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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

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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]

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(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]

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