

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2013 series**

**0460 GEOGRAPHY**

**0460/05**

Paper 5 (Computer Based Alternative to Coursework),  
maximum raw mark 60

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0460	05

- 1 (a) Fossil fuels = B (formed over millions of years from the remains of plants & animals). (1)  
 (b) Renewable = D (will not run out). (1)  
 (c) Sustainable = A (will not harm the environment). (1)

- 2 No mark for choice of picture – but check it is correct.  
 The explanation must match the letter. If not, or the energy source is blank/incorrect the marks can still be awarded for the explanation.  
*1 mark for each correct energy source and 2 marks per explanation 3+3*

Any two from:

A = Water/hydro electricity/HEP (1)  
 The water is stored in a reservoir (1)  
 Water falls (1)  
 The water turns the turbine (1)

B = sun/solar/sunlight (1)  
 (NOT solar panels)  
 the sun shines on the cells/panels (1)  
 they absorb the heat (1)

C = heat from the earth/geothermal (1)  
 cold water is pumped underground/into the earth (1)  
 heat from the ground heats up water (1)  
 and produces steam (1)

D = coal/thermal (1)  
 Coal/fuel is burned (1)  
 to heat water (1)  
 which produces steam (1)

- 3 (a) 85% from fossil fuels (1)

- (b) Two reasons why people are concerned by the percentage of the world's energy generated from fossil fuels are:  
 they are highly dependent on them (1)  
 they are non-renewable/will run out/hard to find (1)  
 they cause air pollution/they contribute to global warming/climate change/pollute atmosphere/produce CO<sub>2</sub> (1)  
 the extraction of them may cause environmental disasters/water pollution (1)

(1 mark per reason – max 2)

- (c) Non-renewable = oil/coal/natural gas/nuclear power (1)

- (d) Renewable = biomass/hydro-electricity/solar/wind/wave/tidal/geothermal (1)

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0460	05

- 4 Coal Advantage: large reserves available (1)  
will last for a long time/100 years (1)
- Disadvantage: non-renewable (1)  
causes air pollution/acid rain (1)  
contributes to global warming/climate change (1)
- Solar Advantage: renewable/won't run out (1)  
sustainable/non-polluting/environmentally friendly (1)  
cheap to run (1)
- Disadvantage = limited supply/sun doesn't shine all the time (1)  
large areas of land taken up by solar furnaces/panels (1)

*(1 mark per advantages, 1 mark per disadvantage)*

- 5 (a) B (1)
- (b) 9.0 – 11.0                      37.0 – 43.0                      237.0 – 243.0                      (all numbers inclusive) (1)

- 6 (a) Dunkley nuclear power station is in a good location because:
- near the sea/source of water – for cooling water (1)  
on flat land – for easy building (1)  
near good communications/main road/railway – for easy import of uranium/raw materials  
and easy access for workers (1)  
away from the town/settlement to reduce the risk of contamination/radioactive leaks (1)
- (b) Bleakmoor wind farm is in a good location because:
- on high land/above 75 m – more winds are experienced/it's windier at higher altitudes (1)  
in an open area/not sheltered/no obstructions – more exposed to wind/get more wind (1)  
away from settlement – so no complaints about noise pollution (1)

*(2 marks per box – 1 mark per reason)*

- 7 Name of student (C) (1)  
Date and time (D) (1)

*(1 mark for each correct answer)*

- 8 Bleakmoor = +2 (+not needed)  
Dunkley = –6  
*(1 mark for each correct answer)*

<b>Page 4</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2013</b>	<b>0460</b>	<b>05</b>

**9** Bars dragged to correct heights:

Bleakmoor = + 2

Dunkley = -6

(1 mark for each correct answer – if incorrect, need to be same as answer for question 8).

**10** Environmental quality survey:

(a) Advantage easy to do/easy to compare/easy to graph/ easy to collect data (1)  
(NOT easy without qualification)  
quick (1)

Disadvantage subjective/opinion/not fact (1)  
(1 mark for each advantage and disadvantage)

(b) Improvement

use instruments to measure impacts (1)  
Named instrument – e.g. decibel meter/sound level meter/noisemeter/sticky patches  
repeat on different days/times/seasons  
get someone else to do the survey and do an average  
include more impacts in the survey  
increase the range of scores (e.g. +5 to -5)

(1 mark per improvement)

**11 (a)** Yes (1)

**(b) The Dunkley Power Station has a greater impact on the environment because:**

Marks are for *compared* statements and *compared* data. Look for more/less/higher/lower.

