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.

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

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

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 C0² (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)

4 Coal Advantage: large reserves available
will last for a long time/100 years

Disadvantage: non-renewable
causes air pollution/acid rain
contributes to global warming/climate c

Solar Advantage: renewable/won't run out
sustainable/non-polluting/environmenta
cheap to run

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)

9 Bars dragged to correct heights:
Bleakmoor = + 2
Dunkley = –6
(1 mark for each correct answer – if incorrect, need to be same as

10 Environmental quality survey:

(a) Advantage — easy to do/easy to compare/easy to graph/
(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 Bleakmooor 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)

12 (a) They asked 'Do you live in the local area?'
to ensure that they only interviewed local people/not tourist
valid if not locals/not everyone in the area is local
to ensure that they only interviewed the ones affected by the

(b) They asked "Do you live in the local area?"
to ensure that they only interviewed people who didn't wor
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^{th} person (or every 10^{th} 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).

14 Correct bars drawn for yes
Q2 = 5
Q3 = 9
(1 mark for each correct bar)

15 Correct labels added
1st section -more jobs in the area/more jobs
3rd 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).

18 Advantages

only requires a small amount of fuel/uranium/can produce a lot of uranium/fuel
doesn't produce greenhouse gases/air pollution/contribute to glob
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)