Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 **March 2017**

MARK SCHEME

Maximum Mark: 60

Published

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 March 2017 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is a registered trademark.

© UCLES 2017

Question	Answer	Marks
1(a)	5 to 6 correct [3] 3 to 4 correct [2] 1 to 2 correct [1] C A E D F B ;;;	**3**
1(b)	*any four of:* two plates are moving towards each other / two plates are converging; heavier plate sinks below lighter plate / oceanic plate sinks below continental plate; into the subduction zone; forms a trench; the oceanic plate is being destroyed / (friction makes) the rocks melt; magma rises / magma is forced, to Earth's surface; causing a volcano / causing a volcanic eruption; friction may cause the plate to get stuck; pressure may build up; oceanic plate moves causing an earthquake; (continental plate is crumpled owtte) to form mountains;	**4**
1(c)	*any three of:* 4.9 may not be felt / is a, low / light magnitude; causing, no damage / little damage / minor damage; sensible reference to time of day; (in mountains so) low population / remote area; sensible reference to epicentre; focus deep underground / point of origin deep underground; buildings were earthquake resistant; evacuation / preparedness / planning / education / drills / training;	**3**

© UCLES 2017

Question	Answer	Marks
2(a)	all plots correct;; all shadings correct;	**3**
2(b)	*any two for <u>one</u> mark:* lake / pond, reservoir / dam, river, swamp, wetland, silo, tank, rainwater harvesting;	**1**
2(c)	*any two of:* dig borehole / dig well (to access aquifer); by hand / by electric pump; drill well in the right location in an artesian aquifer; pressure will cause water to flow without a pump;	**2**
2(d)(i)	removing salt from seawater / removing salt from brackish water;	**1**
2(d)(ii)	*any three of:* very expensive / more expensive than most other ways of supplying water; energy-intensive / energy needed to heat the seawater / more energy is required than for most other ways of supplying water; requires access to sea / requires access to ocean / requires a coastline; require high levels of technology; environmental impacts with the construction and operation; large volumes of seawater used / affects ecosystems / can kill fish / birds; concentrated brine produced needs safe disposal; have other ways of obtaining water, ORA;	**3**

© UCLES 2017

Question	Answer	Marks
3(a)(i)	*any three of:* very cold / -45 ˚C in winter; ocean covered with ice / ice over a metre thick most of year; long distances from, ports / facilities / land / support; cost of specialised, ship / labour / equipment / supplies; difficult to get permits in National Park;	**3**
3(a)(ii)	*any four of:* oil covers organisms feeding areas so they starve; oil blocks gills; oil deprives aquatic organisms of oxygen; oil blocks sunlight preventing photosynthesis; description of impact on food chains or ecosystem; rare wildlife can become endangered or extinct; effect on reproduction; oil is toxic / organisms swallow it and die / oil causes blindness; birds feathers covered with oil cannot fly; oil gets into fur of mammals causing them to, die from hypothermia / sink and drown;	**4**
3(b)	*any three of:* take immediate action; setting fire to the oil spill to burn the oil before it spreads; detergent or chemical sprays to break up spill; skimmers or skimmer ships to absorb / to collect, the oil; booms or floating barriers to reduce spreading;	**3**

© UCLES 2017

Question	Answer	Marks
4(a)	5 to 6 correct [3] 3 to 4 correct [2] 1 to 2 correct [1] cool factories trapped warmer Sun smog ;;;	**3**
4(b)(i)	*any three of:* breathing problems; coughs / bronchitis / asthma / allergies / skin irritation; lung cancer; brain damage; eye irritation; fatigue / tiredness / lethargy / feel lazy / CO poisoning; vomiting / sickness; headaches; heart attacks;	**3**
4(b)(ii)	*any four of:* ban cars from centres of cities / allow odd and even number plate on different days / (encourage) car sharing / introduce congestion charging or tolls or carbon taxes; replace fossil fuels with cleaner fuels or biofuel or CBG; (encourage) use of electric powered vehicles; (improve) public transport or metro systems; encourage cycling or walking; catalytic converters; desulfurisation / scrubbing; laws limiting / controlling, factory emissions; afforestation / green belts / green spaces; AVP, e.g. laws limiting burning waste;	**4**

© UCLES 2017

Question	Answer	Marks
5(a)(i)	dividing lines at correct values; correct shading;	**2**
5(a)(ii)	*any two of:* living plants / leaf litter; living animals / earthworms / insects; microbes / fungi / bacteria; dead organisms / dead plants / dead animals / decomposing organisms / rotting organisms; humus; faeces / manure;	**2**
5(a)(iii)	*any one of:* rock; down wash;	**1**
5(b)(i)	*any three of:* trees increase rainfall interception; rainfall reaches the ground more slowly; as trunk flow and canopy drip slow the movement of water; stop (heavy) rain hitting or eroding the surface of the soil; reduce run off; organic matter from trees improves soil structure; act as windbreaks providing shelter from (prevailing) wind; roots help to hold the soil together;	**3**
5(b)(ii)	terracing / contour ploughing / dry land farming / crop rotation / intercropping / mixed cropping / mulch / integrated rural development programmes / community participation / land reform; description;	**2**

© UCLES 2017

Question	Answer	Marks
6(a)	*any three of:* on the Equator / near the Equator; mainly, in tropics / between tropics; in South America / Africa / SE Asia; not found in Europe and North America; small amount in, Oceania / NE Australia;	**3**
6(b)	*any two advantages:* crops will grow well in the hot, wet climate; crops grow well at first; hand labour / no need for technology; (sustainable) forest will regrow (in 100 years); ash provides fertiliser; *any two disadvantages:* output is low; heavy rain may wash soil away; plots are small; cannot support a large population; labour intensive / forest has to be cleared; soil loses fertility after a few years; weeds increase; new plot has to be cleared after 5 years;	**4**

© UCLES 2017

Question	Answer	Marks
6(c)	*any three of:* sustainable harvesting of the forest; rubber tapping / collecting latex, does not cause damage; collecting fruits, e.g. Brazil nuts; National Parks / wildlife reserves / biosphere reserves; ecotourism; sustainable or selective logging / trees are replanted / quotas; agroforestry / community forestry / reforestation; fuelwood plantations; gene banks; legislation; education; alternatives to deforestation, e.g. more efficient use of timber / recycling / alternatives to timber;	**3**

© UCLES 2017