CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0680 ENVIRONMENTAL MANAGEMENT

0680/43 Paper 4 (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, 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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International Examinations

1 (a) (i) jobs only temporary / not enough jobs for everyone / eq.; only a few hours / days a week /; seasonal work / eq.; [1]

(ii) they earn less money / live below the poverty line / eq.; so undernourished / eq.; more illness; cannot pay for schools; medical care; other named service; ref. to crime; AVP; [3]

(b) (i) bullseye fish goes down; as less shrimp to feed on; pelican goes down; less bullseye fish to feed on; or stays the same; as feed more on other fish species; [3]

(ii) mangroves are habitat to many species / eq.; breeding / spawning grounds; disrupt food chains; large-scale farming could lead to disease; ref. to a named role of mangroves e.g. absorbing energy from hurricanes / reduce flooding / storm damage eq.; [3]

(iii) use license / quota system; laws to protect remaining mangroves / eq.; do not catch wild shrimps / breed shrimp stock for farming; [3]

(c) (i) bar graph orientation; axes labelled;; plots; [4]

(ii) disease / algae die / toxins kill them; [1]

(iii) (total 1950 / 5 =) 390; [1]

(iv) so the average / mean is more representative / **C** is an anomaly / outlier / eq.; [1]

(d) (i) algae does not grow fast enough to feed so many shrimps; protein makes them grow faster; [1]

(ii) risks: loss of shrimps due to mechanical failure of pumps; or drainage; disease / toxins; high capital costs; skilled labour needed;
rewards: high profit / good income; learn a skill in demand; [3]

(e) (i) Americas 9; Honduras 7; [2]

(ii) Americas: steady rise in first 6 years; then steady high production 7–10 years; Honduras: steady until year 7 then level; fell in year 10; [2]

2 (a) (i) open-pit: large scale destruction of vegetation / habitats; overburden removed; more visual / noise / air pollution; lasts for a short time; shaft mining more dangerous; or converse statements [3]

(ii) open-pit mines more likely to lead to visual pollution; disturbance of wildlife; humans; stock animals; loss of farming land; dust causing health problems; reduced crop growth; ref. to less photosynthesis; [4]

(b) (i) **X** in the lowest part of the profile; [1]

(ii) bare ground: steady decrease with increasing distance; 25–30 m about the same; tallest plants: increase with increasing distance; 25–30 m no further increase / eq.; [3]

(iii) layout tape (between **P**–**Q**); on a compass bearing; lay quadrat at 5 m intervals; on same side of tape; use subdivisions to estimate percentage of bare ground; use ruler to measure plant height; record data in a table in notebook; AVP; [4]

(iv) number of different species; number of individual plants; number of plants with flowers; seeds; [1]

(v) repeat the survey (at least twice more around the waste pile); sample more waste piles; use same distance / method each time; [1]

(c) (i) **A C D B**;;
Allow one mark for only two correct. [2]

(ii) to be able to measure healthy root growth / eq.; to compare / judge contaminated root growth; [1]

(iii) temperature; pH; species of mung bean; age of seed; volume of water; number of seeds; size of container; [2]

(iv) (control) A 200 B 1400 C 840 D 1240;; [2]

(v) correct order B D C A; sensible positions; [2]

(d) to find out if high rainfall in July increased growth or increased suppression of growth; Is November similar to March?; repeated surveys at 4-month intervals; so whole year's growth recorded; [2]

(e) yes: only low level of pollution; may be a valuable export; more foreign exchange / eq.; creates jobs; skilled jobs; only limited environmental damage;

no: significant damage; further detail of damage; metal may not be of high value; as other countries produce it; loss of demand; not many jobs; water supply contaminated;

AVP = Alternative Valid Point. [4]

[Total: 60]