



Cambridge International Examinations
Cambridge Ordinary Level

ENVIRONMENTAL MANAGEMENT

5014/21

Paper 2

October/November 2016

MARK SCHEME

Maximum Mark: 60

Published

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This document consists of **6** printed pages.

Page 2	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(a)(i)	7.7;	1
1(a)(ii)	9.058 / 9.06 / 9.1 (%); allow ecf from part (a)(i)	1
1(b)(i)	July, August, September;	1
1(b)(ii)	return to villages / work on land / loss of money / cannot buy food / cannot pay for, education / rent / medical treatment / eq;	1
1(b)(iii)	<i>any 3 of:</i> mosquitoes breed in water; so (more) people bitten; so (more) malaria cases; yellow fever / dengue fever; drinking water more polluted; so cholera / dysentery / diarrhoea; no money to treat diseases; max 1 for named disease	3
1(b)(iv)	noise drives away animals / stop them breeding / other effect on domesticated animals; reference to stress / annoyance / scared of noise; dust reduced plant growth / leaves covered / eq; less photosynthesis; causes breathing problems; causes, eye / ear problems / eq; reduced biodiversity (of plants / animals); max 2 for noise and max 2 for dust	4

Page 3	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(c)(i)	<i>any 3 of:</i> safety masks; goggles / eq; protective clothes / eq; ear defenders / eq; helmets; boots; shelter from the sun; toilets;	3
1(c)(ii)	<i>any 2 of:</i> employers do not want to pay (unless they have to) / eq; business not profitable with these extra costs; reference to workers not organised in a union / eq; laws not enforced / no law exists / not employers problem;	2
1(d)	<i>any 4 of:</i> making a lake; landfill / infilling; create wildlife habitat / nature reserve; used for farming; further details such as adding topsoil / adding N fixing plants; planting, trees / plants;	4
1(e)	newest = 1; oldest = 3;	2
1(f)(i)	appropriate scale (plots to cover at least half of the grid); axes labelled (distance from top of waste pile / m and number of plants); one plotting error = two marks, two plotting errors = one mark;; allow bar or line graph	4
1(f)(ii)	increase in plants with distance (and then a plateau) / eq;	1

Page 4	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(f)(iii)	<i>any 4 of:</i> number of plants increase; less dust so more, growth / photosynthesis; number of species increase; more suitable pH / eq; pH goes down / eq; more minerals / minerals more soluble / minerals can be absorbed; temperature does not change / eq; so does not limit plant growth / eq; AVP;; allow ORA for all statements allow max 2 marks for description and max 2 marks for explanation	4
1(f)(iv)	<i>any 2 of:</i> only one transect / more transects needed; only one pile / more piles need to be sampled / eq; the transect / pile, could have been anomalous / eq;	2
1(f)(v)	<i>any 3 of:</i> same variety of wheat plants grown / seeds from same source / eq; split into two groups / experimental and control group; dust applied to one group / eq; all other conditions the same for both groups / eq; measure rate of, photosynthesis / growth / seed production / mass of seed; method repeated / replicated;	3
1(g)(i)	272 and 315 used; = 86 / 86.3 / 86.34 / 86.35 / 86.4(%) (not 86.0)	2

Page 5	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(g)(ii)	block makers: slurry cheap / free; no shortage of supply; make more blocks; so make more money / eq.; mine owners: can sell waste; no waste to dispose of; so not breaking the law; max 2 marks for block makers and max 2 marks for mine owners	3

Question	Answer	Marks
2(a)(i)	suitable key: livestock should be shown in the uplands but also allow livestock below the dam; crops shown below the dam or on either side;	3
2(a)(ii)	<i>any 2 of:</i> valid reasons for the areas shaded such as: plants need water for long growing season / eq; flat land for growing crops; animals only need some access to drinking water; land above dam has some food for animals; land not suitable for crops / eq;	2
2(a)(iii)	<i>any 2 of:</i> reference to, flow into ground / infiltration; water table stays high / eq; wells draw water from water table; reference to methods used to remove water from wells;	2

Page 6	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
2(b)	<i>any 3 of:</i> have to provide aid; it will cost government money; government may need to ask for overseas aid; people will expect aid; government may not be able to provide correct support / eq; AVP; e.g. to save face / eq /to stop stockpiling /to prevent panic or anxiety;	3
2(c)(i)	systematic / random sample / description of any valid method;	1
2(c)(ii)	three more questions related to animal survival or productivity;;; layout (one question must have at least two answer options);	4
2(c)(iii)	8.6 / 8.57(%);	1
2(c)(iv)	<i>any 3 of:</i> some animals can extract more water from food; some animals are, more drought resistant / adapted / do not need much water; some animals can feed on anything; (buffalos) are valuable so villagers keep feeding them; AVP; accept converse statements	3