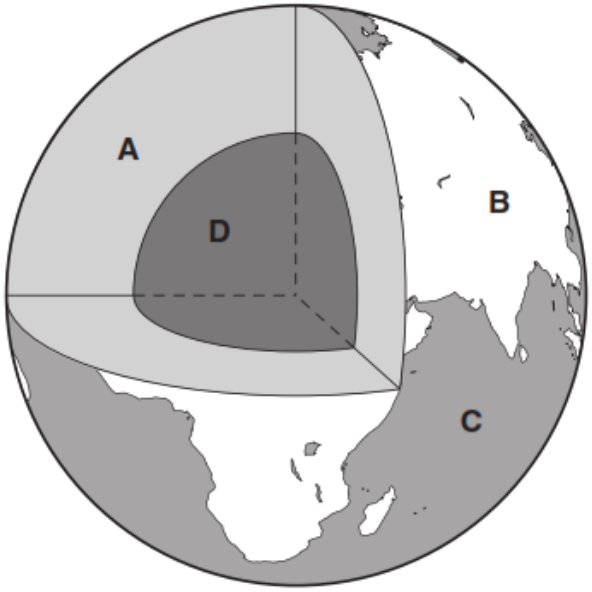
May 2017/11 Q 1 a

The diagram shows the structure of the Earth.



(a) Complete the table using letters **A** to **D** from the diagram.

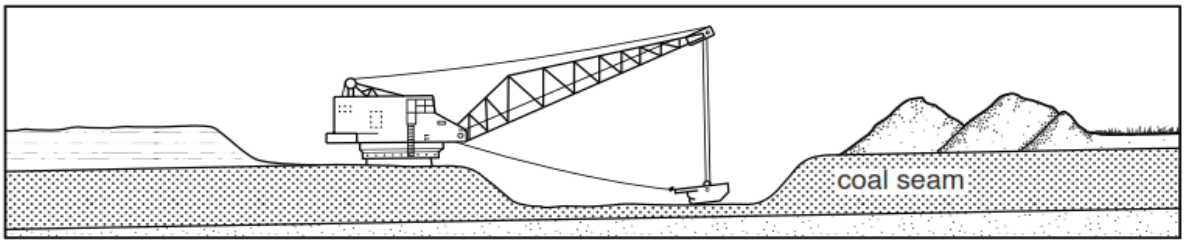
feature	letter
continental crust	.....
core	.....
mantle	.....
oceanic crust	.....

[3]

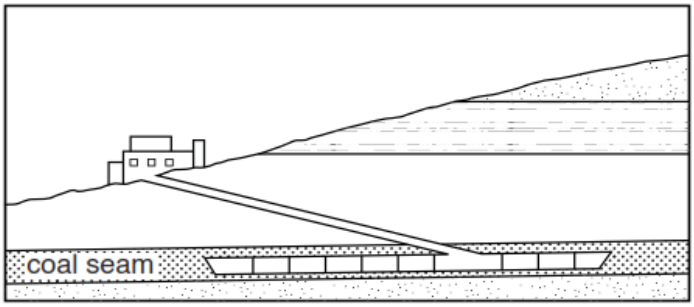
May 2017/11 Q 2

The diagram shows three types of coal mine labelled **P**, **Q** and **R**.

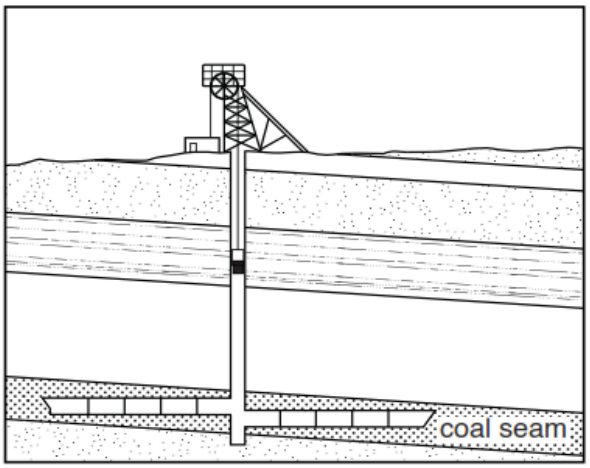
P



Q



R



(a) (i) Match the letters, **P**, **Q** and **R**, in the diagram to the types of coal mine.

adit (drift) mine .....

open-pit (opencast) mine .....

shaft mine .....

[2]

(ii) It is more dangerous to work in the type of mine labelled **R** than in the type of mine labelled **P**.

Explain why.

.....

.....

.....

.....

.....

