Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/11**

Paper 1 Theory **May/June 2019**

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 International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the May/June 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

© UCLES 2019

PUBLISHED

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

© UCLES 2019

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

© UCLES 2019

Question	Answer	Marks
1(a)	Africa and Middle East;	**1**
1(b)	1820;	**1**
1(c)	*any two from:* wealth / some regions cannot afford insecticides; lack of availability of insecticides in some regions; other biological controls used in some regions; greater use, on more valuable crops / where intensive production / value of agriculture to economy / more use if more crops; some regions naturally less affected by pests, due to climate / other environmental condition; lack of legislation;	**2**
1(d)	*any two from:* biological controls; growing pest resistant (GM) crops; greenhouses / use of barriers to pests; hydroponics; timing of crops; intercropping; crop rotation; manual methods, e.g. remove by hand;	**2**

© UCLES 2019

Question	Answer	Marks
2(a)	*any two from:* *foreground:* dry / dead / sparse grass / bare; *background:* (small) trees / bushes / thorny vegetation / with no leaves; (scrub) vegetation on hills; denser vegetation;	**2**
2(b)	*any two from:* four year drought has caused vegetation to die; not enough, vegetation / food, to keep cattle / little vegetation to eat; not enough water to keep cattle; as vegetation needs water / vegetation reduced due to drought;	**2**

© UCLES 2019

Question	Answer	Marks
3(a)	– **AND** 281 ;;	**2**
3(b)	2005 to 2015;	**1**
3(c)	*any two from:* CO_2 is a greenhouse gas; concerns about, (enhanced) greenhouse effect / global warming; international climate change agreements; sanctions / fines; public pressure;	**2**

© UCLES 2019

Question	Answer	Marks
4(a)	Indonesia;	**1**
4(b)	*from* October 2015 *to* May 2016;	**1**
4(c)	*any three from:* occurred in areas of low population; advance warning / evacuation / emergency drills; not explosive / gentle eruptions; lava flows slowly; no pyroclastic flow; monitoring; barriers / techniques, to stop lava flow, e.g. trenches; emergency shelters; land use zoning;	**3**

© UCLES 2019

Question	Answer	Marks
5(a)(i)	divisions correct (e.g. division at 13 and 67) ;; correct shading;	**3**
5(a)(ii)	*any two from:* high cost of care for elderly; low percentage of population under 15 years so lack of workforce in future; so output declines; so these few have to face high cost of care of large elderly population; strain on economic resources, e.g. pensions; strain on, health care / social care; high dependency ratio;	**2**
5(a)(iii)	*any two from:* large number in child bearing age / high birth rate; many under 15 who will soon be of child bearing age; many in 15–59 group will increase 60 years and over population;	**2**
5(a)(iv)	*any two from*: insufficient schools / lack of money for schools; insufficient, health services / hospitals; job shortage / high unemployment; difficult to feed large population; difficult to provide (clean) water for large population; shortage of housing; shortage of infrastructure; deforestation; poverty;	**2**
5(a)(v)	*any two from*: education on, family planning / contraception; promotion / increasing availability of, contraceptives; educating women for employment so that they have children later; national population policies / antinatalist policies / raising age of marriage;	**2**

© UCLES 2019

Question	Answer	Marks
5(b)	*opinion based on any four evidence:* *not sustainable:* will need to clear more land for farming; increase water taken from, rivers / ground water / need for irrigation; increase use of, insecticides / herbicides; increase use of artificial fertilisers; need, money / investment; need skilled workers; need for imports; *sustainable:* biological controls to reduce pests; organic fertilisers / manure, to increase yields; crop rotation to maintain fertility; rainwater harvesting; trickle-drip irrigation / other named improved irrigation technique (e.g. clay pot irrigation); large working population;	**4**

