

MARK SCHEME for the May/June 2007 question paper

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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme	Syllabus
	IGCSE – May/June 2007	0460

- 1 A Disadvantage = temperatures may be affected by height
 B Disadvantage = less rain will be recorded
 C Advantage = easy to take cloud cover readings
 D Advantage = easy access to take readings
 4 correct answers = 2 marks, 2/3 correct = 1 mark [2]
- 2 To see the daily variations/changes in the weather (temperatures, rainfall and cloud cover). To record variations during the day
 No credit for 'to get average'/'for a fairer test'/'for accuracy' [1]
- 3 oktas [1]
- 4 C, so that you can have a clear view of the sky [1]
- 5 Top left = 3 or 4 Top right = 7
 Bottom left = 8 Bottom right = 0
 4 correct = 2 marks, 2 or 3 correct = 1 mark [2]
- 6 Top image – cumulus
 Middle image – stratus
 Lower image – cumulonimbus
 3 correct = 2 marks, 1 or 2 correct = 1 mark [2]
- 7 1 = E, funnel [1]
- 8 2 = D, metal outer container [1]
- 9 3 = B, collecting container [1]
- 10 Day 6 , 17.00 = 6 [2]
 Day 12, 14.00 = 3 (allow 2.9)
 1 mark for each correct answer
- 11 Day 6 total = 11
 Day 12 total = 9 (allow 8.9)
 14.00 total = 34 (allow 33.9)
 17.00 total = 76
 2 marks for 4 correct, 1 mark for 2 or 3 correct [1]
- 12 X axis = time of day/time (hours)
 Y axis = amount of rainfall/precipitation/rain (millimetres/mm)
 1 mark per correct axis label (with unit) [2]
- 13 Rainfall is lowest in the early morning (08.00) (0-5 mm); rainfall increases during the day; rainfall is highest in late afternoon (at 17.00) (4-7 mm); anomaly of days 4 and 8 slightly different – more rainfall in the early morning.
 1 mark per valid point made – 1 for increase, 1 for identification of highest and lowest, 1 for the anomaly. [3]

Page 3	Mark Scheme	Syllabus
	IGCSE – May/June 2007	0460

- 14** Day 8
higher
B, student error and D, rainfall after 17.00 on previous day
3 marks for 4 correct answers, 2 marks for 2 or 3 correct answers and 1 mark for 1 correct answer. [3]
- 15** Day 3, 11.00 = 25
Day 3 mean = 25
11.00 mean = 26
Day 10, 14.00 = 31
Day 10 mean = 27
14.00 mean = 29
1 mark for 2 readings, 1 for 2 (day) means, 1 mark for 2 (time) means. [3]
- 16** Bars drawn for:
08.00 = 21 mm
11.00 = 26 mm
14.00 = 29 mm
17.00 = 27 mm
2 marks for 4 correct bars ; 1 mark for 2-3 correct bars
1 mark for correct title: Mean temperatures (degrees Celsius) for 14 days in the rainforest.
Must have rainforest, 14 days or degrees C not just temperature graph or rainforest graph. [3]
- 17** The difference between the highest (maximum) and the lowest (minimum) temperature/maximum temp minus minimum temp.
Day 8 11 degrees/degrees Celsius
1 mark per correct answer [3]
- 18** Temperatures are lowest in the early morning/at 08.00 (19–20 degrees); temperatures increase up to the early afternoon/at 14.00 when they peak (27 degrees to 31 degrees); they then decrease in late afternoon/at 17.00 (25 degrees to 28 degrees).
1 mark for identification of lowest time/temperature, 1 mark for identification of highest time/temperature, 1 mark for increase up to 14.00 then decrease to 17.00; max. 2 if no data [3]
- 19** Top left = 11.00 Top right = 14.00
Bottom left = 17.00 Bottom right = 08.00
4 correct = 2 marks,
3 or 2 correct = 1 mark [2]
- 20** Type of rainfall: convectional/convection
Explanation: In the morning there are clear skies and strong heating from the sun warms the ground; Warm air rises in convection currents/evaporation from surfaces and vegetation; As the currents rise, cooling takes place and currents descend, to be reheated and rise again; Air cools and condensation occurs forming clouds; as the day progresses large thunder/cumulonimbus clouds build up; Eventually water droplets in the cloud become so large and heavy/saturated that by late afternoon they fall as torrential rain.
1 mark for identifying type of rainfall and 3 marks for explanation.

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	IGCSE – May/June 2007	0460

- 21 1 = D, canopy/crown
2 = F, drip tip
3 = A, buttress roots
1 mark for each correct answer
- 22 **Branchless trunk:** The trunk is branchless as the tree uses all its energy in competing for the sunlight so it grows tall.
Drip tip: The leaves on trees have drip tips these allow the heavy rainfall to slide off the leaf and drip on to the ground.
Buttress roots: These are large roots on the outside of the tree trunk [at the base]. They give the tree support because the roots are shallow.
Shrub layer: Plants on the forest floor which can survive with limited light.
Canopy/crown: This spreads out as the top layer of the forest, to gain maximum light.
Lianas: These creepers grow up tree trunks using their support to reach the sunlight.
1 mark for each well explained answer [3]
- 23 I accept the hypothesis. Temperatures, rainfall and cloud cover all increase during the day.
1 mark for hypothesis. 1 mark for describing increases, 1 mark for use of data. 1 mark for identifying temperatures increasing up to 14.00 and then decreasing at 17.00. 1 mark for giving reason (build up of cloud cover). Must mention temperatures, rainfall and cloud cover to get maximum marks. [4]
- 24 Driest month = B, August
Wettest month = B, March
Warmest months = C, September, October and November
Coolest month = A, April
4 correct = 2 marks, 3 or 2 correct = 1 mark [2]
- 25 Student data only taken for 14 days by amateurs and is weather, not climate data. Climate data taken by professionals/specialists and averaged over many (30-40) years.
Rainfall: The students' rainfall data is similar to the climate data (258 mm compared to approx. 260 mm in March). Also allow wider range of rainfall figures in climate.
Temperature: The students' temperature data is lower than the climate data (approx. 27 degrees on the climate graph, compared with 25 degrees in March).
1 mark per correct section [3]
- 26 The data could be collected: for longer (e.g. 4 weeks/28 days [rather than 14 days]); at more times during the day/night (rather than just 4 times); again – to check it was valid; in another location to back up the findings; they could use a maximum/minimum thermometer; use electronic device/data logger. Also collect humidity or wind readings. Only allow improvements, not checks.
1 mark for each correct suggestion. [3]

[Total: 60]