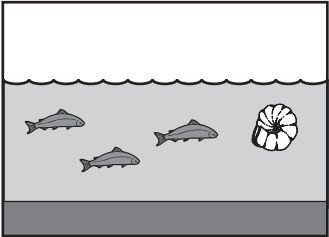

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1

[Turn over for Question 2 on *Page four*

Marks

2. Look at the table below showing the conditions affecting Scotland in the past.

<i>Conditions affecting Scotland</i>	<i>Rock type</i>
 Tropical rainforest	
 Desert dunes	
 Shallow sea	
 Volcano	

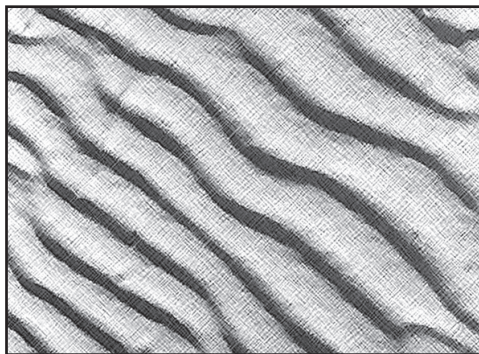
- (a) Use the word box to complete the diagram to show the rock type which would have formed under each set of conditions.

Limestone	Sandstone	Basalt	Schist	Coal
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2. (continued)

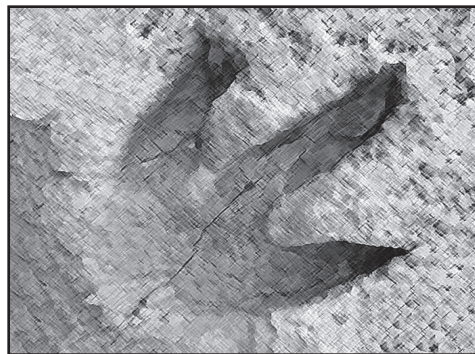
Marks

- (b) Look at the diagram below showing structures which have formed in sedimentary rocks.



Structure P

5 cm



Structure Q

50 cm

Name structures P and Q.

P

Q

2

- (c) Explain how **one** of these structures was formed.

.....

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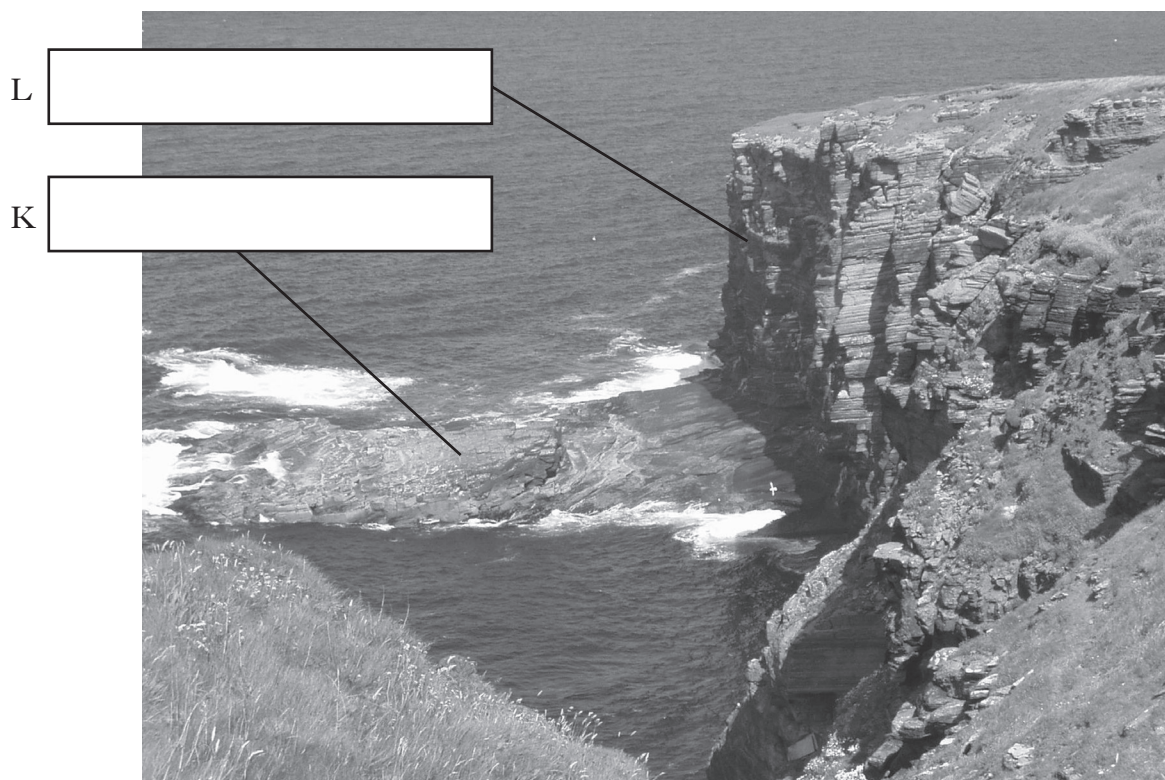
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2

