Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 **October/November 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 International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2017 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

Question	Answer	Marks
1(a)(i)	sandstone;	**1**
1(a)(ii)	sedimentary;	**1**
1(a)(iii)	correct statement about oil formation / where oil formed / oil in permeable sandstone; oil cannot pass through the impermeable (clay) layers;	**2**
1(a)(iv)	*any three from:* build or erect a drilling rig; drill down from ground surface to the sandstone rock; put in, oil well / pipe / tube; pump or force out the oil;	**3**
1(b)	*any three from:* pipelines break causing soil / land pollution, effecting land organisms; oil spill in ocean causing marine pollution; oil spill causing coastal pollution; oil transportation causing air pollution; AVP;	**3**

Question	Answer	Marks
2(a)(i)	wetlands;	**1**
2(a)(ii)	fossil fuel production;	**1**
2(a)(iii)	(27 + 9 =) 36 (%);	**1**
2(b)(i)	glaciers / ice caps melt; (therefore) rise in sea level / flooding; decrease in rainfall / change in climate; causing, drought / wildfires / effect on crop growing seasons / desertification; AVP e.g. habitat loss;	**2**

Question	Answer	Marks
2(b)(ii)	ice caps melting causes flooding; *flooding causes,* property destroyed or damaged / people have to relocate; loss of food crops / famine; loss of income; loss of life / spread of diseases; AVP;	**2**
2(b)(iii)	*any three from:* reduce the use of appliances; turning off appliances when not in use; energy saving appliances e.g. low energy light bulbs; insulation; solar panels; small-scale wind turbine; choose a green energy supplier / use biofuel; reduce use of car by, walking / public transport / cycling; more efficient use of the car, e.g. car sharing / catalytic converter / better fuel consumption / hybrid car / electric car;	**3**

Question	Answer	Marks
3(a)(i)	97.2(%);; *(if answer incorrect, allow one mark for (2.1 + 0.1 + 0.6 =) 2.8 [1]);*	**2**
3(a)(ii)	oceans **and** ice and snow;	**1**
3(a)(iii)	*any four from:* only 2.8 / 3% of water stores are fresh water; 0.6% / groundwater, is difficult to reach; needs wells / boreholes; expensive to construct; 2.1% / snow and ice, is where few people live; snow and ice has to be, moved / melted; 0.1% / rivers and lakes, may be polluted, by sewage / industry, or carry waterborne diseases; 97.2% / largest water store / oceans, contains salt / is not fresh water; desalination is very expensive; many countries are landlocked so don't have access to the (largest) water store;	**4**
3(b)	*any three from:* homes / villages / communities, may be destroyed / people may be forced to move; (fertile) land flooded; loss of, jobs / income; loss of, tribal land / heritage sites; destruction of, ecosystems / wildlife / habitats; effects downstream on, water use / fish / sediment; weight (of dam and reservoir) may cause earthquakes; dam may break causing flooding; danger of water-related diseases because water no longer flowing; visual pollution; noise during construction; AVP;	**3**

Question	Answer	Marks
4(a)(i)	**A** *contour ploughing* **B** *terracing* **D** *tree planting* **C** *wind break* ;; *3 or 4 correct [2 marks]* *1 or 2 correct [1 mark]*	**2**
4(a)(ii)	(south) west / westerly;	**1**
4(b)	*any four from:* roots, bind / anchor / protect / hold, the soil (particles); prevent soil being blown away by wind; (leaves) increase rainfall interception; trunk flow and canopy drip slow the movement of water; rainfall reaches the ground more slowly / stop (heavy) rain, hitting / eroding, the surface of the soil; reducing surface run-off / soil being washed away by rain / increases infiltration; provide, leaf litter / humus, which improves soil structure;	**4**
4(c)	*any three from:* recycling, timber / wood products / paper; using alternative materials to wood, e.g. plastic; selective felling; reforestation / replanting; legal limits to, logging / quotas / licenses; agroforestry; more efficient use of wood as a fuel + e.g. stoves; fuelwood plantations; pollarding / coppicing; education qualified; forest reserves; ecotourism; AVP;	**3**

Question	Answer	Marks
5(a)(i)	*any two for **one** mark:* coal / oil / gas / nuclear / biomass;	**1**
5(a)(ii)	*any two for **one** mark:* wave / wind / hydro-electric / tidal / biomass;	**1**
5(a)(iii)	*any two for **one** mark:* coal / oil / gas;	**1**
5(b)	*any **two** advantages:* doesn't, pollute / contribute to global warming / climate change because no burning of fossil fuels; wind is free because, doesn't have to be bought / doesn't have to be mined; inexhaustible natural resource / not going to run out / renewable; no waste materials produced, no dispose needed; land under turbines can be used for farming; turbines can be located in remote areas or offshore; low maintenance or cheap running costs; can be small (one turbine) or large scale (groups); *any **two** disadvantages:* only work when there is wind so require back-up generating capacity; have to be shut down when there is too much wind; may produce power when it is not needed (e.g. night-time), which can't be stored; visual pollution; noise pollution; create few jobs; expensive to manufacture; expensive to install; can kill (migrating) birds, flying into the blades; *ref to* turbine lifespan (20 to 25 years) / over time, energy produced decreases / maintenance costs increase;	**4**
5(c)(i)	*any one from:* very cold climate (they need heat and light); little daylight in winter; electricity prices are low so they can afford to use more; AVP;	**1**

Question	Answer	Marks
5(c)(ii)	*any two from:* when magma comes close to the surface at plate boundaries it heats ground water; can be used in geothermal power stations to generate electricity; Iceland has small population;	**2**

Question	Answer	Marks
6(a)	*any three from:* between the tropics; near / on, the Equator; except for small area south of Tropic of Capricorn in east South America; north(east) of South America; west Africa qualified; south-east Asia or islands between Asia and Oceania;	**3**
6(b)	high inputs / named input e.g. workers, capital, labour; high, outputs / yields;	**2**
6(c)	*any two from:* income dependant on one crop / nothing to sell if crop destroyed by disease or pests; prices fluctuate with changes in supply and demand; disease or pest can wipe out whole crop / pesticides or insecticides needed to control crop eating pests / chemicals needed to control plant diseases; monoculture uses same nutrients / minerals from soil leading to soil exhaustion or fertilisers needed to supply nutrients used by crop;	**2**
6(d)	*any three from:* cocoa (tree) does not grow in N America and Europe; grow, cocoa / cash crop, as there is a demand for it (in the North); N America and Europe are developed countries and can afford to buy it; cocoa producing countries are poor (little demand for cocoa); cocoa exports earn foreign exchange; cannot afford to set up factories to process cocoa / ORA; AVP;	**3**