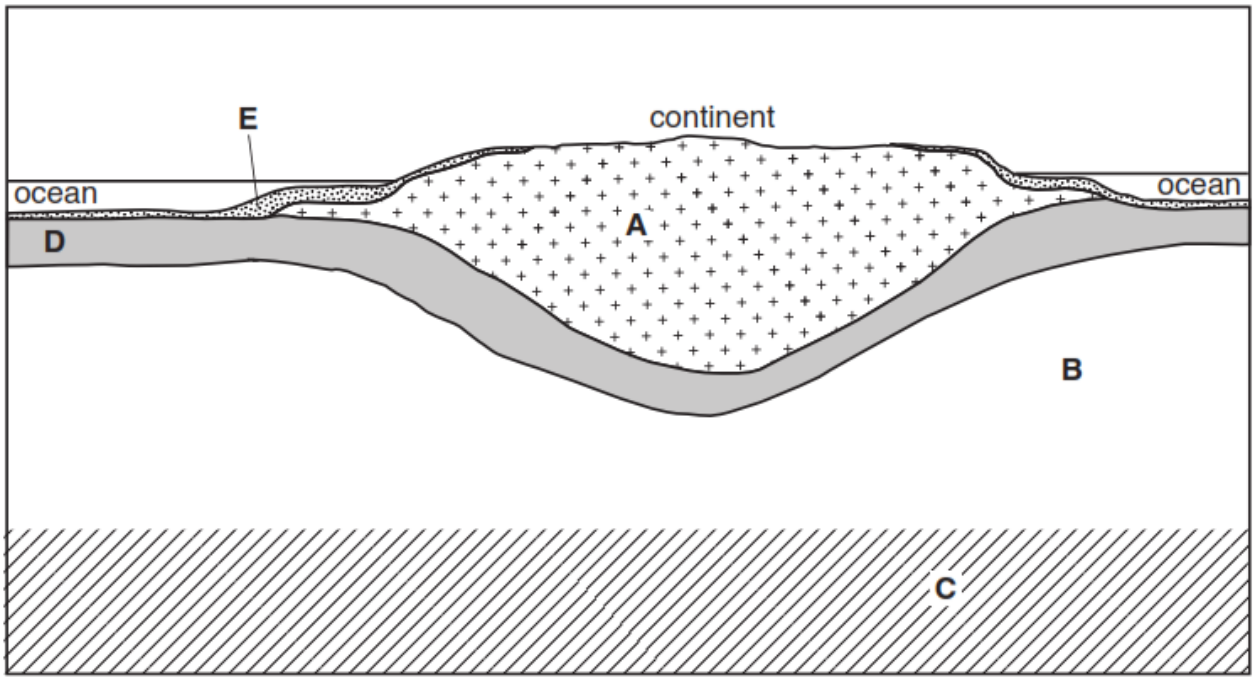
.....

.....

.....[4]

March 2018 Q 1

The diagram shows features of the Earth's crust.



not to scale

(a) (i) Complete the table using letters **A** to **E** from the diagram.

feature	letter
continental crust	.....
core	.....
mantle	.....
oceanic crust	.....
sediment	.....

[3]

(ii) State the meaning of the terms:

igneous rock

.....

.....

metamorphic rock

.....

.....

sedimentary rock

.....

.....

[3]

(b) Most rocks are mined using opencast (open-pit) methods.

Describe **four** impacts of opencast mining on the environment.

1 .....

.....

2 .....

.....

3 .....

.....

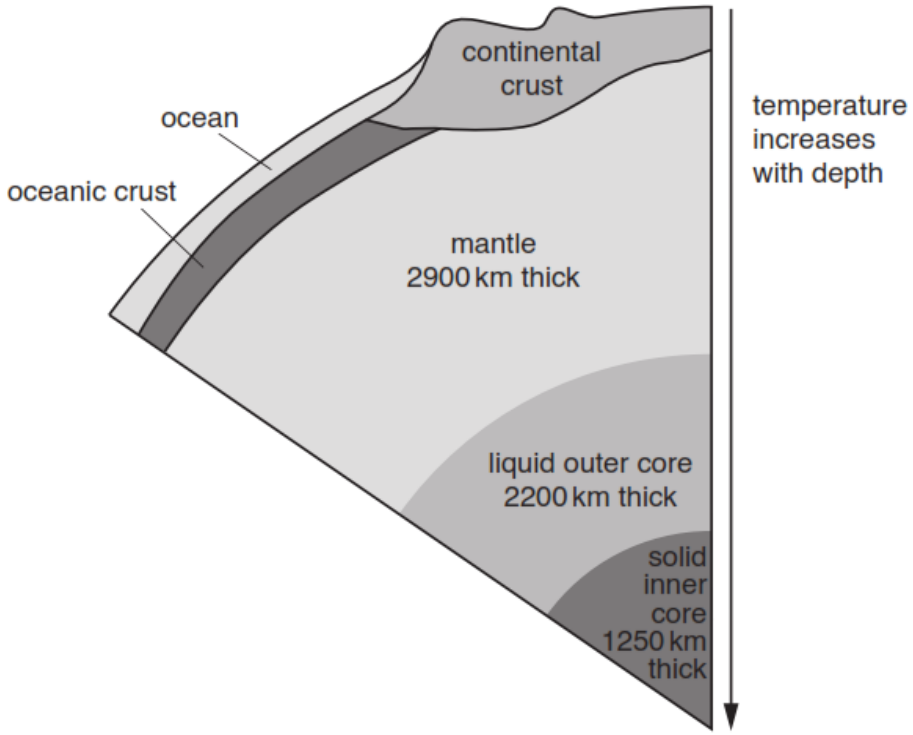
4 .....

.....

[4]

Nov 2018/12 Q 1

The diagram shows the structure of the Earth and the approximate thickness of some of the layers.



(a) (i) Use the diagram to describe the core of the Earth.

.....

.....

.....

.....[2]

(ii) The average radius of the Earth is 6400 km.

Use the information on the diagram to calculate the approximate thickness of the Earth's crust.

..... km [1]

(b) Name the **three** main types of rock found in the Earth's crust.

1.....

