UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0680 ENVIRONMENTAL MANAGEMENT

0680/11 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.

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The following abbreviations have been used:

/	or
;	end of marking point
®	reject
OWTTE	or words to that effect
AVP	alternative valid point
ecf	error carried forward
qual	qualified, further explanation given
ORA	or reverse argument
eq	equivalent

1 **(a)** cooling A;
melting B;
heat and pressure D;
weathering and erosion C;
compaction and cementation E;
(5:3 3/4:2 1/2:1) [3]

(b) **(i)** low value;
heavy / bulky;
expensive to transport;
cheaper (unqualified) for one mark;
takes less time (unqualified);
(any two) [2]

(ii) limestone / chalk / shale / sandstone / clay / AVP;
® sand
appropriate use; [2]

(iii) addition of top soil;
fertilisers / eq;
plantings; [3]

[Total: 10]

2 **(a)** **(i)** 300 (+ 10);
(with or without units) [1]

(ii) 1900–1940; [1]

(iii) because burning it (owtte) started later;
found later;
harder to acquire / technology more advanced idea;
more expensive to use owtte;
(any two) [2]

(iv) cement; [1]

(b) (i) correct plotting; [1]

(ii) biomass; [1]

(iii) Disadvantages: (max 2)
SOLAR
expensive;
qualified (e.g. 33 cents more OR 17.5 x more);
not always available;
GEOTHERMAL
not widely available;

Advantages: (any 3)
non-polluting / contaminating; (once for either / both);
correctly qualified (once for either / both);
renewable (once for either / both)
SOLAR
widely available;
GEOTHERMAL
non-polluting;
qualified (once only);
(relatively) cheap; [3]

[Total: 10]

3 (a) (i) oxygen AND carbon dioxide; [1]

(ii) traps heat / IR / long wave / eq (® UV);
trying to leave the Earth / or implied;
® from sun;
(any two) [2]

(iii) 14%;
bar chart plot (ecf); [2]

(b) (i) transport / eq is big creator of emissions;
individual vehicles mean much more emission / ORA;
than using public transport / buses;
ref burn less fossil fuels;
ref daily trips to school / work;
(any three) [3]

(ii) bicycle;
walk;
alt fuels (only one no matter how much detail);
hybrid cars;
switch off lights / appliances / standby idea. etc.;
insulate;
taxing / subsiding idea;
(any 2) [2]
® stop deforestation UNLESS ref to burning trees
® just use less fossil fuel unqualified

[Total: 10]

4 (a) (i) long roots;
deep roots;
widespread roots;
waxy leaves;
small / reduced leaves ® no leaves unless linked with green stem (owtte);
spiny / eq leaves;
store water / eq;
(any two) [2]

(ii) named method (e.g (trickle) drip / sprinkler / underground / animal powered / drip sheet idea);
details (e.g straight to roots / crop / plant / method explained); [2]

(b) (i)

caused by natural factors	caused by human action
A, B, E, G, I, J, K, L	C, D, F, H

(10–12:4 / 7–9:3 / 4–6:2 / 1–3:1) [4]

(ii) evacuation;
good medical help;
food stock piles;
pumping water away;
provide shelter (qual.)
provide clean water;
AVP;
(any two) [2]

[Total: 10]

5 (a) (i)

water related disease type	**diseases(s)**
water-bred	malaria ONLY
water-borne	cholera, typhoid ONLY
water-based	bilharzia ONLY

(3:2 2/1:1) [2]

(ii) none in deserts;
none in far South / North / not above / below tropics;
none / little outside tropics / ORA / equatorial / central Africa / named relevant countries (min. 2);
more at coasts;
AVP;
(any two) [2]

(iii) drugs AND vector eradication; [1]

(iv) EITHER
drugs:
kill parasites in blood;
which cause disease / symptoms;
reduces reservoir of parasite;
(any two)

OR
vector eradication:
kills organism / insect;
which transmits disease / owtte;
(any two) [2]

(b) loss of habitat / home for water creatures;
with e.g, fish, water birds, insects;
collapse of food web;
loss of biodiversity;
AVP;
(any three) [3]

[Total: 10]

6 (a) (i) water;
CO_2; [2]

(ii) too salty / too acidic / alkaline / pH wrong (idea) / too compacted / too thin / low oxygen / waterlogged / polluted (qualified) / low organic matter / low humus; [1]

(b) (i) a producer plants;
a herbivore nematodes / fungi;
a carnivore arthropods / birds / moles / shrews / nematodes;
a predator arthropods / birds / moles / shrews / nematodes;
(4/3:2, 1/2:1 [2]

(ii) dead plants → bacteria → protozoa → nematodes → arthropods → birds
OR dead plants → bacteria → protozoa → nematodes → arthropods → moles / shrews
OR plants → fungi → protozoa → nematodes → arthropods → birds
OR dead plants → fungi → nematodes → nematodes → arthropods → birds
OR dead plants → fungi → nematodes → nematodes → arthropods → moles / shrews
all five links correct;
arrows in correct direction, regardless of number of links; [2]

(c) prevents soil erosion (for all);
terracing
flat platforms made on hillside; slows runoff of water; thus slowing soil erosion downhill;
OR **contour ploughing**
plough perpendicular to slope / along contours (to form ruts); which slow water runoff ; thus slowing soil erosion downhill;
OR **wind breaks**
trees / shrubs planted in rows / wall / fence / eq; to protect from; soil erosion by wind;
(any three) [3]

[Total: 10]