



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

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**ENVIRONMENTAL MANAGEMENT**

**0680/13**

Paper 1

**May/June 2016**

MARK SCHEME

Maximum Mark: 60

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**Published**

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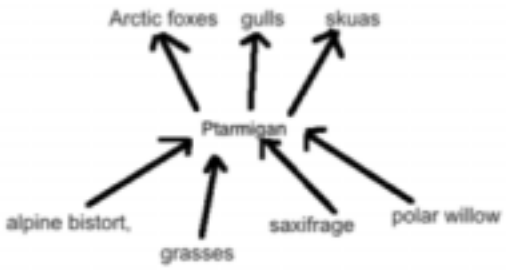
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| Question  | Answer                                                                                                                                                              | Marks |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1(a)(i)   | B<br>A<br>C ;;<br>all 3 correct [2], 1 or 2 correct [1]                                                                                                             | 2     |
| 1(a)(ii)  | <i>any 2 of:</i><br>population low not needed ;<br>too wet ;<br>nature reserve / implied ;<br>not economically useful ;<br>buffer zone idea ;                       | 2     |
| 1(a)(iii) | mineral deposit / eq, close to surface OR reference to road ;                                                                                                       | 1     |
| 1(a)(iv)  | <i>any 3 of:</i><br>hole filled in context ;<br>reference overburden ;<br>addition of (top)soil ;<br>fertiliser / nutrients ;<br>reference landscaping / describe ; | 3     |
| 1(b)      | selective felling / logging ;<br>e.g. taking only mature trees / unhealthy trees / branches ;                                                                       | 2     |

|               |                                        |                 |              |
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| <b>Question</b> | <b>Answer</b>                                                                                                                                                         | <b>Marks</b> |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 2(a)(i)         | $(8 \times 200) = \$1600$ million ;                                                                                                                                   | <b>1</b>     |
| 2(a)(ii)        | $1.9 \text{ million} \times 75 ; = \$142\,500\,000 ;$                                                                                                                 | <b>2</b>     |
| 2(a)(iii)       | other cities (than London ) affected / AVP specific cost to people / environment ;                                                                                    | <b>1</b>     |
| 2(a)(iv)        | isolated / low population ;<br>precautions taken successful / example ;                                                                                               | <b>2</b>     |
| 2(a)(v)         | <i>any 2 of:</i><br>on / near plate boundary ;<br>reference to plates moving apart / divergent. / constructive ;<br>allowing magma / molten rock to come to surface ; | <b>2</b>     |
| 2(b)            | <i>any 2 of:</i><br>reference geothermal energy ;<br>detail ;<br>reference HEP ;                                                                                      | <b>2</b>     |

|               |                                        |                 |              |
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| <b>Question</b> | <b>Answer</b>                                                                                                                                                                                                                                                                                                                                               | <b>Marks</b> |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 3(a)            |  <p>any arrows present correct direction ;<br/>levels correct ;<br/>links from plants or named to ptarmigan ;<br/>links from ptarmigan to fox AND gulls AND skuas ;</p>                                                                                                    | <b>4</b>     |
| 3(b)(i)         | $30 / 3.5 = 8.57 / 8.6 \times$ ;                                                                                                                                                                                                                                                                                                                            | <b>1</b>     |
| 3(b)(ii)        | <p><i>any 3 of:</i><br/>mercury pollution more likely in sea ;<br/>mercury gets amplified as it moves along food chains/webs ;<br/>the more steps in the chain/web the more it will get amplified<br/>in Iceland foxes (only one step up from plants/feed on herbivores) ;<br/>in Mednyi foxes (two/or more, steps up from plants/feed on carnivores) ;</p> | <b>3</b>     |
| 3(c)            | <p><i>any 2 of:</i><br/>poison fish ;<br/>clog gills/suffocate ;<br/>contaminate bird wings/feathers ;<br/>so cannot fly to find food;<br/>block light ;<br/>reference to food chain effect ;<br/>reference specific effect on coral reefs ;</p>                                                                                                            | <b>2</b>     |

|               |                                        |                 |              |
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| <b>Question</b> | <b>Answer</b>                                                                                                                                                   | <b>Marks</b> |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 4(a)(i)         | water holding: very good ;<br>ease of digging: easy, hard ;<br>aeration: very good , poor ;                                                                     | <b>3</b>     |
| 4(a)(ii)        | between sandy and clay ;                                                                                                                                        | <b>1</b>     |
| 4(b)            | <i>any 3 of:</i><br>they decompose leaves/add to fertility/add minerals ;<br>they aerate soil ;<br>they turn over soil ;<br>reference a role in nitrogen cycle; | <b>3</b>     |
| 4(c)            | <i>any 3 of:</i><br>leach into water nearby ;<br>cause algal bloom/eq ;<br>algae die ;<br>rot/eq ;<br>use up oxygen in water ;<br>reference eutrophication ;    | <b>3</b>     |

|               |                                        |                 |              |
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| <b>Question</b> | <b>Answer</b>                                                                                                                                                                                                                                                                                                                   | <b>Marks</b> |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 5(a)(i)         | the state of the atmosphere (at any particular time( / list of features (> 1) (at a specific time) ;                                                                                                                                                                                                                            | <b>1</b>     |
| 5(a)(ii)        | A<br>C<br>D<br>B<br>F<br>E ;;;<br>all 6 correct = [3], 4–5 correct = [2], 2-3 correct = [1], 0–1 = [0]                                                                                                                                                                                                                          | <b>3</b>     |
| 5(a)(iii)       | <i>any 3 of:</i><br>temperature / precipitation varies / described with at least 2 features ;<br>range (max and / or min / difference between max and min ( $-2 \rightarrow 17 \pm 1$ or $19 \pm 1$ ) ;<br>no dry months ;<br>reference when rain high temp lower or vice versa ;<br>one data quote for temp AND one for rain ; | <b>3</b>     |
| 5(a)(iv)        | cool temperate interior ;                                                                                                                                                                                                                                                                                                       | <b>1</b>     |
| 5(b)            | increases carbon dioxide in atmosphere ;<br>causes global warming (and thus climate change) ;                                                                                                                                                                                                                                   | <b>2</b>     |

|               |                                        |                 |              |
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| <b>Question</b> | <b>Answer</b>                                                                                                                                                                        | <b>Marks</b> |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 6(a)(i)         | $42/3 = 14$ / $100 - 3 = 97$ ;<br>$14 \times 97 = 1358$ million km <sup>3</sup> ;                                                                                                    | <b>2</b>     |
| 6(a)(ii)        | <i>any 2 of:</i><br>around / either side of tropic of Cancer ;<br>mainly north of equator ;<br>reference to one named area (e.g. Central Asia, South Africa, East Oceania) ;         | <b>2</b>     |
| 6(a)(iii)       | <i>any 3 of:</i><br>lack of investment in water ;<br>specific example (e.g. dams, reservoirs, wells, aquifers) ;<br>insufficient human capacity to satisfy demand ;<br>people poor ; | <b>3</b>     |
| 6(b)            | polluted with named pollutant (not just polluted) ;<br>reference to carrying disease ;<br>disease named ;                                                                            | <b>3</b>     |