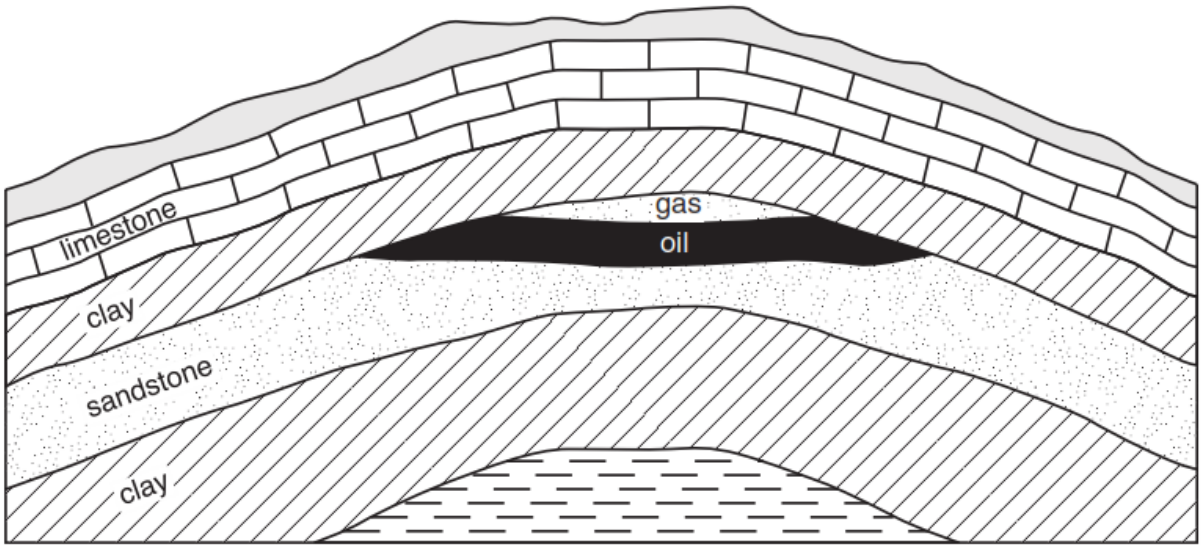
2.....

3.....

[1]

Nov 2017/13 Q 1

The diagram shows oil trapped in rocks.



(a) (i) State the name of the rock in which the oil is trapped.

.....[1]

(ii) Circle the rock type of the rocks named in the diagram.

igneous **metamorphic** **sedimentary** [1]

(iii) Explain how the oil is trapped in the rock in the diagram.

.....

.....

.....

.....[2]

(iv) Describe how an oil company could extract the oil from the rock in the diagram.

.....

.....

.....

.....

.....

.....[3]

Nov 2019/12 Q 9

The photograph shows an example of surface mining.

(a) State **two** advantages and **two** disadvantages of surface mining compared with subsurface mining.

advantage 1 .....

.....

advantage 2 .....

.....

disadvantage 1 .....

.....

disadvantage 2 .....

.....

[4]

(b) Rocks are classified into three main types.

Complete the table by identifying each type of rock.

basalt **granite** **limestone**

sandstone **shale** **slate**

type of rock		
igneous	**metamorphic**	**sedimentary**

[3]

(c) Describe how metamorphic rocks are formed.

.....

.....

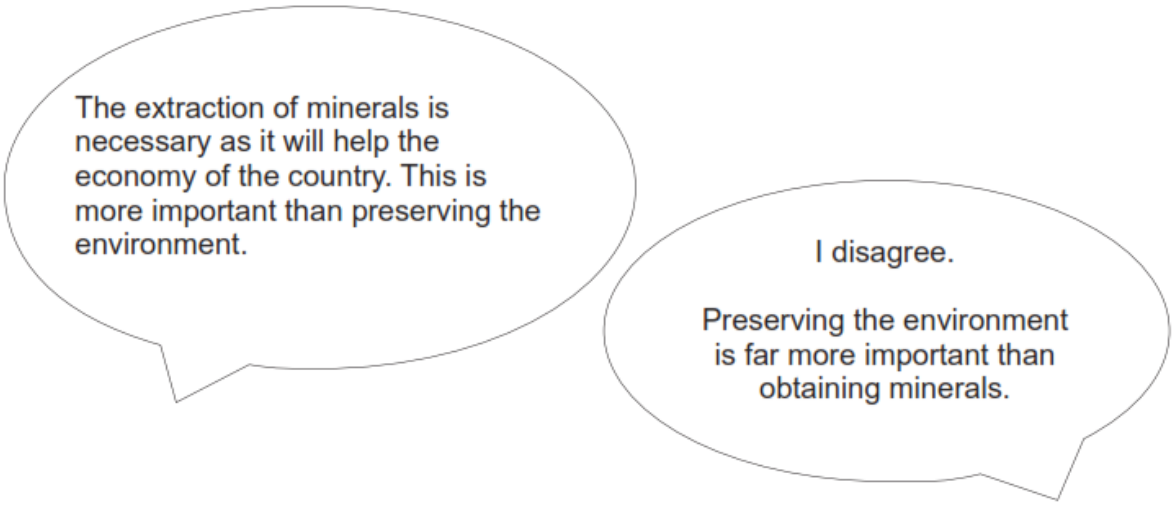
.....

.....

.....

..... [3]

(d) Two students were talking about the extraction of minerals.



How far do you agree with these views?

