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International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0680 ENVIRONMENTAL MANAGEMENT

0680/42 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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1 (a) (i) loss of production; accidents; need to rely on backup generators; especially hospitals; air pollution from generators; AVP e.g. loss of food/air conditioning/power to pump water; **[2]**

(ii) forestry; most mature trees harvested/eq/deforestation; **[2]**

(iii) livestock; value of product has declined relative to other forms of production/eq; **[2]**

(b) (i) increase demand; increase in population; increase in income/reduction of poverty; increased urbanisation; increased exports; increased costs of production/inflation; **[2]**

(ii) 2800; 4270; **[2]**

(iii) lack of land/eq; high cost of renting land; cost of labour; poor water supply; **[2]**

(iv) orientation; plots; both axes labelled; key; **[4]**

(v) buffalo: steady increase;
cows: increase till year 6 then decrease/plateau; **[2]**

(vi) new breeds/cross breeds of cattle introduced with higher yields/eq; **[1]**

(c) (i) buffalo kept tied up/enclosed/eq; for milk/food production; drainage along watercourse; animals drink here; unfit for human consumption; dense housing; poor quality housing; AVP; **[3]**

(ii) advantage: close to customers; can sell more milk /more quickly before it goes off/eq;

disadvantage: have to rely on other farmers for fodder/pay high(er) prices for fodder; due to cost of transport; (any 2) **[2]**

(iii) flooding qualified e.g. buffalo drown; buffalo waste enters waterway; bacteria multiply in water; water not fit to drink; buffalo get infected/die eq; malaria/eq; breeding mosquitoes; typhoid; dengue fever; yellow fever; diarrhoea; ground drinking water polluted; damage to houses/property; **[3]**

(iv) other fuels not available; dung free/very cheap; **[1]**

(v) minerals/organic matter not returned to the land; soil is less fertile/eq; **[1]**

(d) (i) risks to human health – bronchitis/ARI's; smoke = air pollution; encourages deforestation; heating food inefficient; food contaminated; **[2]**

(ii) long lasting; low maintenance; reliable source of heat/eq; investment is paid back; land does not loose nutrients/minerals/fertility; no/little impact on the environment/renewable fuel; AVP; **[4]**

[Total: 35]

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2 (a) (i) jobs; solves power shortages now; sulfur can be removed with new technology; improves technical skills of workforce; allows increase in GDP/eq; **[2]**

(ii) C B E D; **[1]**

(iii) malnutrition/poor nutrition; such as lack of vitamins/minerals or named example; (deficiency) diseases such as kwashiorkor; lack of (first class) protein in diet; lack of energy/calories; **[2]**

(iv) very little difference between villages A–E; even though their water supply is not equally polluted/eq; no difference between village 50 km away for cancers; or mental disorders; mine not the cause of cancer/mental disorders; village D is polluted but no mental disorders; **[3]**

(v) same number of people sampled/same proportion of population in each village; equal number of males/females; all ages represented; use exactly the same questionnaire; stratified random or systematic sampling/described; **[3]**

(b) (i) measure an exact quantity of coal dust/make sure it is spread evenly; **[1]**

(ii) growth is reduced – stems shorter; and leaves come out more slowly/less leaves; **[2]**

(iii) flower production; seed production; length of leaves; size of leaves; number of stomata; thickness of stem; number of branches; life expectancy of plants; **[2]**

(iv) less light to leaves/green parts; so less photosynthesis/molecules for growth; **[2]**

(c) (i) yes: more species/biodiversity further away from source of dust; **[1]**

(ii) south/west; more dust blown there; by prevailing wind; **[2]**

(d) in favour: need to produce more electricity now; to help raise standard of living/GDP/improve services; no evidence of serious pollution; tree species will recover when mining finished; solves problem within the country; provides jobs; AVP

against: some air pollution is inevitable; solution will not last long; poor quality of life for people living near mines; vegetation will take a long time to recover; does not provide many jobs; maintain biodiversity; AVP; **[4]**

[Total: 25]

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