UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

0460 GEOGRAPHY

0460/42 Paper 4 (Alternative to Coursework), maximum raw mark 60

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International Examinations

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1 (a) (i) To ensure consistency of results.
River conditions may change from one day to next.
No variation in the river / to keep the river the same.
Weather conditions may change. [1]

(ii) Accessibility from road / school (Access must be qualified).
Safety – e.g.; strong current (Safety must be qualified).
Equally distant from other investigation sites.
Away from human impact which may affect results.
2 @1 = 2 [2]

(iii) Practise fieldwork techniques.
Test equipment.
Agree methodology to ensure consistency / get the right idea.
2 @ 1 = 2 [2]

(b) (i) Max 2 for either width or depth
Stretch measuring tape / rope across channel from one bank to the other.
Measure across the rope using the tape measure.
Use rule / ruler to measure depth of river.
Rest rule / ruler on river bed.
Measure at regular intervals across river (every 20cm).
Record measurement in metres.
3 @ 1 = 3 [3]

(ii) Completion of cross-section (2 marks) (2 at 0.46; 2.2 at 0.41).
Tolerance for 2 is 0.45 to 0.47; tolerance for 2.2 is 0.42 to below 0.4.
Shade in cross-sectional area (1 mark).
(2 @ 1) + 1 = 3

(iii) 4.4 x 0.23 Figures must be these as they are given (Can reverse)
= 1.01 / or 1.012 sq metres (must have sq. metres or m2).
1 mark for knowing method; 1 mark for correct answer. No other figures are acceptable for either mark.
1 + 1 = 2 [2]

(iv) Must be clear which site/figure referring to; if not = 0. (Site 1 = Fig 2; Site 4 = Fig 3).
Differences must be comparative.
Cross section at Site 1 is more uneven /irregular / Site 4 is smoother
Smaller cross-sectional area at Site 1 / larger at Site 4.
Cross-section is wider at Site 4 / narrower at Site 1
Cross-section is deeper at Site 4 / shallower at Site 1
2 @ 1 = 2 [2]

(v) Can be given the anomaly mark here even if disagree with hypothesis
True/agree for width and cross-sectional area (1) Tick HA Reserve mark
Site 5 or 6 is an anomaly for depth / does not fit general pattern (1)
Width stays same between Sites 4/5 (1)
1 + 1 = 2 [2]

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(c) (i) Flow meter: put flow meter below surface/in river (Not on river)
Propeller must be facing upstream
Record / read / take reading
Calculate average

OR

Floats & stopwatch: measure set distance between two points along river.
Float orange / dog biscuit and time over distance.
Repeat several times across river and calculate average.
Calculate velocity by dividing distance by average time.
3 @ 1 = 3 [3]

(ii) If method chosen is same as **(i)** NO MARKS – be careful to check!
Flow meter:
Advantage – accuracy of reading / digital reading / quicker
Disadvantage – expensive / less accurate in low flow conditions / battery may go flat / less easy to buy

OR

Floats & stopwatch:
Advantage – cheap / no specialised equipment needed
Disadvantage – less accurate / takes longer / need to do calculation of velocity / floats affected by wind or vegetation / only measures surface velocity
1 + 1 = 2 [2]

(iii) Plotting points on scatter graph; no tolerance
Site 5 = 0.27 at 1.2
Site 6 = 0.25 at 1.3 - must be in the square
2 @ 1 = 2 [2]

(iv) Hypothesis 2 is true/mostly or partially true/agree = Tick HA (1).
No marks at all if say it is untrue/disagree = X HA. Give 1 for evidence to support Hypothesis and 1 for anomaly.
Agree / Velocity does increase with depth (1) at Sites 1-4 / overall (1) or data evidence (1).
Anomaly mark (1 max)
But velocity at sites 5 & 6 is much greater than would be suggested by graph (1)
But river is deeper at site 5 than site 6 but velocity is greater at site 6 (1)
1 + 1 + 1 = 3 [3]

(d) Sketches of six sites
Photographs of six sites
Annotations to show changing landscape of valley
Measure and record gradient of the bed
Measure cross-profile at the six sites
Describe changes in vegetation DO NOT CREDIT refs to rocks/soil
Describe differences in human activity in the valley
Record dimensions on paper / in a table / make notes (NOT draw graphs during fieldwork).
3 @ 1= 3 [3]

[Total: 30]

2 (a) (i) Lake / pond (Accept trees due to location of arrow end) [1]

(ii) 332 [1]

(b) Landscape: open / spacious; grass / greenery/vegetation/lawn; water / lake; trees / bushes / hedges / forestry; flat
Buildings: modern; glass / many windows; >1storey; light coloured; low rise.
NOT to accept bridges, roads, blue skies, green as landscape features.
Reserve 1 for each i.e. 3 max on either
(1+3 or 2 + 2 or 3 + 1) = 4 [4]

(c) (i) Privacy for company / infringement of copyright
Name not required [1]

(ii) Ignore references to number of employees / size must relate to buildings
Two groups of companies (1)
1 group near an entrance / 1 group away from entrances (1)
1 group north of site / 1 group south of site (1)
1 group near centre of site / 1 group near outskirts (1)
Smaller companies near entrance / Larger companies away from entrances (1)
3 @ 1 = 3 [3]

(iii) Computer / telecommunications sector companies = 7
Total number of companies = 93
No other figures must be credited for either mark
2 @ 1 = 2 [2]

(iv) Pie graph completion (Allow reverse plotting if shading matches it)
1 mark for accurately plotting line at 89 (or 94 if reverse)
1 mark for shading sectors using key in right order
1 + 1 = 2 [2]

(v) Most / 89% / 83/93 of the companies on the industrial estate are in high technology OR Only 11% other industries (1)
Lots of / 28 or 30% bio-medical OR many / 26 or 28% environmental (1)
2 @ 1 = 2 [2]

(vi) Companies can share information / ideas
Can share research facilities / laboratories / resources / materials **NOT** employees or raw materials
Possible location near to universities
Desire for similar influences e.g. green site, grants, attractive scenery, near road / rail links, cheap land (Transport too vague) (1 max)
3 @ 1 = 3 [3]

(vii) General factors for locating here e.g. cheap land, space for parking (1 max)
Nearby restaurants convenient for meals
High disposable income of local workers
Use gym before / after work
Drop children off at nursery
2 @ 1 = 2 [2]

(d) (i) 2 marks for accurate bars at 30 and 53
2 @ 1 = 2 [2]

(ii) Do not accept questions that have been answered by the table results or questions that might be asked of individuals. Must relate to Hypothesis 2.

Companies in high technology industries need highly skilled or trained employees

Examples:
What qualifications do your employees have?
How many of your employees have university degrees?
How much training do your employees undertake?
What particular skills do your employees have?
Why do you need skilled or trained workers?
Do you employ any unskilled workers?
What do your unskilled workers do?
How often does training take place?
3 @ 1 = 3 [3]

(e) Credit fieldwork/practical techniques that are feasible; do not credit references to transport links involving workers and traffic counts

Good transport links:
Survey companies – how important are transport links
which types of transport link are most used
location of raw materials / components / markets
Map local / national / international transport links used by companies

OR

Small quantities of raw materials:
Survey companies – how important are raw materials / components
which types of raw materials / components are most used
location of raw materials / components
Map of location of raw materials
4 @ 1 = 4 [4]

[Total: 30]