Give reasons for your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

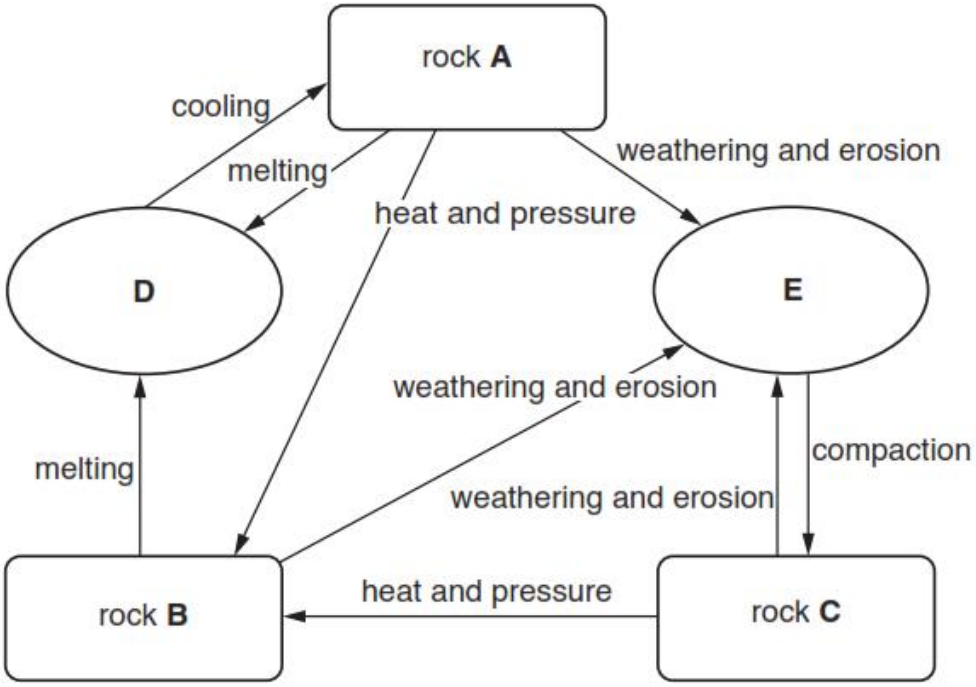
.....

.....

..... [6]

Nov 2016/12 Q 5

Look at the diagram below, which shows the rock cycle.

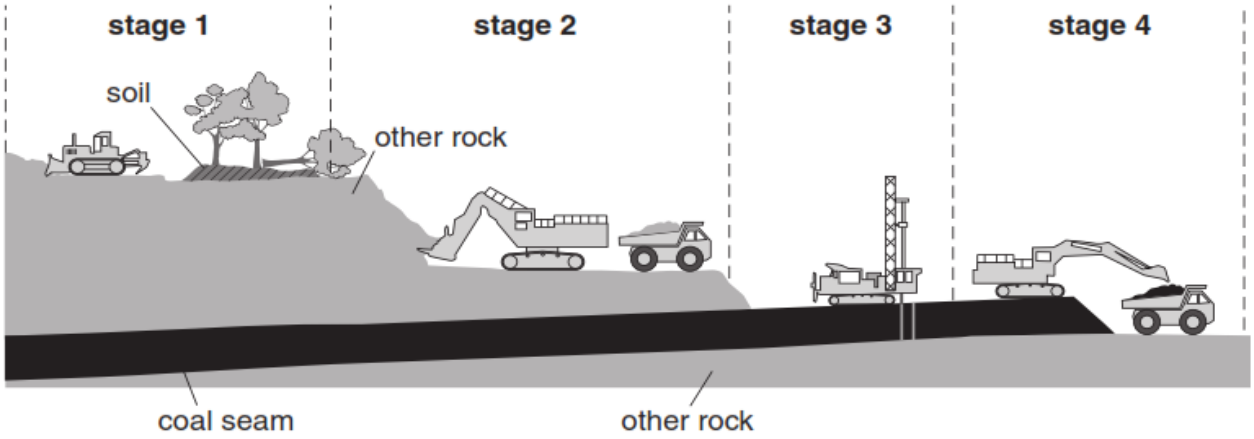


(a) Complete the table below using letters from the diagram.

stage in the rock cycle	letter
igneous rock	.....
magma	.....
metamorphic rock	.....
sedimentary rock	.....
sediment	.....

[3]

(b) Rocks, such as coal, are obtained by mining.
Look at the diagram below, which shows part of an open-pit (opencast) coal mine.



(i) Using the diagram, describe the process of open-pit mining.

.....

.....

.....

.....

.....

.....[3]

(ii) Landscaping and restoration often take place after mining has finished.

Explain how these methods might be used in the open-pit mine in the diagram.

.....

.....

.....

.....

.....

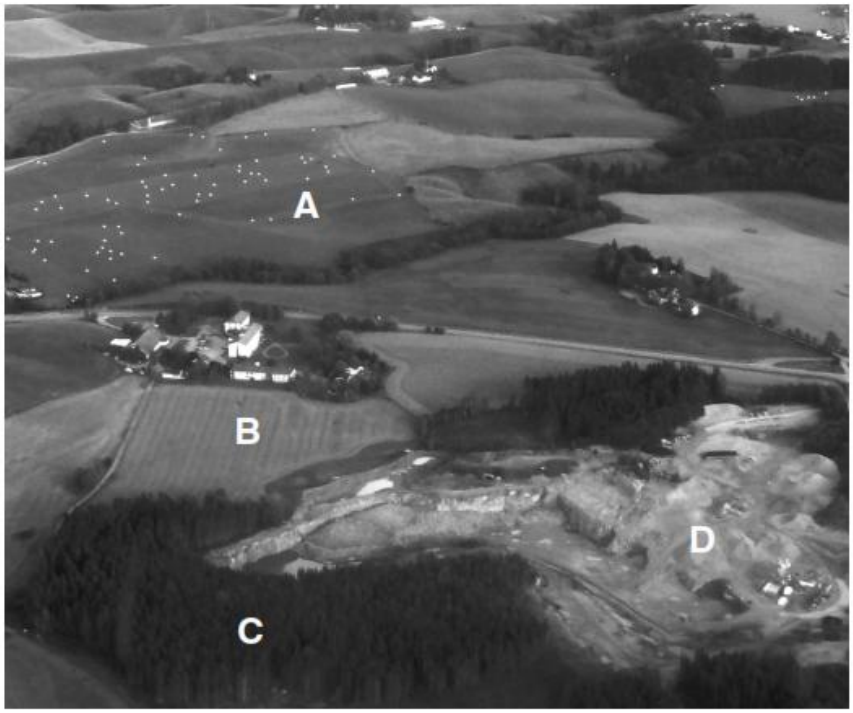
.....

