

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the October/November 2014 series

5014 ENVIRONMENTAL MANAGEMENT

5014/22

Paper 2, maximum raw mark 60

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- 1 (a) (i) more jobs; raised standard of living; earn more foreign exchange; government can invest more in infrastructure; [2]
- (b) (i) $3000 - 100 = 2900/100 \times 100 = 2900\%;$; [2]
- (ii) population growing; so more food needed; not enough jobs; AVP; [2]
- (c) (i) to be able to compare three methods / eq.; [1]
- (ii) orientation; plots;; axes labelled; [4]
- (iii) the numbers steadily decrease for both villages; decrease is steeper for village B / converse; [2]
- (iv) harvesting in rotation at two week intervals is not enough for Piangua to replace themselves / eq.; Piangua can increase in numbers if left for two months; rotation will work if time is longer than two weeks but not longer than 2 months; AVP; [2]
- (v) use same methods / sampling plots; collect and measure smaller Piangua; return to Piangua to another site / not near plots in mangrove swamp; carry out for 26 weeks or sixth months for method three; [4]
- (vi) mark out harvesting areas across mangrove swamp; harvest each area at an agreed interval (more than two weeks); make sure everyone agrees to the plan; take sample measurements several times a year; prevent other villages harvesting areas; set a quota; [3]
- (d) (i) dealers want to make a profit; people will not pay much at market / eq.; plenty more people prepared to collect at this pay; [2]
- (ii) insects spread malaria / Dengue / other valid disease; insects become infected by biting infected human; then pass it on; ref. to female mosquitoes; [2]
- (e) (i) 21, 7, 99; [1]
- (ii) collectors do not measure every one; hope to sell a few just undersize; collectors make mistakes; [2]
- (iii) more than one bag increases reliability; [1]
- (iv) prevents too many young piangua being collected; allows them to reach maturity / breeding age / eq.; [2]

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- 2 (a) (i) $0.6 \times 2600 / 100 = 15.6$
 $25 - 15.6 = 9.4$; [2]
- (ii) ref. to temperature inversion; cold air above warm air; so cannot rise; ref. to air pressure differences; air trapped/cannot escape; pollutants come from industries/vehicles/eq.; [3]
- (iii) size/area of boards/tape; time of exposure; same distance off ground; face in the same direction; AVP; [1]
- (iv) table drawn; with suitable headings;; data filled in correctly; [4]
- (v) 7.5, 4.5; [1]
- (vi) 40%; allow e.c.f. from part (v) [1]
- (vii) reduce number of buses; change to biofuel/cleaner fuel; less cars by any means; tolls/congestion charge/eq.; new/more efficient buses; ref. to catalytic converters; allow cycle lanes/eq.; [3]
- (b) (i) 26, 53, 49, 51; [1]
- (ii) highest pollution with lowest rainfall/converse; steady rainfall and steady pollution last 9 months; use of figures to support point; [2]
- (iii) highest January – March, lowest October – December; [1]
- (iv) rainfall clears/cleans the air; so less pollutants inhaled during the day; may be below level needed to cause illness in last 9 months/can be tolerated; use of table figures to support arguments;; [3]
- (c) (i) three further questions, such as:
How many times do you get ill in a year?; Which months are you most ill?; Do you or your children get ill more frequently?; Have any adults died of acute respiratory illness?; Has any child died of acute respiratory illness?;
layout; [4]
- (ii) use the same questionnaire at regular intervals/specified interval; select sample of population the same way each time; further detail; same number of people; if more/less adults/children ill then pollution is less/more; [2]

AVP = Alternative Valid Point.

[Total: 60]