

Surname	Centre Number	Candidate Number
Other Names		2



GCE A level

1215/02

GEOLOGY – GL5

Thematic Unit 2

Geology of Natural Resources

P.M. TUESDAY, 10 June 2014

ONE of TWO units to be completed in 2 hours

For Examiner's use only			
	Question	Maximum Mark	Mark Awarded
Section A	1.	15	
Section B	2.	25	
	3.		
	4.		
	Total	40	

1215
02/0001

ADDITIONAL MATERIALS

In addition to this and one other examination paper, you will need a calculator.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **question 1** in Section A (15 marks) and **one** question from Section B (25 marks).

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

SECTION A

1. **Figure 1a** shows the ranks of coal with a representative price per tonne.

Figure 1b shows the change in proportion of elements in the different ranks of coal.

Figure 1c shows the change in calorific (energy) value and volatiles (liquids and gases) in the different ranks of coal.

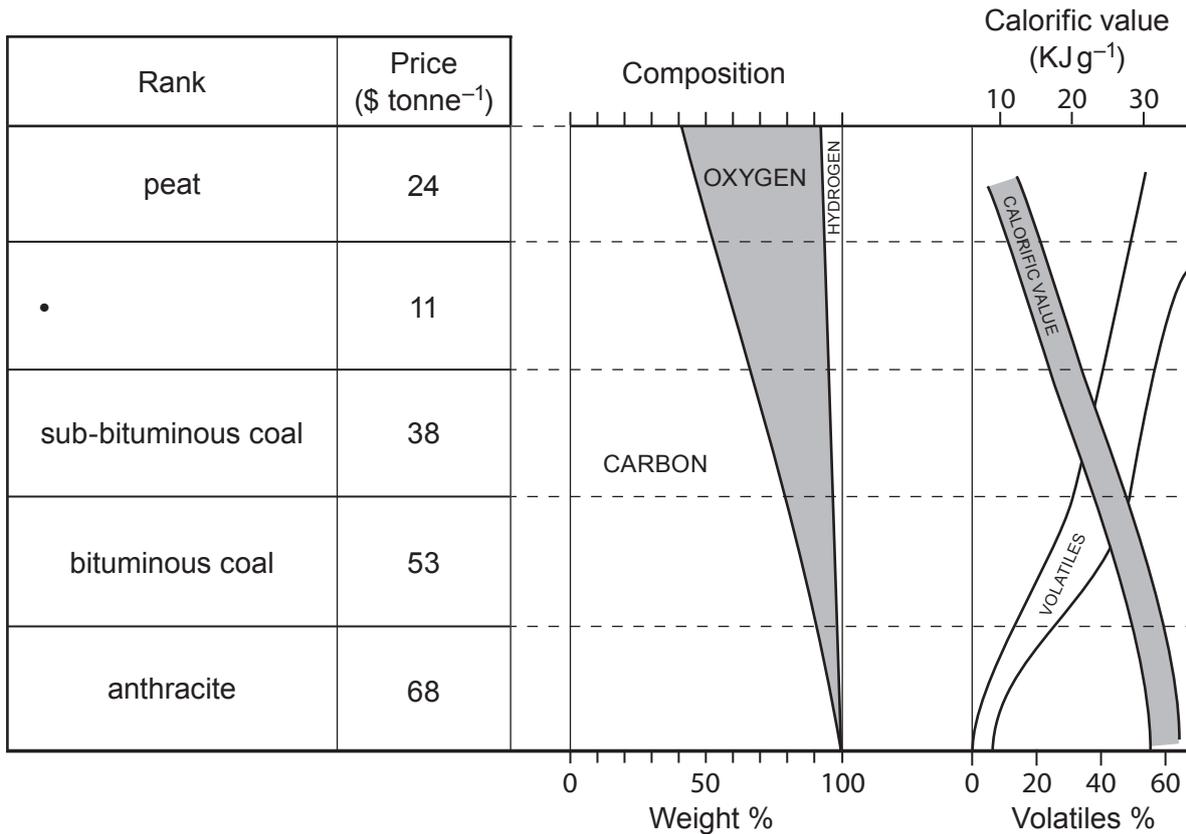


Figure 1a

Figure 1b

Figure 1c

(a) Complete **Figure 1a** by inserting the name of the missing coal rank. [1]