[Turn over

Marks

3. Look at the photograph below.



(a) Label landforms K and L on the photograph.

2

(b) Describe what might happen to landforms K and L in the future.

1

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2

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3

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3

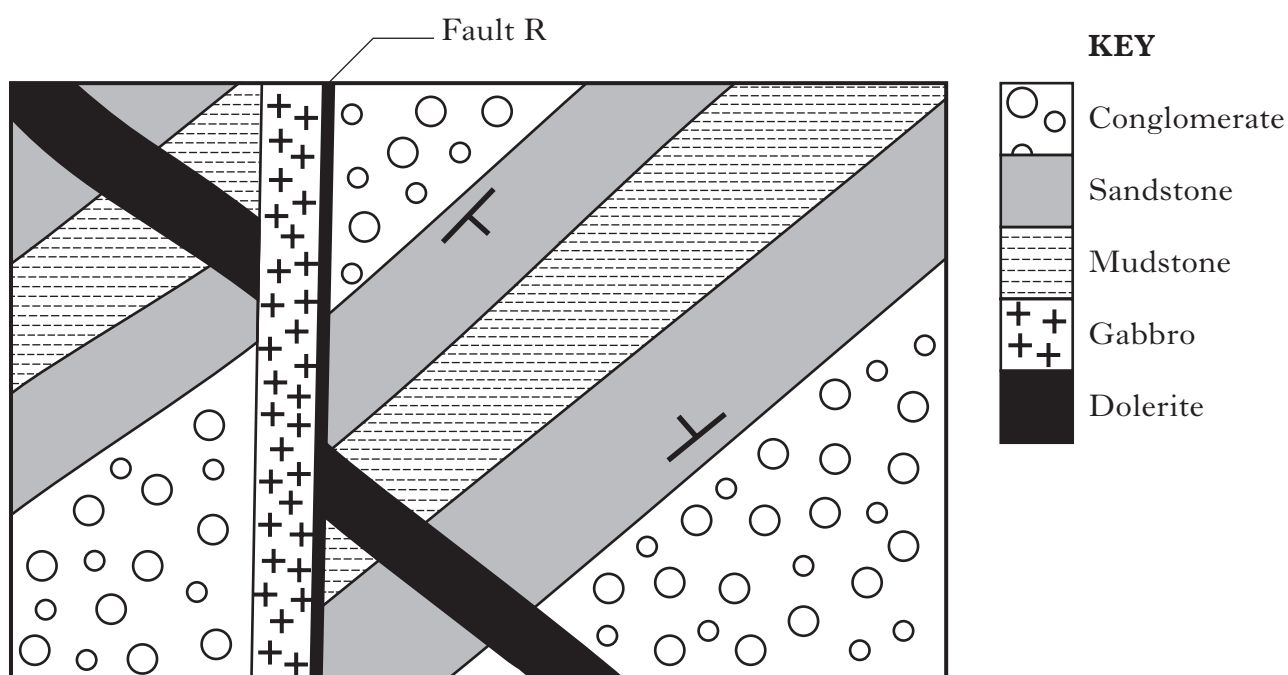
(c) Complete the table below to name the processes which form landscapes.