For example:

Total environmental quality score for Dunkley is lower than Bleakmoor (-6 compared to +2).

Dunkley was given more negative scores than Bleakmoor (Dunkley had 4/5 impacts/all apart from noise from power station and Bleakmoor had only 2/5 impacts with negative scores (noise from power station and visual impact).

All scores are lower for Dunkley compared to Bleakmoor except the noise from the power station (+2 compared to -2 at Bleakmoor).

Impact	Dunkley (nuclear)	Bleakmoor (wind)
Noise from power station	+2	-2
Visual impact	-3	-2
Noise from traffic	-1	+2
Air pollution	-1	+3
Loss of farmland	-3	+1

(up to 3 marks for support of answer – 1 reserved/1 mark max. for data)

<b>Page 5</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2013</b>	<b>0460</b>	<b>05</b>

**12 (a) They asked ‘Do you live in the local area?’**

to ensure that they only interviewed local people/not tourists/hypothesis is about locals/not valid if not locals/not everyone in the area is local (1)

to ensure that they only interviewed the ones affected by the power station (1)

**(b) They asked “Do you live in the local area?”**

to ensure that they only interviewed people who didn’t work at the power station/to avoid bias.

*(1 mark for each correct answer)*

**13 (a) The students choose to use a questionnaire with people in the local town rather than question people in their houses because**

it is easier/less time consuming/quicker

it is less intrusive/knocking on doors is an invasion of privacy/annoying

makes students less vulnerable

more people around in the town/people may not be in at home

there is a wider variety of people in a town

*(1 mark for each correct reason – max 2)*

A suitable sampling technique the students could use in the town is:

random – the students could use random numbers then ask the relevant person who goes past them

systematic – ask every 5<sup>th</sup> person (or every 10<sup>th</sup> etc) that go past them

stratified – the students should select people to question making sure they ask equal numbers of people of different genders and in different age groups.

Don’t allow any other types of sampling.

*(1 mark for name and 1 mark for description).*

<b>Page 6</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2013</b>	<b>0460</b>	<b>05</b>

**14** Correct bars drawn for yes

Q2 = 5

Q3 = 9

*(1 mark for each correct bar)*

**15** Correct labels added

1<sup>st</sup> section -more jobs in the area/more jobs

3<sup>rd</sup> section - no air pollution.

*(1 mark for each correct label)*

**16 Hypothesis 2 ‘Local people prefer Bleakmoor as a way of producing electricity was only partly true because:**

Environmentally, people preferred Bleakmoor

They thought that Bleakmoor was less noisy (12/30 thought Dunkley was noisy compared to 8/30 at Bleakmoor);

People also thought that Bleakmoor created more less traffic (5/25 compared to 21/30) People thought that Bleakmoor didn’t spoil the view as much (7/30 compared to 19/30 for Dunkley).

However, economically Dunkley was preferred

It creates more jobs (769 compared to 2)

*(There is NO hypothesis mark - marks are for reasons/comparisons.*

*Answer to include 3 comparative statements – 1 economic (JOBS) and 2 environmental (NOISE, TRAFFIC and VIEW) and 1 data mark).*

**17 Improvements:**

Ask more people than 30 – to get a valid/fairer/representative sample

Repeat the investigation on another day/time of year – to ensure that the results are valid/fair

Ask more questions – to get a fuller view/get more information.

Ask a balance of people of different ages/gender – to get more information to analyse/more valid/representative/fairer sample

Ask more open questions – to get a fuller view/get more information

*(1 mark for each improvement and 1 mark for explanation).*

<b>Page 7</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2013</b>	<b>0460</b>	<b>05</b>

**18 Advantages**

only requires a small amount of fuel/uranium/can produce a lot of energy from a small amount of uranium/fuel  
doesn't produce greenhouse gases/air pollution/contribute to global warming/acid rain  
running costs are low

**Disadvantages**

possible radiation leaks  
problems with disposal of radioactive waste  
power stations are expensive to build  
power stations are expensive to decommission  
water/beaches contaminated  
increased risk of leukaemia/cancer  
risk of explosion  
non renewable

*(1 mark for each advantage and 1 mark for each disadvantage)*