ENVIRONMENTAL MANAGEMENT **0680/22**

Paper 2 **October/November 2016**

MARK SCHEME

Maximum Mark: 80

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.

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Question	Answer	Marks
1(a)(i)	(the number of live) births per 1000 population per year; average/expected number of years that a person can expect to live for;	2
1(a)(ii)	3.0	1
1(a)(iii)	highest natural increase: country A; a natural population decrease: country E;	2
1(a)(iv)	rank order: A, D, C, B, F, E; correct plots;;	3
1(a)(v)	immigration / in-migration;	1
1(b)(i)	3; 6; country X;	3
1(b)(ii)	narrower base / wider section moves up through pyramid (in time);	1
1(b)(iii)	*any 3 of:* country X has a narrower base than country Y; country X has a more rectangular shape / where country Y has a narrowing shape; country X has a wider top than country Y; country X has more males in relation to females, country Y is equal; country X has a larger population at 25–39 / middle of chart compared to country Y;	3
1(b)(iv)	*any 3 of:* higher birth rate in country Y / reason to explain; lower infant mortality in country Y / reason to explain; longer life expectancy in country X / reason to explain; population boom in country X approximately 30 years ago;	3

Question	Answer	Marks
1(b)(v)	*any 4 of:* population policies; improved healthcare so births are reduced as more children survive; availability of contraception; education in contraception migration controls; improved education so women are able to access jobs / improve education so income increases / less need for large family to provide income;	**4**
1(b)(vi)	*any 3 of:* more healthcare needed; longer waiting lists in hospitals; more money for medicines; pressure on governments for pensions; more nursing homes needed; strain on those active in the economy; increased taxation; AVP;	**3**
1(c)(i)	falls / decreases / declines;	**1**
1(c)(ii)	stage 3;	**1**
1(c)(iii)	*any 3 of:* improved medicines / cures for diseases / vaccinations; more / better, doctors / nurses / medical staff; more / better, hospitals; cleaner water; improved sanitation; improved economic situation / can buy resources; improved food supplies; lack of wars; people have healthier lifestyles;	**5**

Question	Answer	Marks
1(c)(iv)	*any 1 of:* does not take account of time taken for each stage; no stage 5; does not predict natural decrease; does not account for migration;	**1**
1(d)	*any 6 of:* overgrazing; more cattle / people in (limited) area; less opportunity for crop / land rotation; increased compaction / trampling; loss of soil structure; over-cultivation; reduction in quality of soil / soil loses fertility; mono-cropping issues / mineral nutrient depletion; overuse of artificial fertilisers / lack of organic matter; irrigation poor practice; leaching / soil erosion; deforestion; Population growth / space needed for agriculture / settlement; salinisation; (due to) poor irrigation practice; explanation of impact of salinisation; land disputes causes population displacement; soil is exposed; lack of roots to bind; lack of organic matter / humus degrades soil structure; can be washed away in heavy rain; wind can blow soil away:	**6**

Question	Answer	Marks
2(a)(i)	line positioned in correct place on pie graph; correct shading according to key;	2
2(a)(ii)	*any 2 of:* carbon dioxide / water vapour / argon / methane / ozone / CFCs / AVP;;	2
2(a)(iii)	*any 2 of:* carbon dioxide; deforestation / burning trees / fossil fuel use; sulfur dioxide; power stations / burning fossil fuels; nitrogen oxides; vehicle exhausts; methane; paddy fields / landfill; CFCs; aerosols / refrigerators; lead oxide; burning petrol; AVP for gas; or source;	2
2(a)(iv)	*any 3 of:* breathing difficulties / asthma / bronchitis; exposure to ultra violet radiation; eye cataracts; increased risk of cancer / skin cancer; malnutrition or named example of deficiency disease, etc; malaria / diseases; decreased water supply / dehydration; heat stroke;	3
2(b)(i)	stratosphere;	1
2(b)(ii)	50 (km)	1
2(b)(iii)	100–1000 (mb)	1
2(b)(iv)	temperature decreases as the height in the troposphere increases;	1

Question	Answer	Marks
2(b)(v)	where the weather occurs; greenhouse gases occur; zone where many aircraft fly; dust; AVP;;	**2**
2(c)(i)	thermometer; sunshine recorder (accept named item); barometer / barograph / manometer;	**3**
2(c)(ii)	*any 4 of:* three cups facing different directions; cups blown by the wind and rotate; held away from, body / buildings / obstructions; cups linked to a meter which records rotations / cups linked to a scale which shows wind speed; measured in km per hour / other named units; on a pole so can be lifted into the wind;	**4**
2(c)(iii)	*any 5 of:* For: renewable / will not run out / alternative energy source; does not cause, air pollution / global warming / acid rain; cheap once set up; Against: can cause noise; takes up land; unreliable – wind does not always blow; looks unsightly; expensive to set up especially for LEDCs; takes up large areas of land; kills birds;	**5**
2(d)(i)	correctly placed lines;; shading according to key;	**3**

Question	Answer	Marks
2(d)(ii)	67 (%);	**1**
2(d)(iii)	Oil;	**1**
2(d)(iv)	France (given) Switzerland Finland (given) South Korea UK China 4 correct = 2, 3 correct =1, 1/2 correct = 0	**2**
2(e)	Level of response marking Indicative content: Fossil fuels are running out Plentiful supplies of uranium Does not cause air pollution / fossil fuels cause air pollution Fossil fuels give out CO_2 and SO_2 Will not cause global warming Conserves fossil fuels for other uses such as transport Risk of oil spills Lack of suitable sites for alternative energy Unreliable nature of alternatives Expensive to set up	**6**