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International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0680 ENVIRONMENTAL MANAGEMENT

0680/41 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.

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1 (a) (i) 85.4;17.08; (allow 85.5; 17.1) [2]

(ii) Ethiopia; highest population; so more fertile women; women have more children than other countries / ref to 5.97; AVP, e.g. a valid point about better health; [2]

(iii) difficult to get agreement between countries; environmental protests; who is going to invest / not enough revenue; IMF / world bank not supporting development; which country will be responsible for each section; lack of skills in countries (planning/building); ref. to war or civil war; AVP, such as political change; [3]

(iv) many people employed (to build the project); increased trade between countries; more trade within each country; so more jobs; government revenue; so better housing; electricity supply; more to spend on other infrastructure such as health; and schools; [3]

(v) more trade between countries; South Sudan / Ethiopia linked to sea port; so more exports possible; [2]

(vi) much faster; least amount of material moved; so cheaper; ref. to building in low biodiversity area; replanting / landscaping; pollution control; AVP; [3]

(b) (i) yes because the whole project needs a port; all three countries want to go ahead; only 400 ha are used so damage limited even though it is a world heritage site; too much time and money invested already to stop now; more employment;

OR no because large area of land destroyed; too expensive; damage trade in existing ports / eq.; AVP; [3]

(ii) to export for foreign exchange; to pay for the project; to use in local power stations in the future; reduce coal imports; [2]

2 (a) lung damage; long term poisoning / toxic gases; possible stunted growth; more lung infections / diseases; breathing difficulties / bronchitis / asthma; burns / skin infections; [3]

(b) (i) C A B D; *Accept A C B D.* [1]

(ii) 50 80(%);
40 and 50 (m);
Any two for one mark. [2]

(iii) heavy duty so more copper / more money / eq.; [1]

(c) (i) could pick up only light or heavy wire or one wire type / might not find much in five mins / not very representative of the dump / eq.; only one dump sampled; [1]

(ii) all types of wire in sample; more wire collected; more than one dump; more time; [2]

(iii) more dumps sampled (so more representative); each type of wire sorted / weighed separately; [2]

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(d) (i) *Two sensible questions.* Such as any deaths from cancer? How often has a member of the household been in hospital? Men / women died more? Age of death?
Ref. to other illness. [2]

(ii) Q with reason; [1]

(iii) blows from the east (to the west); so more air pollution at Q than the other settlements; [2]

(e) Q / R (Q and R); they are close to a water channel so more chance of contaminated water supply; or breeding mosquitoes; [2]

(f) (i) *advantages*: plastic does not need to be burn / improved air quality; plastic can be recycled; more copper recovered quickly;
disadvantages: cost of machines; maintenance of machines; need electrical power to work them; need for skilled labour; [3]

(ii) impossible to enforce; the waste has to dealt with; people have to make a living; more important things to tackle first; [2]

3 (a) (i) both axes labelled;; plots; key; [4]

(ii) plant height increases and then drops; so does the number of roots; ref. to figures; [3]

(iii) 4 (5) cowpeas per m^2 this gives the most roots to sell; above this and less roots and more top growth; [2]

(iv) cowpeas fix nitrogen in the soil / eq.; [1]

(v) the cost of fertiliser keeps going up; it is made using oil; so contributes to climate change; soil degraded by the same crop and fertiliser each year; AVP; [3]

(b) (i) 31.6 38.2; *Ignore units.* [1]

(ii) the yield with cowpeas is higher; in every year; the plots have different conditions but cowpeas still give higher yields; AVP; [2]

AVP = Alternative Valid Point.

[Total: 60]

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