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**ENVIRONMENTAL MANAGEMENT**

**0680/13**

Paper 1

**May/June 2017**

MARK SCHEME

Maximum Mark: 60

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**Published**

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

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

| Question  | Answer   | Marks |
|-----------|--|-------|
| 2(a)(i)   | 3 correct [2]<br>1 to 2 correct [1]<br><br>adit (drift) mine            Q<br>open-pit (opencast) mine    P<br>shaft mine                      R;;  | 2     |
| 2(a)(ii)  | any four of:<br>R (roofs) can collapse / miners trapped;<br>R more workers so more chance of accidents or human error;<br>R can flood;<br>R gas can (build up) cause, explosions / fires / poisoning;<br>R more dust (confined spaces);<br>R more difficult to deal with accidents;  | 4     |
| 2(a)(iii) | oil / (natural) gas;   | 1     |
| 2(b)      | any three of:<br>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; | 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     |

| <b>Question</b> | <b>Answer</b>   | <b>Marks</b> |
|-----------------|---|--------------|
| 3(b)(ii)        | <p><i>any three of:</i><br/> 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><br/> 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>     |

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

| 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> | <b>3</b> |
| 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>  | <b>3</b> |
| 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>   | <b>1</b> |
| 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 the amount of greenhouse gases higher than in the past (enhanced greenhouse effect) making the Earth warmer or causing global warming;</i></p>  | <b>3</b> |

| Question | Answer  | Marks    |
|----------|---|----------|
| 6(a)     | <p><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;</p>   | <b>2</b> |
| 6(b)(i)  | <p><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;</p>  | <b>4</b> |
| 6(b)(ii) | <p><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);</p> | <b>4</b> |