



---

**ENVIRONMENTAL MANAGEMENT**

**0680/11**

Paper 1

**May/June 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 May/June 2017 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

---

© IGCSE is a registered trademark.

This document consists of **7** printed pages.

Question	Answer	Marks
1(a)	<p>4 correct [3] 2 to 3 correct [2] 1 correct [1]</p> <p><i>continental crust</i>     <b>B</b> <i>core</i>     <b>D</b> <i>mantle</i>     <b>A</b> <i>oceanic crust</i>     <b>C;;;</b></p>	<b>3</b>
1(b)	<p><i>any four of:</i> <i>idea of plates move;</i> <i>earthquakes;</i> <i>volcanic eruptions;</i> <i>cause, injury / death / disease;</i> <i>volcanic bombs / lava flows / pyroclastic flow / (fast moving) mudflows / lahars/</i> <i>nuée ardente / hot ash / poisonous gas / correct named gas;</i> <i>homes / shops / business / buildings, destroyed;</i> <i>gas pipe explosions / fires;</i> <i>landslides;</i> <i>tsunamis;</i> <i>damage or disruption, to transport links or communications;</i></p>	<b>4</b>
1(c)	<p><i>any three of:</i> <i>if nearby can be obtained quickly;</i> <i>less expensive to transport;</i> <i>(more likely to) blend in with the environment / less visually polluting;</i> <i>less, air pollution/ correctly named pollution / reduces pollution from fossil fuel burning;</i> <i>creates local jobs;</i></p>	<b>3</b>

Question	Answer	Marks
2(a)(i)	3 correct [2] 1 to 2 correct [1]  adit (drift) mine           Q open-pit (opencast) mine   P shaft mine                   R;;	2
2(a)(ii)	any four of: R (roofs) can collapse / miners trapped; R more workers so more chance of accidents or human error; R can flood; R gas can (build up) cause, explosions / fires / poisoning; R more dust (confined spaces); R more difficult to deal with accidents;	4
2(a)(iii)	oil / (natural) gas;	1
2(b)	any three of: only a small amount of raw material or uranium needed (to release a large amount of power); long-term source of energy; no emissions of CO <sub>2</sub> / no / reduced, greenhouse effect / global warming; no emissions of SO <sub>2</sub> / reduced / no, acid rain; low (operating) costs; produces only relatively small amounts of waste; location (of power station) less dependent on fuel supply;	3

Question	Answer	Marks
3(a)(i)	North America AND Central and South America;	1
3(a)(ii)	Asia AND Africa;	1
3(a)(iii)	Asia AND Africa;	1
3(b)(i)	urbanisation;	1

Question	Answer	Marks
3(b)(ii)	<p><i>any three of:</i>            employment / job opportunities;            level of pay / wages / poverty / wealth;            amenities / electricity / shops / food supplies;            education;            housing;            doctors / hospitals / health services;            water supply or quality / sanitation;            family / friends / isolation;            (forced) eviction / development projects / 'land grabbing';            flood / famine / drought / eruption / earthquake / outbreak of disease;            entertainment / leisure;            safety / security / crime / war;            transport services;</p>	<b>3</b>
3(b)(iii)	<p><i>any three of:</i>            destruction of habitats / deforestation;            air pollution by (industries or vehicles) burning fossil fuels;            increased pollution from, litter / rubbish / sewage / factory effluent;            noise pollution (from vehicles or people);            visual pollution / slums / urban sprawl / spontaneous or squatter settlements;            landfill / disposal of waste / waste tips;</p>	<b>3</b>