<i>Description</i>	<i>Process</i>
The process by which land is worn away by moving wind, water and ice.	
The process by which materials such as pebbles, sand and mud are laid down by wind, water and ice.	
The process by which rocks are broken up in the place where they are sitting.	

3

Marks

4. Look at the geological map below.



- (a) Which type of structure is shown by the strike and dip symbols?

..... 1

- (b) Using the geological map, place the following events in the correct order.

- A Faulting of rock
- B Intrusion of dolerite
- C Deposition of conglomerate
- D Folding of rocks

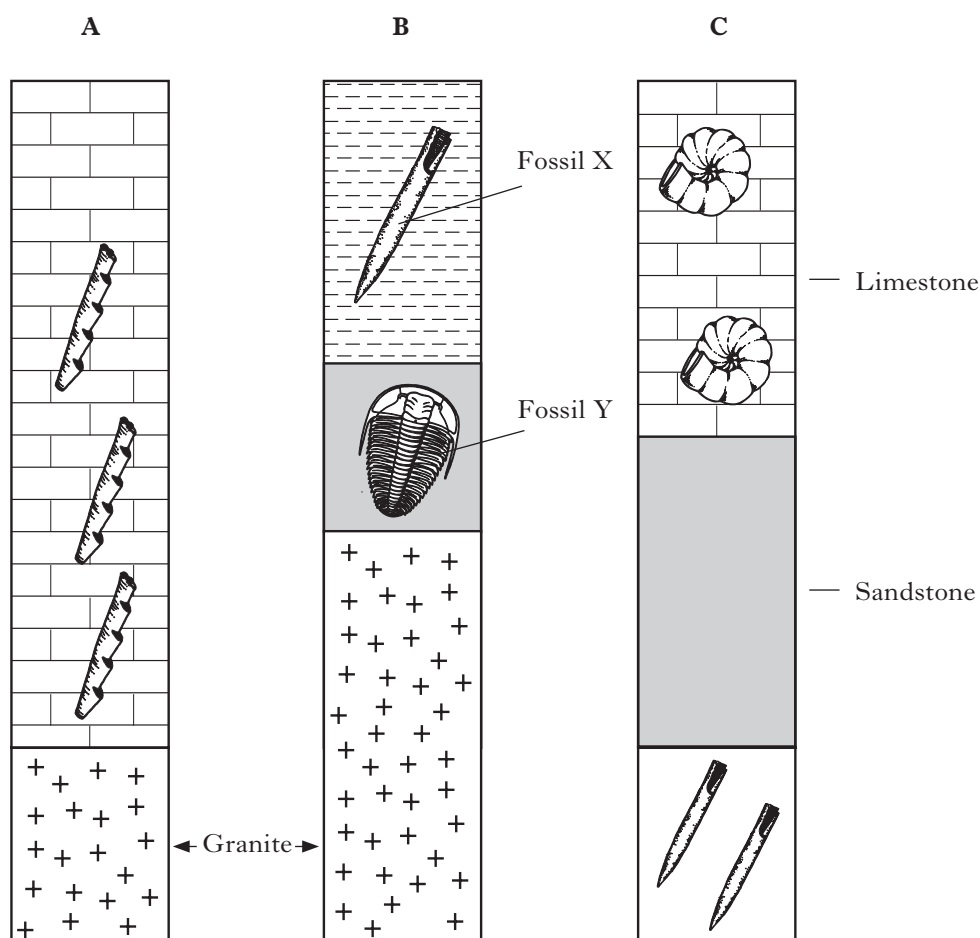
Give only the letters: → → →
oldest youngest

4

[Turn over

Marks

5. Look at the diagrams below showing rock sequences in boreholes.



- (a) Name fossils X and Y.

X

Y

2

- (b) Which fossil, X or Y, is the older?

.....

1

Give a reason for your answer.

.....

.....

