Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 **May/June 2016**

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.

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Question	Answer	Marks
1(a)(i)	all links correct with arrow direction correct ;;;;	**4**
1(b)(i)	respiration ;	**1**
1(b)(ii)	*any 2 of:* as more microplastic, less energy stored ; idea that even small amounts make a big change ; effect slows down after 1 g ; data quoted to support (e.g. went down by 1700 AU or from 2000 to 300) ;	**2**
1(c)	*any 3 of:* adds organic matter / nutrients / causes algae / plants to grow quickly ; which blocks light ; algae / plants die ; rot / decompose ; use up / reduces oxygen ; (lack of oxygen) kills fish / other named aerobes ; reference to eutrophication ; diseases ; cholera / typhoid ; ALLOW reference to plants dying due to lack of light / can't photosynthesise ;	**3**

Question	Answer	Marks
2(a)(i)	C A B ;; all 3 correct [2], 1 or 2 correct [1]	**2**
2(a)(ii)	timber (implied) ; settlements e.g. houses, roads, schools , parks, hospitals, dams, hotels etc.);	**2**
2(a)(iii)	*any 4 of:* soil exposed to elements ; 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 ; ref increased wind erosion ;	**4**
2(b)	*any 2 of:* locally funded / managed ; (encourages local people to) conserve trees / plant trees / selective removal / education on forest management / stop commercial overuse / have quotas ; as part of livelihood / example ; less intense than big commercial use;	**2**

Question	Answer	Marks
3(a)(i)	167 000 affected , 31+3 killed = 34 ; percentage = 34 / 167 000 = 0.0002 × 100% = 0.02 ;	**2**
3(a)(ii)	*any 3 of:* food / water ; reference sanitation ; medical supplies / facilities ; rescue teams ; shelter / tents ; education / advice for what to do in aftermath ; evacuation after eruption ;	**3**
3(a)(iii)	on / near plate boundary / ; reference to plate moving apart / divergent / constructive boundary ; allowing magma / lava / molten rock to come to surface ;	**3**
3(b)	*any 2 of:* poisonous gases ; ash ; pyroclastic flow / described ; hot lava description ; volcanic bombs / described ; lahar or described;	**2**

Question	Answer	Marks
4(a)(i)	Argon (Ar) AND carbon dioxide (CO_2) ;	1
4(a)(ii)	ozone ; ref screen / absorbing / shield / block ; from / UV ;	3
4(a)(iii)	*any 3 of :* (increases / releases) carbon dioxide ; sulfur dioxide ; NOx ; CO ; water (vapour) ; (reduces / takes in) oxygen ;	3
4(b)	YES: it is carbon neutral / described ; (thus) renewable / sustainable / does not contribute to global warming (much) ; helps to conserve fossil fuels / alternative to fossil fuels ; uses wastes ; NO: it uses land on which food could be grown ; it leads to (clearance of land) and loss of habitat ; need for food is increasing ; still gives off carbon dioxide ; so still contributes to global warming ;	3

Question	Answer	Marks
5(a)(i)	clay 24.2% ; silt 21.2% ; sand 54 / 55% ;	**3**
5(a)(ii)	C ;	**1**
5(a)(iii)	soil animals (eat them) ; (then) bacteria / fungi / microbes / detritivores; break them down / decompose them ;	**3**
5(b)	*any 3 of:* pests containing pesticides eaten by predators ; which are eaten by higher level predators ; concentration of pesticide increases ; reference biomagnification / bioamplification / bioaccumulation ; reference killing of beneficial species ; reference food chain / web disturbed ; reference pesticide resistance ; reference leach into water ;	**3**

Question	Answer	Marks
6(a)(i)	100 – 97 = 3% ; 0.03 × 1 400 000 000 ; = 42 000 000 / 42 million ;	**3**
6(a)(ii)	80 ;	**1**
6(a)(iii)	salination ; added water brings salt to surface ; evaporation leave salt behind around plants ; kills plants / causes plasmolysis / plants wilt ; waterlogging ; lack of oxygen ; which reduces / stops respiration inhibits (root) growth / germination ; leaching ; washes away minerals ; reduces photosynthesis / other example of problem of lack of mineral ;	**3**
6(b)	QUALITY: relative level of industrial / intensive farming ; some countries cannot afford to treat water ; ref specific aspects of treatment ; ref poor / good waste water disposal ; QUANTITY: ref low / high rainfall ; ref many / few rivers / lakes ; aquifers ; can buy in ; *max 2 for either*	**3**