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International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0680 ENVIRONMENTAL MANAGEMENT

0680/13 Paper 1, 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.

Cambridge will not enter into discussions about these mark schemes.

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Mark schemes will use these abbreviations:

- ; separates marking points
- / alternatives
- ® reject
- A accept (for answers correctly cued by the question)
- (I) ignore
- AW alternative wording (where responses vary more than usual)
- AVP additional valid point (where there are a variety of possible additional valid answers)
- underline actual word given must be used by candidate (grammatical variants excepted)
- D, L, T, Q quality of drawing / labelling / table / writing as indicated by mark scheme
- max indicates the maximum number of marks that can be given
- eq equivalent
- ORA or reverse argument
- IDEA OF where candidates are expected to make an argument which expresses a particular idea, but the ways in which they will do this will be many and varied

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1 (a) (i) correct plot;; (one mark for accurately placing each line between the sectors)
key; [3]

(ii) water vapour / methane / carbon dioxide / CFC;
two correct for 1 mark [1]

(b) (i) acid rain; [1]

(ii) NO_x: road / sea / air transport / power stations / industry;
SO_2: power stations / industry; [2]

(iii) *road transport:*
public transport;
cycle;
walking;
car share;
install catalytic converter;

power stations:
scrubber / catalyst;
detail;
use of alternative energy;
insulation / eq in home;

industry;
scrubber / catalyst;
detail; [3]

[Total: 10]

2 (a) (i) *bauxite*
only in old rocks;
nut not in all old rocks shown;

copper
in old and fold mountains / young rocks;
mainly in Americas;

gold
in old and fold mountains / young rocks;
in all rocks shown;

iron ore
only in old rocks;
in all old rocks; [4]

(ii) workers have to endure high temperatures;
tunnel collapse / eq;
breathing problems / lung diseases;
floods;
explosions; [3]

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(b) *advantages:* foreign exchange;
increase imports of wanted goods;
any relevant impact of this on infrastructure;

disadvantages: environment via pollution;
visual / noise / air;
reference effect on tourism; [3]

[Total: 10]

3 (a) (i) *population:* group of organisms / animals / plants (of same species) living together; [1]

habitat: where an organism lives; [1]

niche: what an organism does in ecosystem (award example, e.g. carnivore eq) [1]

community: group of populations in an area; [1]

(ii) deep roots;
spreading roots;
waxy covering;
storage organs (swollen stem);
silvery hairs on surface;
AVP; [3]

(b) ***A*** *They can lead to more efficient use of existing farm land:*
reduced land clearance / deforestation
B *They can be made to be pest resistant:*
reduced use of pesticide
C *They can be made to be herbicide tolerant:*
reduced use of herbicide / better weed control
D *Their use may create 'super weeds' without natural controls:*
loss of biodiversity due to competition
E *Use of natural crop varieties will decrease:*
loss of biodiversity
F *Their cultivation could lead to greater use of herbicides:*
loss of biodiversity

any 3 for max 3 [3]

[Total: 10]

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4 (a) (i) 1.4 (billion km^3) × 0.03 or (1.4 × 3) / 100;
= 0.04 / 0.042 (billion km^3);
A any equivalent figure with appropriate units [2]

(ii) water evaporates from the sea;
condenses to form clouds;
falls to land in precipitation;
re enters atmosphere in transpiration;
from plants;
goes back to sea in runoff;
any three in correct context [3]

(b) (i) 100 (in centre column) and 20% (in last column);
both correct for 1 mark [1]

(ii) **C** / pie graph;
good reason; (e.g. discontinuous data, easy comparisons can be made)
OR
A / bar chart:
good reason; (e.g. discontinuous data, easy comparisons can be made) [2]

(iii) *bilharzia:*
water-based;
drainage;

typhoid:
water-borne;
water treatment;

cholera:
water-borne;
water treatment;

malaria:
water-bred;
drainage / vector eradication;

marks for any pair in correct context (no mark for disease) [2]

[Total: 10]

5 (a) (i) light;
chlorophyll;
A either order [2]

(ii) minerals / named relevant mineral;
(from the) soil; [2]

(iii) trees → insects → mice → foxes;;; (note direction of arrows – if wrong, -1) [3]

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(b) more light;
less rain;
less food so fewer insects / all other things that depend / named e.g.;
soil erosion increases;
decreased biodiversity;
habitat loss; [3]

[Total: 10]

6 (a) (i) 500 km; A 450-550 [1]

(ii) flood control;
irrigation;
HEP;
drought avoidance; [3]

(iii) (water based) diseases increase;
loss of farmland / villages eq / archaeological sites;
clearer water downstream;
more algal growth;
greater costs of water treatment; [2]

(b) (i) fish;
oil;
tidal / wave power;
transport; [2]

(ii) *fish:*
overfishing;
collapse of food chains;

oil:
pollution;
one consequence described;

tidal / wave power:
changes water currents / eq;
changed sediment deposition / affects bird-life / affects fish;

transport:
causes oil pollution / pollution by plastic waste;
one consequence described; [2]

[Total: 10]

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