CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the May/June 2015 series

5014 ENVIRONMENTAL MANAGEMENT

5014/21 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.

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CAMBRIDGE
International Examinations

1 (a) (i) damage to, crops; infrastructure; buildings; roads; communications; loss of products; unemployment; inability to trade e.g. tourism; AVP; such as too sick to work; [2]

(ii) money sent back / e.g.; high costs of repair / recovery; [1]

(b) (i) provides fertiliser / nutrients / minerals / named mineral; for (plant) growth; rapid root development; manure retains water / eq.; [2]

(ii) increased density increases yield; increased yield decreases yield per tree; only by a small amount; doubling the number of trees does not double yield / eq.; use of figures to support any point; [3]

(iii) high cost of labour; for digging holes; cost of manure / bone meal; cost of extra seeds / seedlings / trees; loss of soil quality; extra investment only gives small increase in yield; [3]

(iv) intercropping / agroforestry / intensive; [1]

(v) nitrogen fixed (from the air); so more (nitrogen for crop) growth; more crop to sell / eat; fodder for animals; increased fertility; [3]

(c) (i) 253; [1]

(ii) 253 / 385 = 65.7–66.0 (%); [1]

(iii) knife or spoon / scales / bowl / notebook and pen;
Four for two marks. Three or two for one mark. [2]

(iv) care with knife / gloves to handle seed / wash hands; [1]

(v) use seeds for new planting; composted (to make fertiliser); animal feed; [2]

(d) (i) foreign currency helps balance of payments / eq.; more tax revenue; reduces poverty / improves standard of living; creates jobs / eq.; [2]

(ii) high cost of fertiliser and / or insecticide; regular hurricanes could destroy crop; drop in world demand; risk of going bankrupt / eq.; [2]

(iii) cross-breeding two varieties; selecting the offspring with desired characters; identify the allele / gene for large fruits; genetically engineer (a native variety); further detail of genetic engineering; ref. to grafting; [2]

(e) (i) product lasts longer; can be exported all year round; exported when demand / prices high; lower transport costs; native plants need less care / eq.; makes use of native species; AVP;

First point for one mark, two or three points for two marks. [2]

(ii) large amount of raw material needed / eq.; high production cost; skilled labour needed; difficult to dry flesh in a tropical climate; cost of heating / eq.; [2]

(iii) give grants / loans / subsidies for building ovens / buying gas; government education campaigns aimed at farmers / product promotion; [1]

(iv) sustainable: less chemical inputs needed; low risk of pollution; lower costs of production; still part of the local ecology / eq.; AVP;
OR
not sustainable: too difficult to process / store dried fruit; need to produce more fruits; demand may drop; small fruits are easy to export when there is demand;
AVP; [4]

2 (a) (i) one line in correct orientation; correct size each side of power line; [2]

(ii) plan 3 is in the correct orientation but plan 1 is not;
plan 3 goes into the forest but plan 1 and 2 do not;
plan 3 is repeated; plan 3 can check the data; so can take an average; [3]

(iii) line graph; correct orientation and both axes labelled; plots; [4]

(iv) plant species increases; then decreases; [2]

(v) person B is right with a reason, e.g. species diversity similar under lines and in forest; maximum diversity at the boundary; further detail may include use of data; [2]

(vi) survey animals; more power lines; each year to measure changes; identify species; survey for named abiotic factors; [3]

(b) (i) H.E.P. does not generate greenhouse gasses / eq.; acid rain; water is a renewable source; abundant supply; use as a reservoir; only a small amount of forest lost; AVP; [3]

(ii) to pay for the building of the dam / turbines / eq.; [1]

(iii) macaw not saved: as power for people more important than the habitat of one species / eq.; some loss of species has to be accepted;
OR
macaw saved: as if it becomes (locally) extinct (where will destruction stop);
keeping biodiversity is important for the future / eq.; AVP; [2]

(iv) silt builds up behind the dam; so less water held / flow of water reduced;
turbines turn less / generate less electricity; [1]

AVP = Alternative Valid Point.

[Total: 60]