1

5. (continued)

Marks

- (c) Rocks containing ammonites may contain oil, whereas rocks containing graptolites are unlikely to contain oil.

Which borehole would be the best choice for an oil company trying to find oil?

Give only the letter:

1

Explain your answer.

.....

.....

.....

1

- (d) Apart from helping to find oil, how else can fossils be of use to geologists?

.....

.....

1

[Turn over

Marks

6. Look at the list of minerals below.

Mica	Calcite	Pyrite	Malachite	Talc
Galena	Haematite	Quartz	Pyroxene	Feldspar

- (a) Name the softest mineral. **1**
- (b) Name the hardest mineral. **1**
- (c) Which mineral is a source of copper? **1**
- (d) Which mineral is a source of lead? **1**
- (e) Which **one** of the following statements is correct?
- A Mica is a good source of iron.
- B Copper can be extracted from pyrite.
- C Calcite is a mineral found in marble.
- D Haematite and pyroxene are both sources of metals.
- Give only the letter:* **1**

Marks

7. A deposit of copper ore was discovered.

% of copper in ore	% of copper extracted	Price in \$ per tonne
0.5%	86%	\$5000

- (a) What percentage of copper cannot be extracted?

Show your working

1

- (b) (i) How much copper is found in 200 000 tonnes of ore deposit?

Show your working

2

- (ii) How many tonnes of copper can be extracted from this ore deposit?

Show your working

2

- (iii) What is the value of the copper extracted?

Show your working

2

- (c) The price of copper is predicted to rise over the next few years. How will this affect rates of extraction?

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2

Marks

8. Look at the photograph below.



(a) Name landform A in the photograph.

..... 1

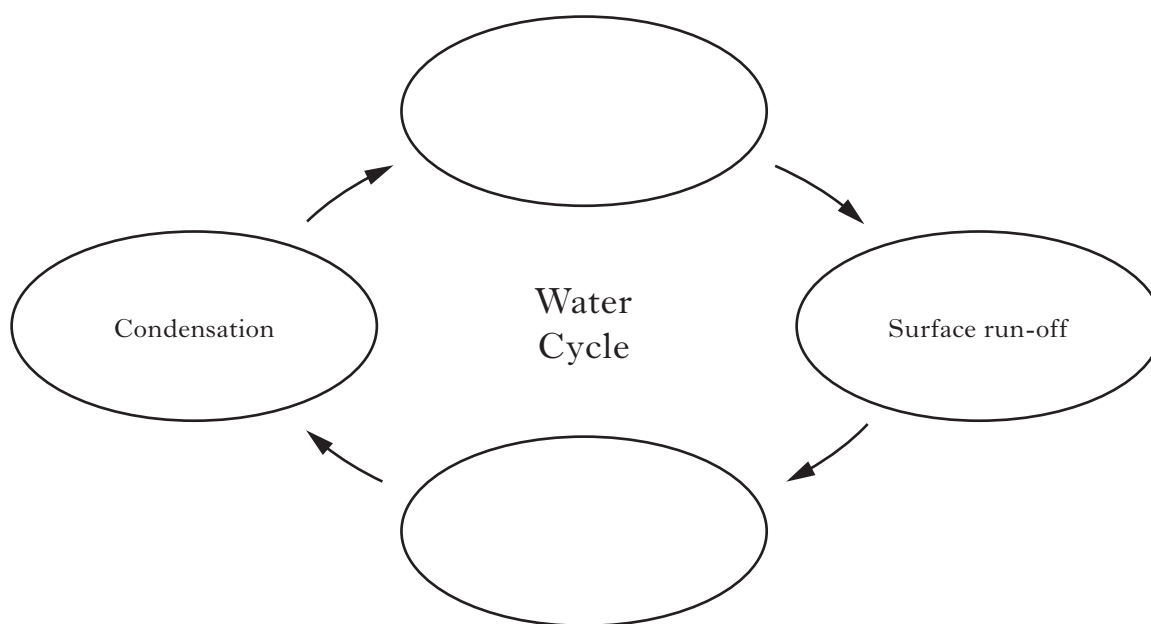
(b) Draw labelled diagrams to show how this feature was formed.

