

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2015 series

0680 ENVIRONMENTAL MANAGEMENT

0680/23

Paper 2, maximum raw mark 80

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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) sedimentary
metamorphic
igneous
- All three correct for two marks. One or two correct for one mark.* [2]
- (ii) correct scale on y-axis;
axes labelled correctly (including names for bars);
- All three bars plotted correctly for two marks.
One or two bars plotted correctly for one mark.* [4]
- (iii) clearance of natural vegetation;
removal of overburden;
rock is blasted using controlled explosions;
blasted rock is transported by truck or conveyor belt;
rock is crushed;
rock is sorted into different grades;
rock is washed and cleaned;
- Max. two marks for issues relating to extraction.* [3]
- (b) (i) town C (receives the most limestone); [1]
- (ii) 0.5 million tonnes (of limestone); [1]
- (iii) 0.5 million tonnes; *Allow ECF.* [1]
- (iv) quarry creates jobs;
people have more money to spend in local community;
other industries might supply the quarry;
jobs created in linked industries also;
lorry drivers might provide custom for local shops;
supply of aggregate for local industries;
when restored, the quarry might provide a local amenity / tourist attraction;
quarry company pays money in local taxes; [4]

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- (v) loss of land for recreation / leisure;
loss of farmland and revenue;
eyesore / spoils the view;
traffic on local roads;
dust from blasting affects health;
noise pollution from blasting / trucks (disturbs local residents);
loss of natural habitats;
vibrations from blasting;
water pollution from sediment;
light pollution; [4]
- (c) recreation / leisure / relaxation;
fishing;
walking;
bird watching;
boating / water sports / swimming;
picnic sites;
business opportunities / tourism / jobs; [4]
- (d) (i) habitat for many species / biodiversity;
birds use wetland as winter feeding ground;
reduce flood risk;
jobs in fish farming / nature reserves; [2]
- (ii) oil from pleasure boats;
banks erode by wash from boats;
noise scares animals;
trampling of vegetation;
increased traffic causes noise / air pollution;
pollution of water from other sources, e.g. litter;
hunting of animals / reduction in number / threat to species;
development of facilities to support tourism; [2]
- (iii) adding nutrients / nitrates / phosphates to the water;
this encourages the growth of algae;
algae die;
bacteria use up oxygen in the water;
fish die due to lack of oxygen;
algae blocks out sunlight;
eutrophication; [3]

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(e) (i) bar graph completed and correctly shaded according to the key; [1]

- (ii) farm run-off
air pollution
industry
oil

Three or four correctly placed in rank order for two marks.

One or two correctly placed in rank order for one mark.

[2]

(iii) *Content guide:*

preventing oil spills
dealing with oil spills
international co-operation and agreements / legislation
managing raw sewage
controls on industry / mining
education
controls on dumping waste at sea
management of waste plastics

Do not expect every answer to be covered, even for answers in the top level.

Level 3 5–6 marks

Comprehensive understanding of the issue shown. Detailed explanation of three or more strategies.

Level 2 3–4 marks

Some understanding of the issue shown. Some explanation of at least two strategies.

Level 1 1–2 marks

Basic understanding of the issue shown. Basic descriptive points made. Little or no explanation.

No response or no creditable response scores zero marks.

[6]

Page 5	Mark Scheme	Syllabus	Paper
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- 2 (a) (i) evaporation;
transpiration;
soil erosion;
loss of nutrients through soil moisture;
- Accept nutrients taken up by the roots.* [2]
- (ii) parent rock; broken down by weathering to release nutrients;
organic matter from leaf fall / animals; vegetation / animal waste broken down by microorganisms to release nutrients;
- Award one mark for each source and one mark for each explanation.* [4]
- (iii) *soil type A*
reasons such as sandy soil will be:
more freely drained (as larger particles);
better aerated (as larger particles);
easier to work / lighter to plough;
warmer;
- soil type B*
holds nutrients / more fertile;
greater water holding capacity;
retains heat longer than sandy soil;
- Marks are for the reasons only.* [2]
- (iv) first line correctly placed;
second line correctly placed;
appropriately shaded; [3]
- (b) (i) subsistence agriculture is producing food to feed the farmer and his / her family with little or no surplus for sale and commercial agriculture is producing food for sale OWTTE; [1]
- (ii) the irrigated land is in a long narrow strip;
along the River Nile / close to River Nile / River Nile flood-plain;
also in and around Nile delta;
stretches from Aswan to Alexandria / Mediterranean sea; [2]
- (iii) irrigation can cause salinisation of the soil;
water lying on surface contains minerals;
water evaporates;
salt crystals are left behind;
water moves up from water table to replace evaporated water;
this water also contains salts;
soil erosion from excess water;
loss of soil structure (due to application of irrigation in large droplet size);
leaching of nutrients from excess water; [3]

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- (iv) trickle drip irrigation;
 water provided slowly to specific area of plant from pipes;
 reduces amount of water used and surface water;
 clay pot; buried in ground, water percolates/seeps out; etc. [2]

- (c) (i) slow rate of increase until 1700;
 more rapid increase from 1700 to 1800;
 increase from 1800 to 1940 more rapid/population doubled;
 rapid increase since 1940; (dates cited are approximate, allow a range)
 one pair of statistics with years to illustrate any of the above points;

Max. two marks without the use of population data. [3]

- (ii) dry soil;
 land baked hard;
 sparse vegetation/no leaves/dry leaves;
 few tall trees;
 dead vegetation (in foreground);
 no evidence of farming or grazing;
 people fetching water; [2]

- (iii) increased demand for food;
 over-cultivation of land;
 soil does not get chance to rest/lie fallow;
 overgrazing of land;
 trees cut down for fuelwood;
 animal manure dried and used as fuel;
 no roots to bind the soil;
 less interception of rain;
 no vegetation to act as a windbreak;
 no supply of organic matter;
 nutrients are depleted;
 soil more vulnerable to erosion;
 increased demand for water;
 lowering of the water table; [4]

Allow development marks.

(d) (i) $\frac{990\,000 - 789\,000}{990\,000} \times 100;$

= 20.3% (*Allow 20%.*) [2]

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- (ii) can lead to deaths;
 people are sick so need medical care/ medicines;
 cannot afford cost;
 people are sick so unable to work/farm the land;
 therefore loss of food supply/income;
 child labour needed to support family;
 high infant mortality rate;
 high cost of prevention, e.g. malaria nets; [4]

(iii) *Content guide:*

drugs (preventative or curative)
 vector control
 improvements to sanitation
 ensuring a clean water supply
 chlorination
 education
 named example of disease, e.g. malaria, typhoid, cholera, bilharzia

Do not expect every aspect to be covered, even for answers in the top level.

Level 3 5–6 marks

Comprehensive understanding of the issue shown. Detailed explanation of three or more strategies with named examples.

Level 2 3–4 marks

Some understanding of the issue shown. Some explanation of at least two strategies and named example.

Level 1 1–2 marks

Basic understanding of the issue shown. Little or no explanation. Basic descriptive points.

No response or no creditable response scores zero marks. [6]

[Total: 80]