.....

.....[4]

May 2016/13 Q 1

Look at the photograph below.



(a) (i) Complete the table below using letters from the photograph. [2]

land use	letter
crop farming	.....
grazing land	.....
natural vegetation	.....

(ii) Some areas shown in the photograph are still covered in trees.

Suggest why humans have not used these areas for other purposes.

.....

.....

.....

.....[2]

(iii) Suggest why there is an open-pit (opencast) mine at **D**.

.....

.....[1]

(iv) Describe ways in which environments damaged by mining can be improved.

.....

.....

.....

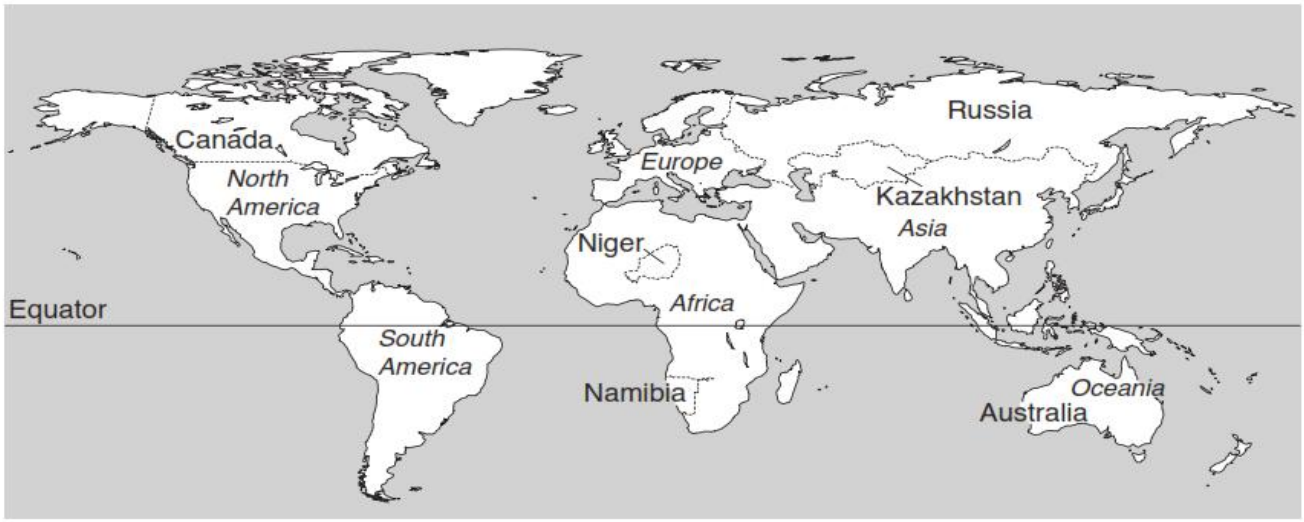
.....

.....

.....[3]

May 2018/11 Q 6

6 The map and table show information about the ten biggest uranium mines in the world in 2014.



Key

..... international boundary

rank	country	type of mining used	percentage of world uranium production
1	Canada	underground mine	13
2	Kazakhstan	in-situ leaching	8
3	Australia	underground mine	6
4	Niger	open-pit mine	5
5	Kazakhstan	in-situ leaching	4
5	Kazakhstan	in-situ leaching	4
5	Russia	underground mine	4
5	Namibia	open-pit mine	4
9	Kazakhstan	in-situ leaching	3
9	Kazakhstan	in-situ leaching	3

(a) Use the map and table to answer these questions.

(i) Name **three** countries with underground uranium mines.

1 .....

2 .....

3 .....

[1]