(b) (i) Using **Figure 1b** describe the changes in the composition of coal with increasing rank. [2]

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(ii) Describe the relationship between the price and the rank of coal in **Figure 1a**. [2]

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(iii) With reference to **Figures 1a, 1b** and **1c**. Give reasons for the relationship between price and rank of coal. [3]

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(c) **Figure 1d** is a geological map showing the outcrop of a coalfield. The carbon content of the coal (% carbon), taken from a drilling survey, is shown.

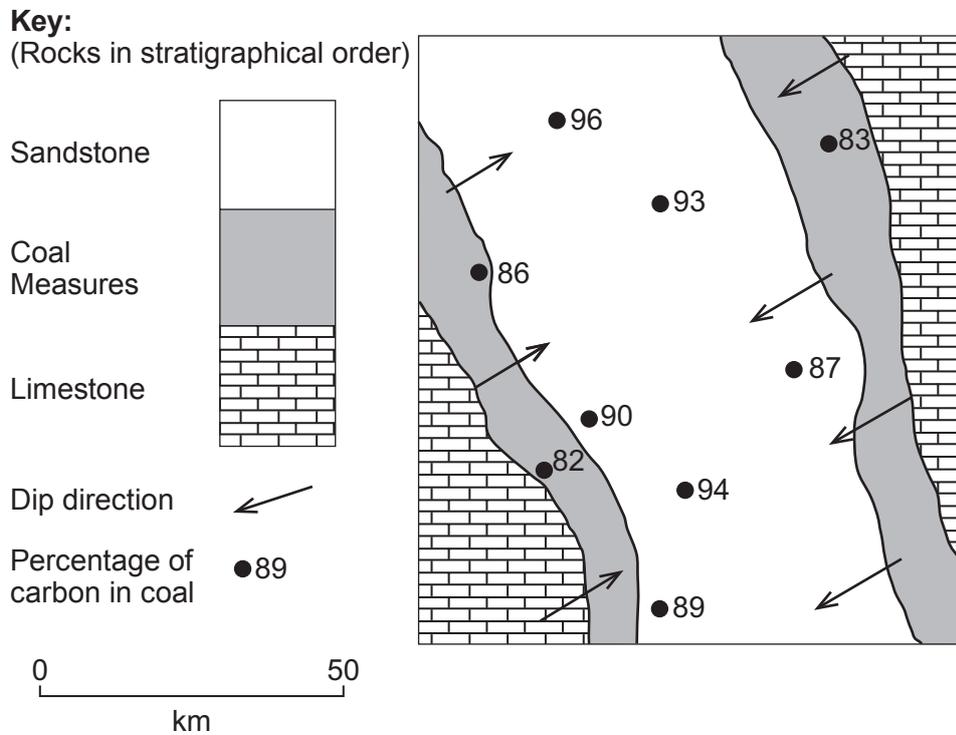


Figure 1d

Refer to **Figures 1a, 1b** and **1d**.

(i) Describe the pattern of changing rank of coal within the coalfield in **Figure 1d**. [1]

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- (ii) Suggest possible reasons for the distribution of coals of different ranks within the coalfield in **Figure 1d**. [2]

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- (d) (i) State **one** way in which the extraction of the coal, or another named geological raw material, could interfere with the surface or subsurface environment. [1]

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- (ii) With reference to your answer for (d)(i), explain how the adverse effects of this **one** environmental interference could be minimised. [3]

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15

SECTION B

*Answer **one** question only.*

Write your answer in the remaining pages of this booklet.

2. (a) Describe the origin of hydrocarbons (oil and natural gas).

- (b) Evaluate the role of porosity and permeability in the distribution, migration and accumulation of hydrocarbons (oil and natural gas). [25]

3. Describe and evaluate the importance of igneous processes in the formation of metalliferous ores of economic importance. [25]

4. Evaluate the importance of geophysical techniques in prospecting for mineral and energy resources. [25]

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