3

[Turn over for Question 9 on *Page fourteen*

Marks

9. Look at the diagram below showing part of the water cycle.



- (a) Using the word box, complete the diagram above.

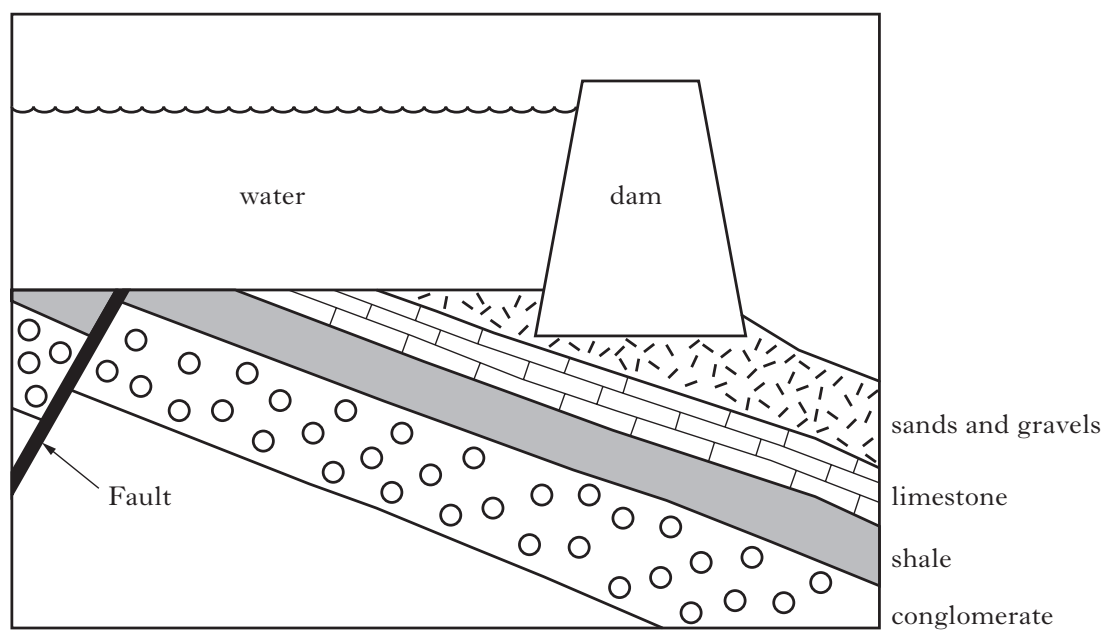
Groundwater	Evaporation	Precipitation	Aquifer
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2

9. (continued)

Marks

(b) Look at the diagram below showing the proposed site for a reservoir.



(i) Give **two** reasons why reservoirs are built.

Reason 1

Reason 2

2

(ii) Explain why this is a poor site for a reservoir.

Explanation 1

.....

Explanation 2

.....

