



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**ENVIRONMENTAL MANAGEMENT**

**0680/11**

Paper 1

**May/June 2017**

MARK SCHEME

Maximum Mark: 60

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**Published**

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

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

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

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

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

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

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