© UCLES 2019

Question	Answer	Marks
6(a)(i)	74.1;	**1**
6(a)(ii)	Zimbabwe; Angola; Malawi;	**3**
6(a)(iii)	*any three from:* dirty water can cause diseases; named example, e.g. cholera / typhoid / dysentery; unable to work; so little / no, food for family; people die; dehydration; clean water is a basic human need;	**3**
6(b)(i)	600;	**1**
6(b)(ii)	*any three from:* Asia higher consumption than North America; both increased; (idea of rate) Asia more (rapidly) than North America; relevant comparable figures, e.g. in 1970 North America 550 billion m^3 per year whereas Asia 1500 billion m^3 per year;	**3**
6(b)(iii)	57% (*circled*);	**1**
6(b)(iv)	240 ;; (*if answer incorrect allow one mark for,* 300 divided by 1.25 [1]);	**2**
6(b)(v)	*any three from:* increasing population (means greater demand for water); increasing wealth / more water using appliances (domestic); industry expands and uses more water; increased, irrigation / agricultural use;	**3**

© UCLES 2019

Question	Answer	Marks
6(c)	*any four from:* waste from factories or industrial activities; enters water courses; waste enters into ground water; untreated sewage released into, water courses / sea; oil / petrol / rubber, from vehicles enters drains and then into, water course / sea; human / domestic, rubbish washed or dumped into water courses; in floods variety of pollutants washed into, water courses / sea; lack of waste management; acid rain changes the pH of, rivers / lakes;	**4**
6(d)	*Level of response marked question:* Level 3 [5–6 marks] For this level; answers must look at both topics in detail and reach a conclusion. Answers will be balanced and will include examples. Level 2 [3–4 marks] Answers may look at both topics, but with only limited detail. More likely they will be one–sided. Level 1 [1–2 marks] Answer may well be a list or descriptive rather than an explanation or may provide a basic explanation of one or two points, often completely one–sided. No response or no creditable response [0]. *Level of response indicative content:* This is a very wide question which can be answered in a variety of ways; mark on quality and depth of discussion. There is no one 'correct' answer. Even the best answers will not cover all aspects. Some answers will simply agree and then try to justify, often ignoring the enhanced greenhouse effect. The best answers will look at the impacts of water pollution and the enhanced greenhouse effect, consider the solutions to these issues and reach a conclusion based on evidence. For water pollution expect oil spills, eutrophication, and other localised events. For the enhanced greenhouse effect expect ice melt, sea level rise and inundation plus changes to rainfall patterns and habitats. Some candidates may discuss the fact that these are international issues both requiring international agreements and discuss the fact that both are difficult to solve completely or quickly.	**6**

© UCLES 2019

Question	Answer	Marks
7(a)	*any three from:* millions of years ago; plants / animals / plankton, died, fell to bottom of sea; covered by (layers of) mud or sediment; this increased the heat and pressure; this changed the animal and plant remains into crude oil; requires anaerobic conditions;	**3**
7(b)	*both advantages and disadvantages must be covered for maximum credit:* *maximum three from, advantages:* (as a liquid oil) can be easily, pumped / transported / piped; (oil is) versatile in use (e.g. fuel for heating, cars, commercial vehicles, planes, ships, generating electricity); *idea of* ease of current use; *idea of* energy dense fuel; oil is widely available; *maximum three from, disadvantages:* (oil is) non-renewable; releases carbon dioxide when burned, which causes, enhanced greenhouse effect / global warming; releases, oxides of nitrogen / sulfur oxides when burned, which causes acid rain; oil spills very damaging to, habitats / wildlife; need to refine oil;	**4**
7(c)(i)	Africa;	**1**
7(c)(ii)	North America;	**1**

© UCLES 2019

Question	Answer	Marks
7(c)(iii)	*any three from:* availability of oil explained (some countries have more oil than others); wealth / some countries can afford more; higher use of, vehicles / electrical appliances / dishwashers / fridge / freezer / TV; technological, advances / development, so more industry in developed countries; to generate (more) electricity (for, industry / households); greater need for heating in cold countries; greater need for air conditioning in hot countries; some countries don't need oil because they have alternatives readily available (e.g. geothermal in Iceland); price of oil varies between countries;	**3**
7(d)(i)	*any three from:* most in southern North Sea; in a line from, Belgium / north France to, Denmark / Norway; greatest concentration off, Belgium / Netherlands coast; scattered in, (northern) North Sea / off coast of Norway; (line through) the English Channel; cluster, off the North West coast of France / west of English Channel; along major shipping routes;	**3**
7(d)(ii)	*any three from:* booms (to trap oil); detergents (to break up oil); skimmers (to remove oil from the surface); burning the oil on the sea surface; manual / mechanical, collection of oil washed up on beaches;	**3**

© UCLES 2019