2

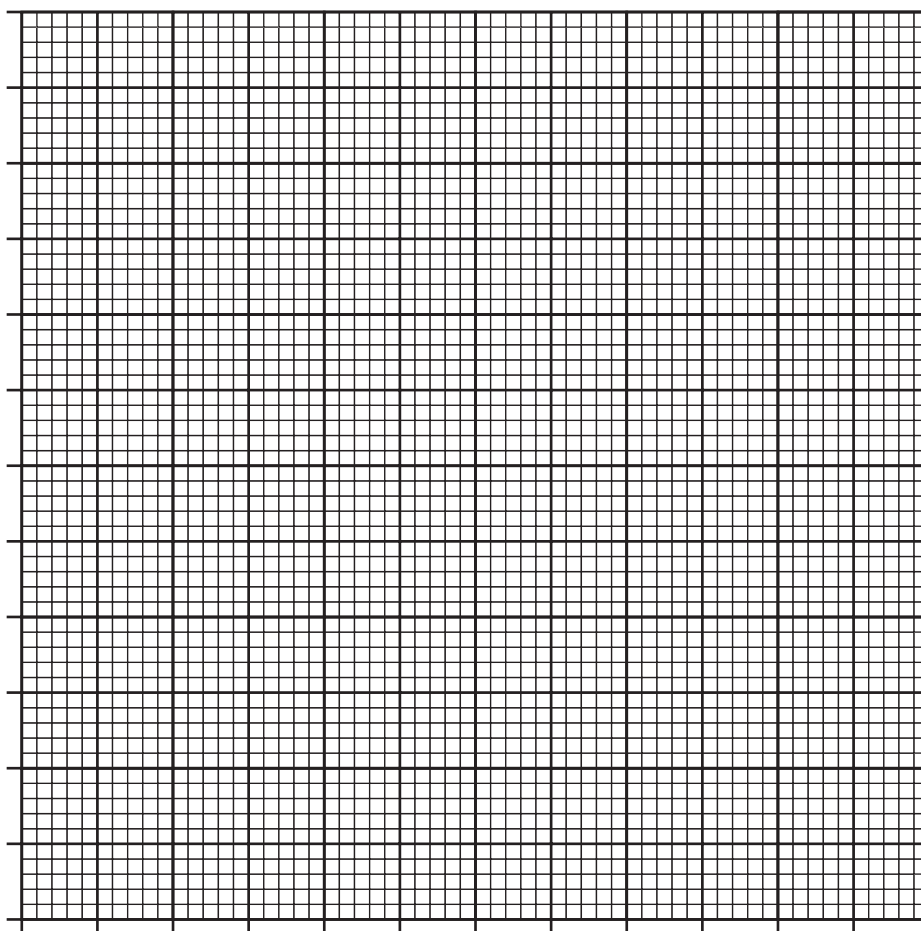
[Turn over

Marks

10. Look at the table which shows the percentage of total world oil reserves and consumption.

<i>Area</i>	<i>Oil reserves</i>	<i>Oil consumption</i>
North America	4%	28%
South America	12%	8%
Europe	8%	32%
Middle East	66%	6%
Africa	6%	2%
Asia and Australasia	4%	24%

- (a) On the graph paper below, draw a **bar** graph to show the percentages of oil **consumption** for each area.



3

10. (continued)*Marks*

- (b) Explain why North America has high oil consumption.

.....

.....

.....

2

- (c) Give **one** problem caused by high oil consumption. Explain your answer.

Problem

1

Explanation

.....

2

- (d) If North America cut oil consumption, give **three** other methods of producing energy it could use.

