

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the March 2015 series**

# **0680 ENVIRONMENTAL MANAGEMENT**

**0680/12**

Paper 12, maximum raw mark 60

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- 1 (a) (i) **A** carnivores/secondary consumers/predator;  
**B** herbivores/primary consumers; [2]
- (ii) *advantages:*  
shelter/food for rice pest predators;  
food for herbivores which rice pest predators feed off;  
plant might crop so can get profit from it;
- disadvantages:*  
competition with rice for resources/food for rice pests;  
need for more resources for second crop; [2]
- (b) (i) highest : Myanmar  
lowest : Japan [1]
- (ii) supports it as all improve;  
but still not achieving daily requirement in most countries studied;  
ref. to India/Japan as special case;  
some data to support views;; [3]
- (iii) pest/disease resistant crops;  
development, e.g. Bt corn;  
herbicide resistance;  
development, e.g. helps weed control;  
drought resistance;  
development, e.g. widen range of crop;  
other sensible example of GM (e.g. acid soil resistant, resistance to waterlogging); [2]
- 2 (a) (i) NW path /from SE;  
from sea to land/change in direction on landfall, more northerly/NNW;  
gets stronger over sea/until landfall/until Saturday;  
weakens once on land/in India/from Saturday; [3]
- (ii) warm/>26 °C water;  
hot air rises;  
area of low pressure;  
ref. pressure gradient;  
ref. Coriolis;  
ref. Earth's rotation; [4]

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- (b) better forecasting / prediction;  
better education about what to do during cyclone;  
better evacuation procedures;  
(better) shelters / houses;  
better food aid / medical care / etc.;  
better coastal defences;  
fewer people living near coast;  
ref. size of cyclone; [3]
- 3 (a) (i) troposphere; [1]
- (ii) falls (throughout troposphere) to stated temperature / stated altitude;  
levels off at stated altitude / stated temperature / remains constant over stated range / in tropopause;  
ref. to relevant temperature / altitude data in stratosphere;; [3]
- (b) (i) ref. CFCs;  
ref. chlorine in CFCs;  
ref. chlorine destroying ozone;  
over and over again / for years / ref. catalyst;  
thus decreases amount of ozone / thins ozone; [3]
- (ii) cancer;  
sunburn;  
eye damage / cataracts;  
mutation / damage DNA;  
any relevant consequence of mutation to non-humans; [3]
- 4 (a) (i) steady / small fluctuations / up and down from 1989 until 2004–5 / down until 1994 / up and down until 1999; 1999–2004 fairly level;  
rapid rise after this / between 2004/5 to 2008/9;  
fall in 2008–10;  
rise in 2010 and 2011;  
ref. to figures for another mark; [3]
- (ii) reasons why demand increased (electrification projects, or decreased (recession);  
discovery of substitute;  
too much supply;  
supply / demand idea discussed; [2]
- (iii) use of information from graph with reason, e.g. uneconomic to mine due to falling price; [1]
- (b) (i) landscaping / eq. (reshape);  
restoration (plant things / make soil suitable to plant things / put back to original);  
reclamation / eq.; [2]

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- (ii) lakes; landfill; nature reserve;  
fill with soil; and a use (e.g. farming);

*Or any one developed for two marks.* [2]

- 5 (a) (i) very slow/no rise from 12 000 BPD until about 1000 BPD;  
obvious steady rise from 1000 BPD until 500 BPD;  
very rapid rise after 500 BPD; [3]

- (ii) appropriate y-axis scale;  
axes labelled (or key for countries) must have units on y-axis;  
plots accurate; [3]

- (iii) lower infant death rates / ORA;  
ref. food;  
ref. medical services;  
ref. government policy;  
ref. family planning;  
ref. children to help parents / proved support;  
ref. education of women; [2]

- (b) poor food supply; ref. climatic factors; lack of jobs; poor sanitation; disease; overcrowding;  
high crime; poor amenities; lack of schools; lack of medical facilities; [2]

- 6 (a) (i) 22.95/23 m<sup>3</sup> per year;;; [3]  
OR  
substituting values correctly into the equation;  
clear expression;  
22.95/23;

- (ii) Sun warms water;  
water is evaporated from oceans/seas/lakes;  
this vapour rises into the atmosphere;  
condenses to liquid water; [2]

- (iii) polluted / not clean idea;  
ref. water-borne diseases/bacteria;  
specific example of either; [3]

- (b) allows light (because shallow);  
ref. photosynthesis;  
makes food that fish eat / phytoplankton / zooplankton;  
ref. nutrient upwelling; [2]

**[Total: 60]**