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CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0460 GEOGRAPHY

0460/43 Paper 4 (Alternative to Coursework), maximum raw mark 60

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1 (a) (i) Dangers such as:
Swallowing polluted water
Rats in the water / insects / vermin
Infection in open wound / cut
Fumes / gases
Sharp objects
Chemicals in water

Protections such as: gloves / waterproof clothes / long sleeves / long trousers
Masks / goggles
Don't drink water / don't put fingers in water / wash when finished fieldwork
Wellingtons / waders / boots / shoes
Insect repellent
Cover up wound / plaster

Must be dangers of **pollution** not just river
Credit protection if appropriate to pollution, even if danger not credited.
No link needed

2 + 2 [4]

(ii) Foam on surface / water is not clear / murky / cloudy / can't see river bed
Discolouration / grey / green / brown / dark colour or any appropriate colour
Dead fish / animals
Rubbish / litter in water or on river bank
Oil film in water
Algae on the surface

2 @ 1 [2]

(b) (i) Take more than one reading at each sampling point (DON'T need average) / do test again / repeat investigation / other student does test
Get other students to check the reading on the meter
Use two or more meters at each sampling point
Make sure the meter is calibrated properly / working properly
Clear sensor after use / make sure sensor is clean
Leave sensor in water for period of time / until reading is stable

2 @ 1 [2]

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(ii) Digital meter gives a precise / accurate reading / to 1 or 2 decimal points
Time for dye to disappear is measured in days
Measuring time depends on subjective decision of when water is clear of dye or foam / hard to decide when water is clear

2 @ 1 [2]

(iii) Plot results for 9 days for dye to disappear at site 1,
48 minutes for foam to disappear at site 4 2 @ 1 [2]

(iv) Hypothesis is **true** – 1 mark reserve

pH reading decreases / water becomes more acidic (from site 1 to site 5 / downstream)
Dye disappears more quickly or in less days / time / oxygen level decreases (from site 1 to site 5 / downstream)
Foam takes longer to disappear (from site 1 to site 5 / downstream)
Statements to **2 marks max**

Credit paired data (distance or site and measurement) for any 2 sites to **1 mark max**.
This is a **reserve mark**.
E.g. at 5km pH is 6.6 & at 25km pH is 5.0
At 5 km dye takes 9 days to disappear & at 25km dye takes 2 days
At site 1 foam disappears in 2 minutes & at site 5 it disappears in 55 minutes
No tolerance on stats. [4]

(v) Different sources of pollution along the course of river
OR Farms / sewage outfall / towns / factories in some parts of river and not others
OR Factories release waste into river / farms release slurry etc.
Water may be treated / cleaned at point along river
Input of clean or dirty water from a tributary
More water / wider or deeper river dilutes pollution
Faster flow means less pollution / slower flow means more pollution 2 @ 1 [2]

(c) (i) To practice fieldwork techniques / find out any problems / won't make mistake in real fieldwork /correct errors / practice identifying species / get experience
To make sure that students understand instructions / know what to do / are confident / know what equipment to bring
To practise working as team / so everyone knows what to do
To test fieldwork equipment

2 @ 1 [2]

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(ii) Indicator animals / species live on river bed
OR Move animals into water / net
OR To find animals / creatures / organisms

[1]

(iii) To get a biotic score for each animal / put animal into correct group
So they could be quickly returned to the river [1]

(d) (i) Completion of tally marks: scud = 2, dragonfly = 5
Both needed for 1 mark [1]

(ii) 30 [1]

(iii) Plot 6.7 at 18km,
Plot 5.7 at 25km 2 @ 1 [2]

(iv) Average Biotic Index / score decreases / negative correlation

Credit paired stats for any 2 sites for 1 mark
e.g. at 5km / site 1 B.I. = 8.5 & at 25km / site 5 B.I. = 5.7
BI decrease by 2.8 over 20km 2

(v) Group 1 / clean water species or example live at sites 1, 2 /
most group 1 species found at sites 1 / 2
Group 3 / polluted water species or example live at sites 4,5 / most group 3 species found at sites 4 / 5
No group 1 species or example found at sites 4 / 5
Number of group 1 species or example decreases from sites 1 to 5
Group 3 species or example increase from 0 at site 1 to 7 at site 5
Number of group 3 species or example increase from sites 1 to 5

