

**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                               |
| <b>OWTTE</b> | or words to that effect              |
| <b>AVP</b>   | alternative valid point              |
| <b>ecf</b>   | error carried forward                |
| <b>qual</b>  | qualified, further explanation given |
| <b>ORA</b>   | or reverse argument                  |
| <b>eq</b>    | 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 ( $\pm 10$ );  
(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]

|               |                                       |                 |              |
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(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;

GEOHERMAL

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;

GEOHERMAL

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 / subsidising idea;

(any 2)

[2]

® stop deforestation UNLESS ref to burning trees

® just use less fossil fuel unqualified

**[Total: 10]**

|               |                                       |                 |              |
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- 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)

| <b>water related disease type</b> | <b>diseases(s)</b>    |
|-----------------------------------|-----------------------|
| 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]

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(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<sub>2</sub>;

[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]

|               |                                       |                 |              |
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(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]**