Question	Answer	Marks
4(a)	<p><i>any three of:</i>  <b>high precipitation:</b> provides supply of water / less chance of lake drying up;  <b>low temperatures:</b> little evaporation / little water loss;  <b>steep sides / deep valley:</b> (good) storage potential / good potential for HEP;  <b>steep sides:</b> assists construction of dam;  <b>impermeable rock:</b> <i>idea of</i> water will not seep / drain away;  <b>lake:</b> (in valley) provides water;  <b>river:</b> (dammed to) provide water;</p>	<b>3</b>
4(b)	<p><i>any four of:</i>  contains, toxic / industrial / transport waste or pollutants;  heavy metals / mercury / lead / copper / arsenic / cadmium / oil / road salt;  contains runoff from, farms / agriculture;  pesticides / manure / faeces / urine / nitrates;  contains domestic, waste / pollutants or (raw) sewage;  named waterborne diseases such as, <i>E.coli</i> / <i>Salmonella</i> / cholera / typhoid / dysentery;</p>	<b>4</b>
4(c)	<p><i>any three of:</i>  construct wells / access groundwater / aquifer;  use of, pumps / pressure if artesian well;  desalination;  by, evaporation (thermal desalination) / distillation / reverse osmosis (use of semi-permeable membrane);  buy it / pipelines, from neighbouring countries;  AVP, e.g. icebergs;</p>	<b>3</b>

Question	Answer	Marks
5(a)(i)	<p><i>any three of:</i>            increase from, 1950 / 40 000 tonnes to, 1974 / 920 000 tonnes;            slower increase 1950 to 1958;            increased rate of production 1958 to 1974;</p> <p>levels off 1974 to 1982;            increase, 1982 / 880 000 tonnes to, 1987 / 1 080 000 tonnes;            slight increase / increases less consistently / fluctuates, from 1974 to 1987;</p> <p>decrease, 1987/9 / 1 080 000 tonnes to, 2010 / zero;            rapid decrease, 1987/9 / 1 080 000 tonnes to, 1996 / 180 000 tonnes;            slower decrease, 1996 / 180 000 tonnes to, 2010 / zero tonnes;</p>	3
5(a)(ii)	<p><i>any three of:</i>            international, bans / laws / policies / treaties;            Montreal protocol;            alternatives to CFCs introduced;            such as, HCFCs / HFCs;            economic downturn;            education to use less products with CFCs;</p>	3
5(b)(i)	<p><i>any two of:</i>            carbon dioxide, carbon monoxide, methane, nitrous oxide, water vapour, ozone, hydrofluorocarbons / HFCs / HCFCs,            perfluorocarbons / PFCs, sulfur hexafluoride / SF<sub>6</sub>;</p>	1
5(b)(ii)	<p><i>any three of:</i>            short wave radiation / light energy from the sun reaches the Earth's surface;            long wave radiation / heat reflected from Earth's surface;            long wave radiation / heat is trapped by the greenhouse gases;            this warms up the Earth's atmosphere / causes global warming;  <i>reference to the amount of greenhouse gases higher than in the past (enhanced greenhouse effect) making the Earth warmer or causing global warming;</i></p>	3

Question	Answer	Marks
6(a)	<p><i>any two of:</i>  in north AND south;  across all of the N / more in north / 6 countries in N / in south west / 2 countries;  where the deserts are;</p>	2
6(b)(i)	<p><i>any four of:</i>  weakness / anaemia / lethargy;  paralysis;  fever;  death (20 000–200 000 people p.a.);  kidney / bladder, infections;  muscle / abdominal pain / diarrhoea / dehydration;  cough;  rash;  (increases the risk of) cancer;  infertility;  malnutrition;  (children) stunted growth;  learning difficulties;  reduced ability to work;  lack of income;  economic consequences / poverty;</p>	4
6(b)(ii)	<p><i>any four of:</i>  improved, detection and treatment / medication of sick people;  vaccination / use of drugs / medication / correct named drug (e.g. praziquantel, oxamniquine, metrifonate);  do not, swim / wade wash clothes / bathe in infested water;  provide, clean / safe water for, bathing / washing;  improve / provide, sanitation;  health or hygiene education;  wear, boots / leg covering;  vector, control / eradication;  kill / remove, snails / larvae / worms;  destroy, snail habitats / food sources by draining or filling in or line canals (with concrete);</p>	4