



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT

0680/11

Paper 1

May/June 2016

MARK SCHEME

Maximum Mark: 60

Published

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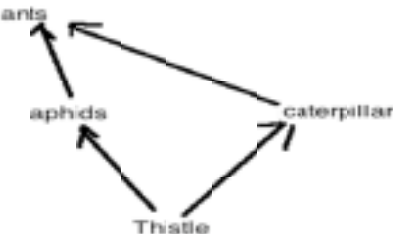
Page 2	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(a)(i)	400 + 1800 + 57200 / 59400 (÷ 266 000) ; = 22.3 / 22 (%) ;	2
1(a)(ii)	reference to valid building shape e.g. pyramid / conical shapes for buildings ; materials used e.g. springs / rubber in buildings ; reference to choice of where to build ;	3
1(a)(iii)	idea that on / near plate boundary / where plates meet ; Indian plate moving towards Eurasian / plates move towards each other / reference convergent / destructive ; reference subduction ;	3
1(b)	<i>any 2 of:</i> hot rocks for heating / cooking ; geothermal energy ; precious stones ; fertile soil / reference nutrients ; income from tourism ;	2

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Question	Answer	Marks
2(a)(i)	A C B ;; all 3 correct [2], 1 or 2 correct [1]	2
2(a)(ii)	<i>any 2 of:</i> timber (implied) ; settlements e.g. houses, schools , parks, hospitals, dams, hotels , mines, factories ; roads, rails, airports ;	2
2(a)(iii)	soil exposed to elements ; increased loss of water from soil (due to evaporation) ; dries soil ; reduced rainfall ; ref increased wind erosion ; reduced interception ; increases runoff ; which washes soil away ; without roots soil is subject to erosion ; so easier to wash away as not bound by roots ; so very few plants can now grow ;	4
2(b)	<i>any 2 of:</i> growing trees and crops / grazing animals (for food in same place) ; don't have to cut down ; diversity increased / maintained ; reduces pest problems ; improves soil fertility ;	2

Page 4	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
3(a)(i)	 <pre> graph TD Thistle --> aphids Thistle --> caterpillar aphids --> ants caterpillar --> ants </pre> <p>arrows correct ; levels correct ; all links which are present correct ;</p>	3
3(a)(ii)	a food web (NOT chain) ;	1
3(b)(i)	<i>any 3 of:</i> predators / parasites eat / kill / eq, aphids ; thus stopping (rapid) population growth ; pesticides would kill / eq, predators / parasites ; reducing / removing their effect of aphids ;	3
3(b)(ii)	<i>any 2 of:</i> it rises and later falls ; rises up to EITHER 35 days OR 230 aphids per plant ; falls to 100 days or 0 aphids ; some comment on changes in gradient for one mark (e.g. rise speeds up at about 28 days, slowest fall after 80 days) ;	2
3(b)(iii)	20 aphids per plant ;	1

Page 5	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
4(a)(i)	$1\,400\,000\,000 \times 0.03 = 42\,000\,000 \text{ (km}^3\text{)} ;$	1
4(a)(ii)	$= 42\,000\,000 \times .008 ;$ $336\,000 \text{ (km}^3\text{)} ;$	2
4(a)(iii)	water directed at crop roots ; water not lost by evaporation / draining plant free into soil / collecting on foliage ;	2
4(a)(iv)	added water dissolves salt ; evaporation brings salt rich water to surface ; evaporation leaves salt behind around plants ;	3
4(b)	<i>any 2 of:</i> more people in urban means more economical to treat / supply water ; as houses close together ; more money available / people richer / people have more influence on authorities ;	2

Page 6	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
5(a)(i)	T (much) less ozone (ORA) ; T (much) more water (vapour) (ORA) ;	2
5(a)(ii)	(blocking of) UV ; any consequence of not blocking UV to life / humans (cancer, cataracts, mutations) ;	2
5(a)(iii)	(troposphere*) ; increase carbon dioxide level ; (stratosphere* / ozone layer) reduces ozone level ; *1 mark for both correct	3
5(b)	<i>any 3 of:</i> NO: people fear nuclear power ; waste storage a problem ; possibility of making weapons ; radiation leaks / accidents ; cancer / mutation ; YES: nuclear power does not emit NO _x / SO ₂ ; so reduces acid rain ; very safe in modern plants ; (almost) infinite resource ; conserves fossil fuels ; which can be used for other purposes ; points from either list as long as not contradictory	3

Page 7	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
6(a)	<p><i>any 3 of:</i> from rocks ; by weathering ; freeze thaw, chemical ; from dead organisms ; by decomposition ; texture allows air and water in ;</p>	3
6(b)(i)	<p>6–8 circled ;</p> <p><i>any 2 of:</i> all needed minerals at maximum / high ; nitrogen less available above 8 / below 6 / P low 8–9 / P low below 6 ; aluminium high below 6 ;</p>	3
6(b)(ii)	<p><i>any 2 of:</i> acidic soils lead to low growth / yield ; some minerals less available in acid soil ; soil organisms affected ; corrosive ; aluminium is very available at low pH ; aluminium is poisonous / toxic ;</p>	2
6(c)	<p><i>any 2 of:</i> acid rain ; from burning fossil fuels / other source ; releases sulphur dioxide / NO_x ; which dissolve in water ; other named relevant process ;</p>	2