www.dynamicpapers.com

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0680 ENVIRONMENTAL MANAGEMENT

0680/23 Paper 2, maximum raw mark 80

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.

Cambridge is publishing the mark schemes for the May/June 2015 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

CAMBRIDGE
International Examinations

www.dynamicpapers.com

1 (a) (i) 1993; [1]

(ii) general decline;
decline slowed in last four years;
other relevant description;
data quoted;

Max. one mark for just quote year-by-year up or down / figures. [3]

(iii) overfishing;
reduction in quotas;
foreign vessels catching fish;
reduced demand for fish;
lower fish prices making fishing uneconomic;
fish migrated elsewhere;
decline in fish due to disease / pollution; [3]

(b) (i) 3350 tonnes; [1]

(ii) loss of jobs / income; developed;
food / protein shortages;
increased poverty;
reduced exports / foreign exchange;
etc.; [3]

(iii) to avoid disrupting tuna migration; [1]

(iv) to reduce catch of other / unwanted species / by-catch;
to avoid catching dolphins / turtles which drown in nets;
so young returned to sea alive;
to avoid overfishing / control amount caught; [2]

(c) (i)

label:	letter:
fault	D
gas	A
layer of impermeable rock	C
oil	B

Three or four correct for three marks. Two correct for two marks.
One correct for one mark. [3]

(ii) anticline [1]

(iii) dead and decaying plants and animals sank to the bottom of the ocean;
buried by sediments of sand and mud;
as they became more deeply buried the pressure and temperature increased;
(decay) takes millions of years;
in the absence of oxygen the bodies of the dead plants and animals changed into an organic material called kerogen;
at high pressure and temperatures, the kerogen changed into crude oil and natural gas;

Developed points can be awarded, max. two marks. [4]

© Cambridge International Examinations 2015

www.dynamicpapers.com

(iv) shock waves emitted from an air gun (or similar);
shock waves reflect of layers of rock;
reflected waves picked up by series of recording devices (geophones);
gives picture of underground rock structures; [3]

(d) pipeline;
tanker; [2]

(e) **(i)** shading / key correct;

All six sectors correct for three marks.
Four sectors correct for two marks.
Two or three sectors correct for one mark. [4]

(ii) 87%; [1]

(f) solar does not produce electricity at night;
solar panels expensive / gas cheaper;
may be large natural gas reserves; [2]

(g) Indicative content in favour:
These are renewable energy sources. Fossil fuels will not last forever, so will need to find alternatives. Also have advantage of not contributing to climate change / enhanced greenhouse effect / global warming. Produce fewer, if any, pollutants.

Indicative content against:
Insufficient for current energy needs so cannot replace all fossil fuels. Growing crops or energy takes land away from growing food crops, and many people short of food. Requires fertilisers and possibly pesticides. These use energy to manufacture and can have detrimental effects on environment.

Makes sense to use waste organic material, but growing crops for fuel is debateable. So can be part of energy supplies, but not the answer to the world's energy problems.

Level 3 5–6 marks

Answers the question and provides at least two reasons explained well or three in less detail. Should look at both sides of the argument, but can achieve five marks on one view only if done well.

Level 2 3–4 marks

Some detail of at least two reasons for or against or may answer the question but provide only sketchy reasons

Level 1 1–2 marks

Basic descriptive points with little or no reasoning. May just be a list of for and / or against

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

© Cambridge International Examinations 2015

www.dynamicpapers.com

2 (a) (i) all formed over the oceans;
all form within / around the tropics;
but not on the Equator;
in the Pacific Ocean off the coasts of SE Asia and Australia;
in the Indian Ocean north of the Equator in Bay of Bengal and Arabian Sea;
extensive area of formation south of the Equator between Australia and Africa;
in the Atlantic to the east the Caribbean and the south east of the USA;
on the eastern side of continents (mainly); [3]

(ii) high (sea) temperatures / eq.;
over oceans as need water (to create water vapour);
credit role of latent heat; [2]

(b) (i) west / west north west;
across The Philippines and onto Vietnam;
can quote latitude and longitude figures; [1]

(ii) more than 251 kph [1]

(iii) decreases / quotes relevant figures; [1]

(iv) high winds damage buildings;
people killed / injured;
heavy rains cause flooding so people drown;
heavy rains cause landslides on steep slopes so that houses / people are buried;
storm surges from the sea destroy villages / towns / houses;
storm surges wash away crops / animals;
storm surges wash people away / drown;
places of employment destroyed; so loss of income;
famers lose income;
infrastructure destroyed;
loss of family members reduces income for survivors;
etc.; [4]

(v) educate people on what to do if a cyclone hits;
forecasting / warnings;
building shelters;
protecting buildings, e.g. boarding windows or sandbags etc.;
stronger buildings to withstand storms;
avoid building on low-lying areas;
rescue / relief measures in place;
flood defences along coasts;
(retaining) mangroves along coast;
supplies of water / food for those affected;
etc.; [4]

(c) the concentration of ozone is very ***low / small*** close to the Earth's surface. It reaches a maximum of ***7.6 to 7.7*** parts per million at a height of ***34 to 38*** km in the layer called the ***strato***sphere.

All four correct for three marks. Three correct for two marks. Two correct for one mark. [3]

© Cambridge International Examinations 2015

www.dynamicpapers.com

(d) ozone absorbs UV radiation;
increased UV radiation increases skin cancer in humans;
and can damage eyesight;
UV impairs photosynthesis in plants;
so reduces productivity / causes food shortages;
impairs productivity of phytoplankton;
so affects food chain in oceans / less fish;
etc.; [3]

(e) (i) 24 (million km^2) [1]

(ii) stays roughly the same;
fluctuated since 1993;
more / larger fluctuations since 2000;
with a peak in 1998;
and a big drop in 2001 / 2;
slight reduction since 1993;
Max. one mark for quoting figures. [3]

(f) (i) *Can be a bar chart or line graph.*
correct scale on axes;
correct labelling of axes;
5 / 6 bars / points correct (2);
3 / 4 bars / points correct (1); [4]

(ii) CFCs remain in atmosphere for a long time;
50 years at least;
they are inert / they don't react readily / they are unreactive
still being released from old fridges / air conditioning units;
and by breakdown of polystyrene;
still some (small) production; [3]

(iii) greenhouse gas / enhanced global warming; [1]

© Cambridge International Examinations 2015

www.dynamicpapers.com

(g) Indicative content in favour:
Atmosphere already damaged, e.g. CFCs present for a long time. Their replacements also causing damage to ozone layer. CO_2 has increased and remains in atmosphere. Increasing population and industry means more pollution from increased use of fossil fuels. Pollution getting worse in many developing countries where pollution controls are limited / ignored.

Indicative content against:
May quote banning of CFCs as evidence that pollution can be controlled. Also international agreements, Montreal, Kyoto, Rio, etc. that show there is a will to reduce pollution. Acid rain has been reduced. Increasing use of green energy, etc.

Level 3 5–6 marks

Answers the question and provides at least two reasons explained well or three in less detail. Should look at both sides of the argument, but can achieve five marks on one view only if done well.

Level 2 3–4 marks

Some detail of at least two reasons for or against or may answer the question but provide only sketchy reasons

Level 1 1–2 marks

Basic descriptive points with little or no reasoning. May just be a list of for and / or against

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

[Total: 80]

© Cambridge International Examinations 2015