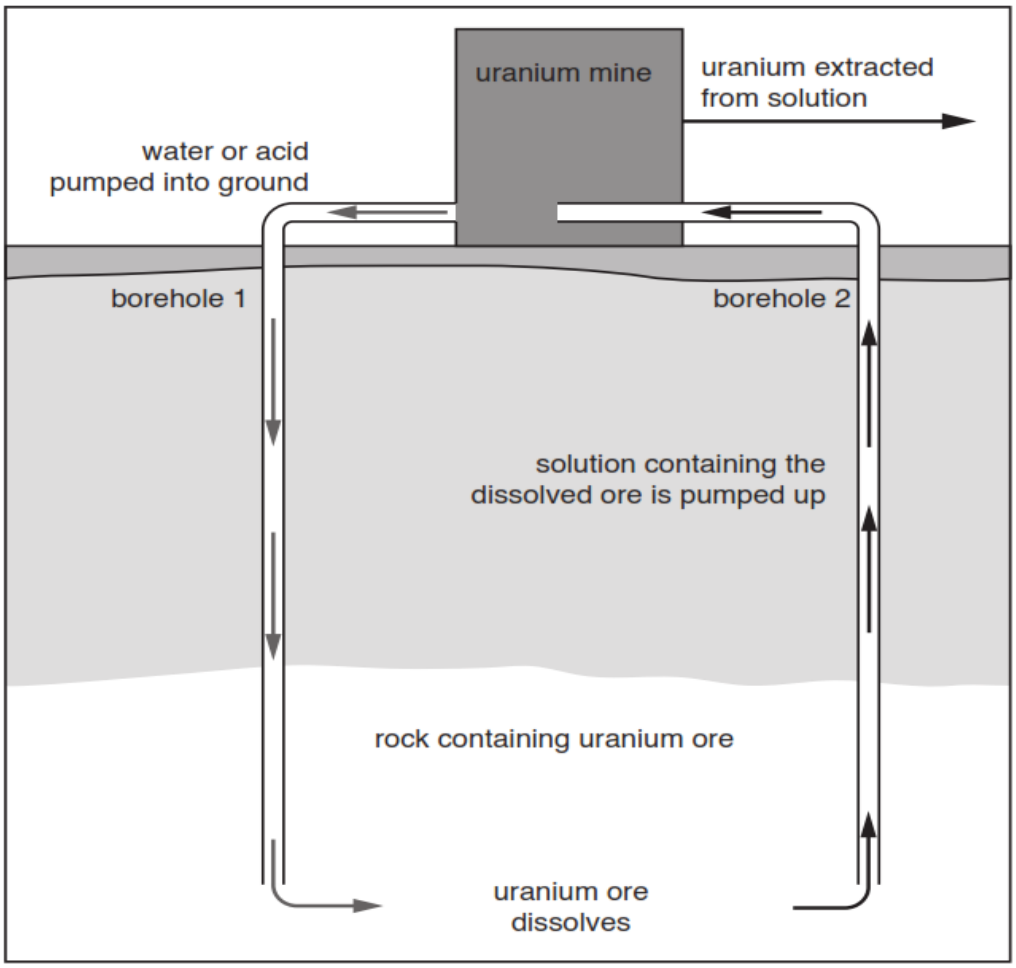
(ii) State the type of uranium mining in Africa.

.....[1]

(iii) Calculate the percentage of world uranium production that comes from the mines in Kazakhstan.

.....% [1]

(iv) In 2014, over half of the world's uranium was mined using in-situ leaching. A borehole is drilled into the rock containing uranium ore. Water or an acid is pumped down to dissolve the uranium ore. Uranium ore in solution is pumped up as a liquid from a second borehole. The process is shown in the diagram.



Suggest **two** advantages of the in-situ leaching method of mining.

1 .....

.....

2 .....

.....

[2]

(b) Most uranium is used in nuclear power stations to generate electricity.

Suggest reasons why the Chinese government made plans to build 40 nuclear power stations between 2016 and 2020.

.....

.....

.....

.....[2]

(c) Explain why some people do not want to live near nuclear power stations.

.....

.....

.....

.....

.....

.....[3]

March 2019 Q 6

In 2015, a new tungsten mine was opened in the United Kingdom. Tungsten is a metal used in many industries.

Before the mine opened, the United Kingdom imported the majority of its tungsten from overseas. The new mine will be the fourth-biggest tungsten mine in the world. The tungsten is found very close to the surface.

There is an increased world demand for tungsten.

The new mine created approximately 200 jobs in the local area.

The photograph shows this type of mining.

(a) (i) State the type of mining shown in the photograph.

..... [1]

(ii) Explain why this type of mining is suitable for the new tungsten mine.

.....

..... [1]

(b) Describe **three** impacts of this mine on the local area.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(c) Recycling is one strategy for the sustainable use of rocks and minerals.

Describe another way rocks and minerals can be used sustainably.

.....

..... [1]

Nov 2019/12 Q 9

The photograph shows an example of surface mining.

(a) State **two** advantages and **two** disadvantages of surface mining compared with subsurface mining.

advantage 1 .....

.....

advantage 2 .....

.....

disadvantage 1 .....

.....

disadvantage 2 .....

.....

[4]

Nov 2019/13 Q 2

The photograph shows a location where marble is being extracted.

(a) Name the method of extraction shown in the photograph.

..... [1]

(b) Some rocks and minerals are in short supply.

State **two** strategies for the sustainable use of rocks and minerals.

1 .....

.....

2 .....

.....

[2]

(c) Suggest **three** benefits of mineral extraction for the economy of a country.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

May 2017/22 Q 1

(a) Name the types of rock formed by each of the following:

heat and/or pressure deep in the Earth's crust .....

magma or lava cooling and solidifying .....

the deposition of rock fragments, usually beneath the sea. .....

[3]

(b) **(i)** Describe how a mineral, such as iron ore, is extracted from an open-pit (opencast) mine.

.....

.....

.....

.....

.....

.....[3]

(ii) Describe how the land can be restored after open-pit mining.

.....

.....

.....

