

CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2014 series

5014 ENVIRONMENTAL MANAGEMENT

5014/22

Paper 2, 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, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

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- 1 (a) (i) not enough jobs; ref. to crime; not enough education / not enough health care; different languages/culture; housing shortage/overcrowding/slums; other specified shortage; AVP; [2]
- (ii) graph with both axes labelled (MSP/Rs per 100 kg); all plots correct (allow two errors); orientation; *Max. three marks for bar graph.* [4]
- (iii) smallest 05–06; [1]
- (iv) largest 12–13; [1]
- (v) reasons such as inflation/eq.; increase in demand; decrease in crop yield; AVP e.g. ref. to fair trade; [1]
- (vi) *farmers* – easier to ensure a basic income/profit; encourage more jute growing/switch to jute; can borrow money against expected crop more easily;
government – maintains supply of jute; keeps farmers on the land/eq.; maintains employment; more government tax/revenue; [3]
- (b) bacteria/fungi/microbes/microorganisms; digest/breakdown/decompose/feed on the softer parts of the stem; harder fibres not harmed by microbes/remain unaltered/ insoluble/eq.; [2]
- (c) (i) fact 4 (or described); as reduces profits as the transport has to be paid for/time for transport/other problem with transport; [2]
- (ii) increase profit 1/2/3 (or described); with a valid reason; [2]
- (d) (i) eutrophication; bacteria/microbes, cause rotting/eq./increase; use up the oxygen/ become anaerobic; nutrients released; algal bloom/growth; some bacteria and algae die; *IGNORE fish.* [4]
- (ii) measure pH; oxygen; use a colour scale; disc with a cross on a black background; describe the stream at more than one point/above and below the jute stems; repeat the observations; at least five samples; observe more than one stream; further detail of any point; more days; equal number of days between samples; AVP; [3]
- (iii) (yes) the steam stopped smelling/the water became clear again;
Accept ref. to good water quality. [1]
- (e) (i) the microbes do not get washed away so larger numbers; the black plastic helps to heat the water; water gets hotter than stream so microbes work faster; ref. to faster respiration/multiplication; [1]
- (ii) no need to haul stems to a stream (allow once in part (i) or (ii)); more nutrients go back to the field; black plastic can be used again; only need to dig the pits once; water not wasted/does not cause pollution; [1]

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- (f) (i) glasses/eq. to stop fibres entering the eye; keep away from falling weights; blood loss/infection from being cut; [1]
- (ii) 305, 325; [1]
- (iii) one valid reason to support either old or new; ecf from (ii) [1]
- (iv) the fibres are natural so they will have flaws/tears/eq./it is very difficult to produce many samples exactly the same/description of human error; [1]
- (v) use smaller denomination weights; [1]

- (g) *in favour* – keeps people employed; keeps people on the land; one benefit of employment; reduces migration to urban areas; product is sustainable; biodegradable/non-polluting; AVP;
- against* – plastic sacks last longer; free market for sacks; prevents job opportunities in plastics industries; in other states; AVP; [4]

- 2 (a) (i) table drawn; two suitable headings (distance, number of *Derris* plants/% cover); at least six rows for records; [3]
- (ii) as distance increases the number of *Derris* decreases/eq.; [1]
- (iii) seeds/plants carried by boats/ships; carried by people on shoes; on clothing; carried by birds/animals; AVP; [2]
- (iv) the new plant may alter the balance of nature/food chains/webs/eq.; cause death of local plants; competition with other plants; may change the diet of some animals; may be toxic to animals; indicate other species are invading; AVP; [2]
- (v) the survey has only been done once; need to find out if this is a fast or slow process; need more information before making any action plan; identify negative impacts on other species; [2]
- (vi) plan B may cause more damage to the mangrove forest; difficult to control; may help to spread *Derris*; AVP;
- plan C does not kill any *Derris* as they will grow new leaves; so no control over spread of *Derris*; wildlife exposed to insecticide; collecting leaves could do more damage to mangrove forest; [2]
- (b) most of the money is spent before tourists arrive at the reserve/outside reserve; further details of spending e.g. hotels etc.; only boat owners gain money; only a few guides needed/can speak other languages/eq.; [2]
- (c) (i) warned people of the dangers of drinking contaminated water; provide drinking water; iodine/sterilising tablets; good sanitation/sewage disposal; isolation; vaccination; [2]
- (ii) likely to be a simple question about skin infections/cholera/allow any sensible question; further detail; [2]

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(iii) 5–30; [1]

(iv) random selection of villages; households; only one person to answer per household; equal number of people/households in each village; suitable age range for respondent/adult; AVP; [2]

(d) plan to carry out other similar surveys; to find out the size of the problem; the results can lead to better/faster response to cyclone hazards; decide which health issue is the most important; could be treated; keep store of medical supplies/drugs; AVP; [2]

AVP = Alternative Valid Point.

[Total: 60]