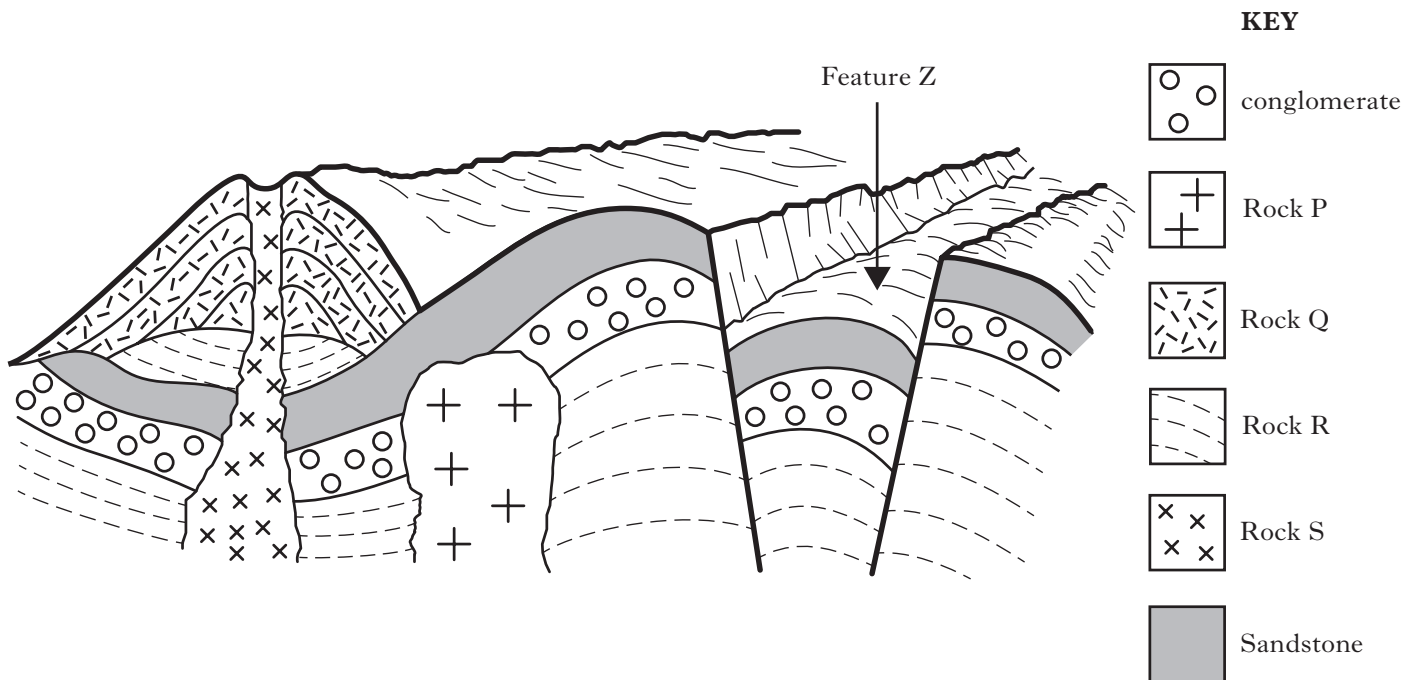
1

2

3

3**[Turn over**

11. Look at the diagram below showing how rocks are formed.



(a) Which rock is extrusive?

Give only the letter:

(b) Explain how igneous rock P has affected rock R.

.....

(c) (i) Name feature Z.

.....

(ii) Explain how feature Z was formed.

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DO NOT
WRITE
IN THIS
MARGIN

Marks

1

2

1

2

11. (continued)

Marks

- (d) (i) After erosion, the landscape will change. Name **two** features which would be left as higher ground.

Feature 1

Feature 2

2

- (ii) Explain why these features are left as higher ground.

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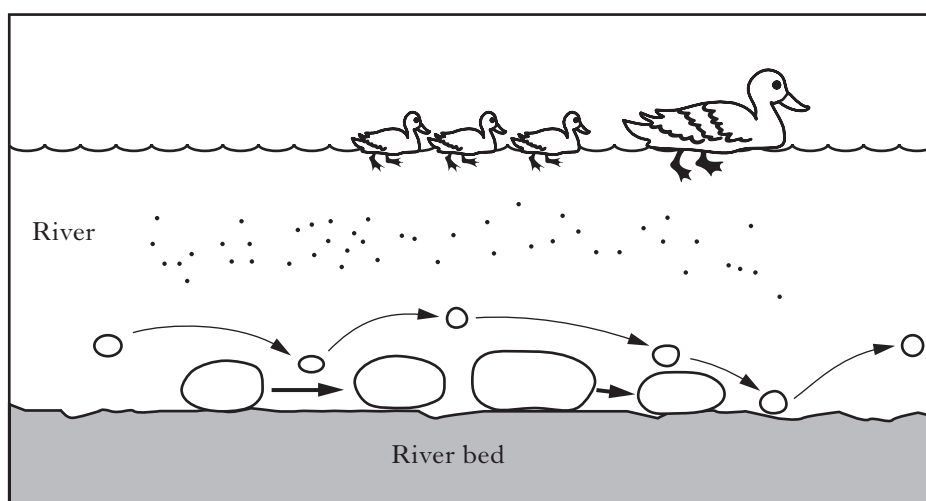
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2

[Turn over for Question 12 on *Page twenty*]

Marks

12. Look at the diagram below showing material being transported by a river.



- (a) Explain how the largest material is moved.

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2

- (b) How would very wet weather affect the transportation of material?

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2

[END OF QUESTION PAPER]