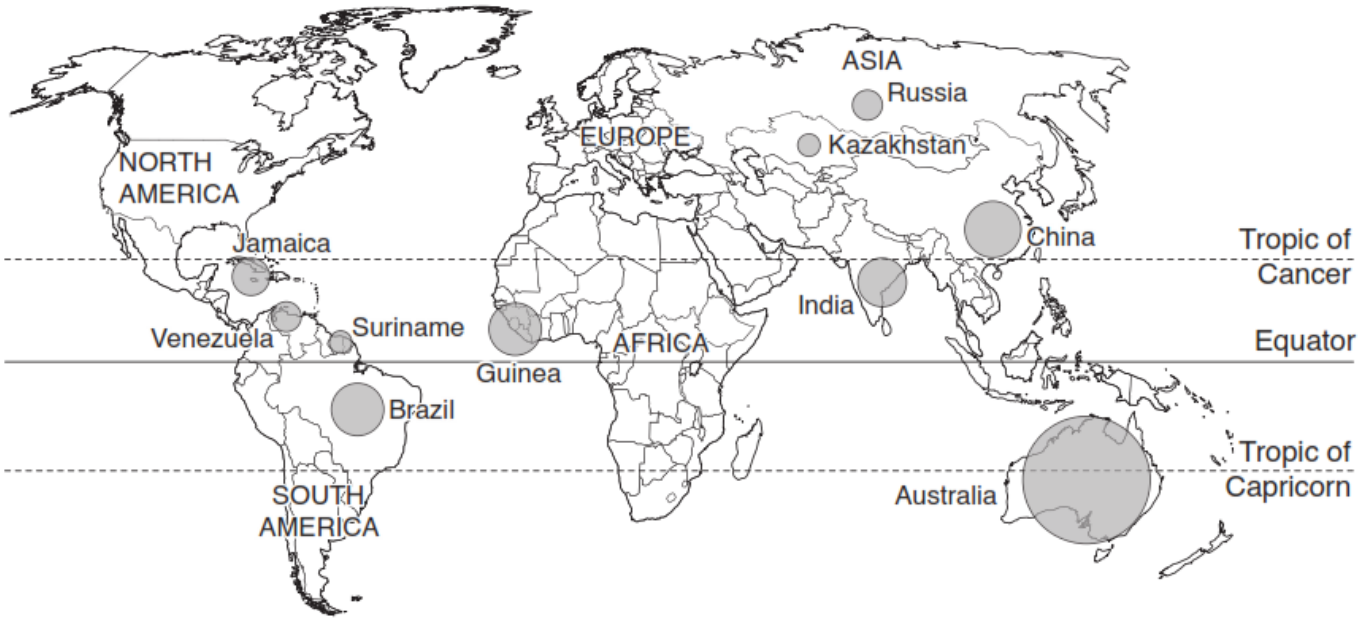
.....

.....

.....[3]

May 2018/23 Q 2c

(c) The map shows the location of ten major bauxite producing countries. Bauxite is the ore from which aluminium is obtained. The circles show the amount of bauxite mined in million tonnes per year.



(i) State the country which produces the largest amount of bauxite per year.

.....[1]

(ii) Describe the distribution of bauxite mining shown on the map.

.....

.....

.....

.....[2]

(iii) Bauxite is mined using the open-pit (opencast) method.

Briefly describe this mining method.

.....

.....

.....

.....

.....

.....[3]

(iv) Open-pit mining causes environmental problems.

Describe how these problems can be overcome.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[5]

(d) The table shows the top ten aluminium producing countries in 2015.

country	aluminium production /million tonnes
Australia	1.65
Bahrain	0.96
Canada	2.90
China	32.00
Iceland	0.82
India	2.35
Norway	1.32
Russia	3.50
United Arab Emirates (UAE)	2.30
USA	1.60

(i) Place the top five countries in rank order of aluminium production. The first one has been done for you.

rank	country
1	China
2	.....
3	.....
4	.....
5	.....

[2]

(ii) In 2015, the total world production of aluminium was 57.8 million tonnes.

Calculate the percentage of the world total produced in China. Circle the correct answer.

45% **50%** **55%** **60%** **65%** [1]

(iii) Using the information in part **(c)** and part **(d)**, state how many of the ten major bauxite producing countries are also top ten aluminium producing countries.

.....[1]

Nov 2018/21 Q 2f

(f) The photograph shows surface mining at an oil sand deposit.

(i) Describe how the mining company can restore the land after mining has finished at this location.

.....

.....

.....

.....[2]

(ii) The mining company wants to expand the oil sand mine. Some local people are against this plan.

The local government has decided to allow the expansion of the mine.

To what extent do you agree with this decision? Give reasons for your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[6]

Nov 2018/23 Q 2

Minerals and fossil fuels are non-renewable resources.

(a) (i) State **two** economic advantages of mineral extraction to a local community.

1 .....

.....

2 .....

.....

[2]

(ii) Suggest **three** reasons why mining might stop in a location.

1 .....

.....

2 .....

