

**MARK SCHEME for the May/June 2011 question paper
for the guidance of teachers**

2217 GEOGRAPHY

2217/23

Paper 2 (Investigation and Skills), maximum raw mark 90

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

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

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Section A

- 1 (a)** 7016 [1]
- (b)** Sewage
Hospital
Post Office
Police Station
Reservoir
Two services = 1 mark [2]
- (c) (i)** Power line [1]
- (ii)** Dip tank [1]
- (iii)** Welmode [1]
- (iv)** 1508 metres [1]
- (v)** Rapid [1]
- (d) (i)** 500 – 650 [1]
- (ii)** Overall runs NW – SE / overall faces NE
Middle section runs NE – SW / middle section faces SE [2]
- (e)** Orchard positioned 26 – 30mm from left
River positioned 17 – 20mm from left [2]
- (f) (i)** Mining / prospecting trench
Track / Cut line / Game trail
Road other
Cultivation
Orchard / plantation
Dam [4]
- (ii)** X above 1660m contour [1]
- (iii)** Boundary crossing between eastings 62 and 63
Boundary in 6117 [2]

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- 2 (a) (i)** Oxbow (lake) / cut-off meander [1]
- (ii)** **A** has water out of the ground / filtering effect of ground / springs
B is downstream from grazing land / village **A** [1]
- (iii)** Steep slopes
Marshy ground
River crossing [2]
- (b)** **A** – Water supply / flat land
B – Water supply / south facing / facing sun / above floodplain
C – Defensive / water supply
D – Building materials / above floodplain [4]
- 3 (a) (i)** Line along bottom of sketch [1]
- (ii)** Fishing boats – any boat except passenger ferry
Rice cultivation – any low, flat land on far shore [2]
- (b)** Bare ground / deposition in foreground
Rice cultivation needs flooded fields
Building on higher ground / stilts
Gangways to boat jetty [2]
- (c) (i)** Inputs – relief / soils / labour / building / machinery / money / fertiliser / seeds / land
Processes – planting / weeding / applying fertiliser / pesticide / watering / harvesting / ploughing [2]
- (ii)** High temperature for rapid plant growth
High rainfall is adequate for plant growth
Monsoon climate allows seasonal flooding [1]
- 4 (a) (i)** 22 – 24
35 – 36 [2]
- (ii)** Flame-shaped / pointed / conical [1]
- (b)** Correct plot on graph [1]
- (c)** July
50
3
Emergent [4]

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- 5 (a) (i)** 1 for heights of bars
1 for position on graph [2]
- (ii)** May1
- (iii)** March, July, December [1]
- (b)** Increase to March
Peak in March
Decrease to June
Increase in July
Decrease to September
Lowest in September
Increase to December [4]
- 6 (a)** 5 in Africa / East Africa
2 in Asia / South Asia
1 in South America / south of South America
1 in Europe
Between Tropic of Cancer and Equator [3]
- (b)** 5 [1]
- (c) (i)** Lack of rain / cyclone
War / cyclone [2]
- (ii)** Population increase [1]
- (iii)** Adults too sick to work land [1]

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Section B

- 7 (a) (i)** Screen is painted white so that it reflects heat/light/sun / reduces direct heating by the sun / heat is not absorbed
 Sides are made of wooden slats with air spaces between so that air can circulate round the thermometers / air can get in / ventilated /
 Screen stands 121 cm above the ground so that instruments are not affected by heat from the ground / takes temperature of the air 3 @ 1 [3]
- (ii)** 19–20 (°C)
 7–8 (°C) [2]
- (b) (i)** The amount of moisture in the air as a percentage of the total moisture it could hold at that temperature [1]
- (ii)** Temperature difference = 1 (°C)
 Relative Humidity = 91(%) 2 @ 1 [2]
- (c) (i)** Give instant readings / don't have to work out answer / calculates percentage
 Easy / clear to read / large digital readout / hard to read thermometer /
 don't need to know how to read a thermometer / don't have to read off thermometer
 Exact figures / accurate
 Less chance of making mistake in reading / mis-reading
 Portable / can be used at more than one site
 Can download to computer
 Safer because no mercury 2 @ 1 [2]
- (ii)** Take more than one reading with different digital instrument
 Partner / other student checks readings are accurate
 Check result using traditional / normal thermometers (1 max) [2]
- (d) (i)** 38–40(m) [1]
- (ii)** Sites **C, E, H** [1]
- (iii)** Yes / hypothesis is correct / partially correct / temperatures are higher near buildings /
 temperatures are lower away from buildings (res) No = 0
 Three highest recordings are all next to / within 3m of buildings (**C, E, H**)
 Three lowest recordings are all far away / more than 30m from buildings
 Comparison between sites e.g. Site (**E**) at 1 m is 8.9 °C but site (**F**) at 17m is 8.2 °C
 Alternatively highest temp (at **C**) which is near buildings / lowest (at **M**) which is furthest from buildings – 1 max
 More than 20 m away temperatures are below 8.3 °C
 Anomaly (e.g. **B** is within 3 m but lower temperature than other sites) – must say why it is an anomaly – 1 max
 Wrong unit of measurement = 0
 No unit of measurement – accept figure [3]