Need reference to group or example and sites or distance downstream

[2]

[Total 30 marks]

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2 (a) (i) 20 people:
Not enough for a reliable sample
Too few responses to reach a conclusion / to make study worthwhile
Not represent all people
Not full range of answers

500 people:
Take too long / long time to complete
Too many responses to produce the results from / analyse / process / put into data table
May not find 500 people
To many people for six students to deal with

1 + 1 [2]

(ii) Systematic sampling
Ask every tenth person / regular intervals
Avoid bias / fair test / quick method
OR
Random sampling
Use random numbers / ask next person they meet /ask anybody / any order / no specific order
Random numbers avoids bias / quick method / fair test
OR
Stratified sampling
Ask appropriate age / gender balance / in proportion to population / put into groups
Avoids bias / get proportionate sample / questionnaire contains different age groups & gender /fair test

1 mark for name, 1 mark for description, 1 mark for explanation
If method is wrong or blank credit appropriate description & explanation of one sampling method 3 @ 1 [3]

(iii) Where did you move from?
How long have you lived in the squatter settlement? / When did you move here?
How many members of your family came to the squatter settlement with you?

2 @ 1 [2]

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(b) (i) Completion of pie chart
This is the only house I could afford = 10%, to join other members of the family 18%
1 mark for dividing line at 82%, 1 mark for shading [2]

(ii) Results **do** support hypothesis – 1 mark reserve

More than half / more than 50% / most / majority moved to look for work / get a job / for employment
Less than half / less than 50% moved for other reasons

Credit data to **2 marks max**
54 moved for employment / 46 moved for reasons other than employment
31 moved to look for work **&** 23 moved to earn money to look after family (NEED BOTH)
[4]

(c) (i) Completion of bar graphs
New schools built for older children = 40
House is too small with too few rooms = 57 2 @ 1 [2]

(ii) Fire:
Houses are built of wood / scrap materials / easily burn / flammable
Houses are very cramped / close together
Fire can easily spread
Difficult for fire service to access community / no local fire service
Electrical cables / wires may not be safe / exposed
Gas leaks due to poor pipes
Open fires for cooking
Lack of regulations to prevent fire

Flooding:
Houses often built on floodplain / lowland / near river / on flat land
No flood protection barriers
Poor drainage / no pipes so water cannot drain away
Often in areas of heavy / intense / monsoon rainfall

2 + 2 [4]

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(iii) No / results do **not** support hypothesis – 1 mark reserve
There are more problems (than benefits) / there are more types of problems
The main problem has a higher score than the main benefit

Credit paired data to **2 marks max**
e.g. 270 benefits and 311 problems (NOT people)
6 (named) benefits & 7 (named) problems
64 replies for highest scoring problem & 58 replies for highest scoring benefit

[4]

(d) Safety of students / mugging / theft / crime / dangerous place
Hassle from residents / children
People being reluctant to answer questions / won't answer truthfully / may lie / rude / embarrassed to give correct answer / busy doing something / will not cooperate
Getting lost / difficult to get to / poor transport links to squatter settlement
Not finding enough people to make the survey accurate / people working away from squatter settlement
Language difficulties for people to understand the survey / people cannot understand questionnaire / do not speak English
Polluted water / air / rubbish / unhygienic conditions / student illness / disease / open drains or sewers / rats
Busy / crowded / noisy streets make it difficult to use questionnaire with people

3 @ 1 [3]

(e) Talk to people who live in squatter settlement / interview them **about ….** (not questionnaire)
Take photos (of different houses to show varying conditions)
Collect secondary data from internet / local government records / census
Make a blog to get peoples' opinions about conditions
Make a podcast / video to show housing conditions
Draw field sketches (of houses) and label them to show conditions
Do a housing quality survey / bi-polar survey
Count / tally different types of building materials / number of brick-built houses
Observe / look at / make notes on / write a description of / walk round **something** e.g. housing conditions

Credit development of ideas related to various methods [4]

[Total 30 marks]

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