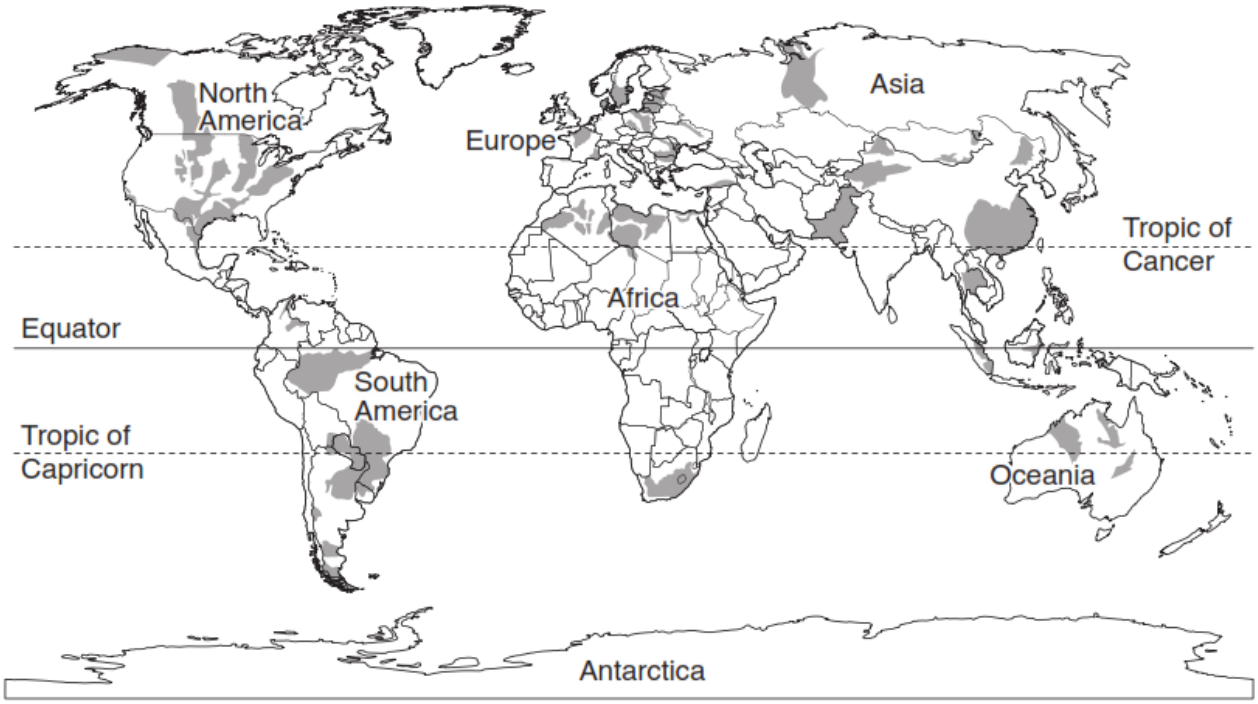
.....

3 .....

.....

[3]

(iii) Oil and gas can be found in a sedimentary rock called shale.
The map shows the location of known shale oil and shale gas reserves.



Key

shale oil and shale gas reserves

Describe the location of the known shale oil and shale gas reserves.

.....

.....

.....

.....[2]

(iv) It is thought that there may be further land-based reserves of shale oil and shale gas.

Suggest **two** reasons why they have not yet been discovered.

1 .....

.....

2 .....

.....

[2]

May 2019/21 Q 2 h

(h) **(i)** Bauxite, the ore from which aluminium is obtained, is imported into Iceland. Bauxite is extracted by surface mining. Surface mines often cover a large area of land.

State **two** impacts of surface mining.

1 .....

.....

2 .....

.....

[2]

(ii) Other than environmental impacts, suggest why bauxite might **not** be extracted from an area, even if there is a large deposit of accessible ore available.

.....

.....

.....

..... [2]

(iii) Describe how the landscape can be restored after a surface mine closes.

.....

.....

.....

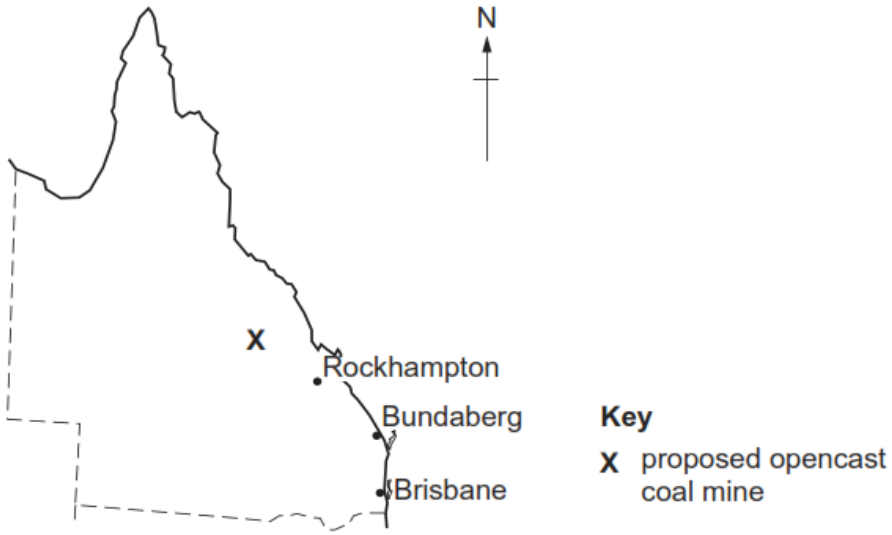
.....

.....

..... [3]

Specimen 2019/2 Q 1d

(d) The authorities in Queensland want to develop a new opencast coal mine. One proposed location is shown.



Local people were asked to fill in a questionnaire to find out their views about the proposed development of the new opencast mining project.

The table shows the results.

	percentage responses to questionnaire		
	yes	**no**	**do not know**
1. Do you expect more local people to be employed by the mining project?	42	46	12
2. Do you think the mining project will improve the transport links in the area?	60	25	15
3. Have you any worries about the environmental impact of the mining project?	35	55	10

(i) Suggest how people could have been selected for this questionnaire.

.....

.....

.....

..... [2]

(ii) Describe how the data from this questionnaire was processed.

.....

..... [1]

(iii) Suggest why the majority of local people had no worries about the environmental impact of the opencast mining project.

.....

.....

.....

..... [2]

(ii) Explain why opencast mining may have a larger environmental impact than deep mining.

.....

.....

.....

.....

.....

..... [3]

(iii) Much of the coal extracted from Queensland is exported. This coal is burnt in power stations to generate electricity. Carbon dioxide is released by burning coal in power stations.

Describe the environmental problems caused by the release of carbon dioxide.

.....

.....

.....

.....

.....

..... [3]

(iv) Describe how the landscape can be restored after the opencast mining project has finished.

.....

.....

.....

.....

.....

..... [3]