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- (iv) Buildings / tarmac / concrete absorb / store heat from sun or internal heating system / buildings radiate heat for small distance around them
Aspect / south facing / north facing / faces sun
Funnelling effect of buildings
Sun: shade from sun/ shade by trees / buildings
Wind: Shelter from wind / exposure to wind / shelter by trees/ buildings
Different types of surface / e.g. some on grass and concrete 2 @ 1 [2]
- (e) (i) Plot on Fig. 6 75 next to water [1]
- (ii) $\frac{73 + 76 + 77 \text{ (or 226)}}{3}$ [1]
- (iii) Plot at 75.3 on concrete axis [1]
- (iv) Small range in variation / same relative humidity over campus / across different surface / no pattern
Variation from 73–77 / 4 % difference for all six surfaces / all sites / average percentages vary from 74.7–75.3
e.g. 73% in grass, concrete, trees, tarmac (any 2 types) – 1 max
e.g. concrete RH percentages of 73, 76, 77 (any 2 readings) – 1 max [3]
- (f) (i) Hypothesis such as:
Temperatures vary over specific time period e.g. throughout the year or between two specific months [January & July], over week [1]
- (ii) Ideas such as:
Measure maximum and/or minimum temperature
Method of measuring by using thermometer – pointer, magnet, – 2 max
When readings are made – daily / weekly / monthly
How readings are recorded – table / data sheet
Present using line / bar graph
Do analysis and / or conclusion / evaluation [4]

[Total: 30]

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- 8 (a) (i) 92 (ha) [1]
- (ii) 14.1 or 14.13(%) [1]
- (iii) Bar graph: shows numbers / amount / area
Easy to read off scale
- Pie graph: shows proportion / percentage
Easy to compare 2 @ 1 [2]
- (b) (i) Latitude
Longitude
Altitude / height 2 @ 1 [2]
- (ii) Equipment: clinometer or similar (pantometer / hand level / measuring gun, & pole or tape measure – 1 max)
Measure distance between poles / 100m between sites
Take measurement (hold clinometer between poles & read the angle) [3]
- (iii) Photograph / take sample of crop / sketch / written description
Look up in book / internet / land use map / map from farmer
Ask farmer / teacher [2]
- (iv) Potatoes – barley – oranges – olives – sheep up hillside (any 2)
Any 2 heights with crops description (e.g. potatoes at 100m & sheep at 900m)
On gentle gradient – potatoes/barley/oranges compared with on steeper gradient – olives/sheep (need both)
Any 2 angles with crops (e.g. potatoes at 5 degrees & sheep at 27 degrees)
Wrong unit of measurement = 0
No unit of measurement – accept figure [3]
- (v) Weather becomes wetter/cooler/windier
Steep slope – too steep for machinery / sheep are agile
Steep slope has poor/infertile / thin soil 2 @ 1 [2]
- (c) (i) Horizontal axis: hectares / ha
Vertical axis: hours per hectare per year, hr/ha/yr
Both for mark [1]
- (ii) Artichokes and barley plotted on Fig. 9 2 @ 1 [2]
- (iii) Best-fit line drawn on Fig. 9 [1]
- (iv) Hypothesis is incorrect – 1 mark reserved
Farming is more labour intensive / more hr per ha per year in smaller fields / less labour intensive / less hr per ha per year in larger fields
Evidence: best-fit line
Small field with high number of hours input and large field with low number of hours input / smallest field has highest number of hours
Paired data e.g. 5.8 ha = 5 hrs labour input, 2.7 ha = 19 hours [3]

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- (d) Machinery
 Capital / money
 Fertilisers / pesticides / insecticides
 High yielding seeds
 Livestock / cattle
 Buildings
 Drainage / irrigation
 Terracing
- 3 @ 1 [3]

- (e) More sample sites; would increase reliability of averages/reliability of results / accuracy of average figures
 Another transect on a different hillside / different farm; more data for analysis
 Repeat the investigation at different times of the year / seasons; comparison of results
 Interview/questionnaire farmer or different farmers; gain more details about evidence being collected
 Investigate other factors which may help explanation: e.g. soil pH / texture
 weather variation – rainfall / temperature – up the hillside – 1 max

2 + 2 [4]

[Total: 30]