UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS **GCE Ordinary Level** 

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## for the guidance of teachers

## **5038 AGRICULTURE**

5038/01

Paper 1, maximum raw mark 100

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 must be read in conjunction with the question papers and the report on the examination.

Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

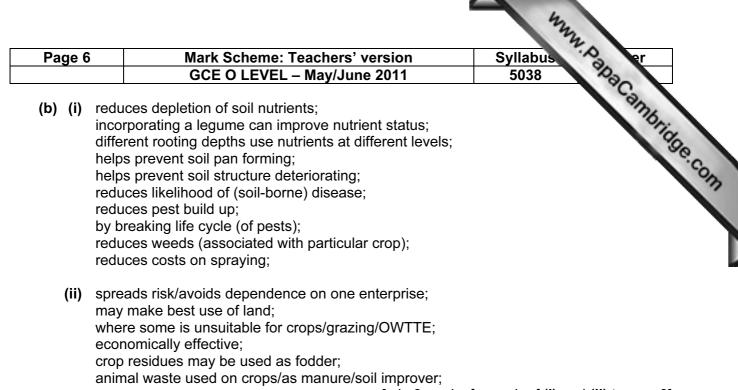
Cambridge is publishing the mark schemes for the May/June 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

alla alla	Syllabus 5038	Mark Scheme: Teachers' version GCE O LEVEL – May/June 2011	Paç
Cant		Section A	
WWW.PapaCambrid		gen, P = phosphorus, K = potassium;; t = 2 marks, 2 or 1 correct =1 mark	• •
[2]		B high(est) proportion of potassium; m promotes flower/fruit development;	
[1]		able example (such as ammonium nitrate);	(c)
[2]	nt/OVP;	antage – cost/availability/soil improver/OVP; dvantage – bulky to handle/store/unknown content/0	
[Total: 7]			
[2]	pests/OVP;	antage – durability/easy to clean/doesn't harbour pe dvantage – lacks insulation/cost/availability/OVP;	(a)
[2]		ropriate example, e.g. thatch – no mark antage – appropriate to example; dvantage – appropriate to example;	
parasites/respiratory [1]	igal conditions/pa	emperature/avoid damp conditions/discourage funga OVP;	(b)
[max 3]		using/removing dung/bedding; eders/drinkers; od/water; ies; sinfectants; oot bath; ample; ion; rophylactic drugs;	
[Total: 8]			
[max 3]		gher in <b>B</b> /lower in <b>A</b> arrower wheelbase than <b>A</b> ; ertical line drawn from) c of g falls outside wheel base ertical line drawn from) c of g falls inside wheel base	
		ity of machinery/spares/fuel;	

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	GCE O LEVEL – May/June 2011 5038	
2 : ter co co gr	3       Mark Scheme: Teachers' version       Syllabus         3       GCE O LEVEL – May/June 2011       5038         y 2 examples, each with explanation         2 =         rracing;;       ntour cultivation/ploughing/;;       ntour drainage;;         ass bunds;;       aintaining crop cover;;       [To	[4] otal: 9]
(a) (i)	2000;	[1]
(ii)	untreated – 6600; treated – 600;	[2]
(b) (i)	natural predators/life cycle of pest/competition;	[1]
(ii)	weeks; never reaches zero; population then begins to increase;	
	continues over 5 weeks; explanation - remaining pests are resistant to/pests develop resistance to insect few untouched by insecticide so can reproduce;	[3] icide/a [1]
(iii)	apply second treatment/direct spray more effectively/use greater concentration;	[1]
us dc	ear protective clothing; e respirator; not use in windy conditions; not eat/smoke when using;	
	/P's related to use, <b>not</b> storage;	[2]
	[Tot	al: 11]
<b>(a)</b> Tt		[1]
• •	oss to show Tt x Tt; oduces three genotypes TT, Tt, tt;	
	th two phenotypes – TT and Tt are tall, tt are short;	[3]
(c) (i)	uniformity $\rightarrow$ easier harvesting/all ready at same time/known quality/OVP;	[1]
(ii)	reduces costs/variation may reduce pest attack/OVP;	[1]
		otal: 6]

	labus of er
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(a) (i) crop and gizzard labelled correctly; both required for the mark	ambr.
<ul> <li>(ii) muscular walls (to churn food); presence of grit/stones (to break up hard food);</li> </ul>	labus 038 abaCambride
(b) (i) label to rumen;	[1]
(ii) rumen;	[1]
<ul> <li>(iii) animals can't digest/have no enzyme to digest cellulose; cellulose forms (large) part of plant matter; is a carbohydrate/an important source of energy; wasted/value of food much reduced, if not digested;</li> </ul>	[max 3]
	[Total: 8]
<ul> <li>(a) clean and dry/dry storage to remove/avoid moisture; oil to exclude air/oxygen and moisture; prevents rusting/corrosion;</li> </ul>	[3]
(b) levelling; producing fine tilth;	[3]
so seeds are in close proximity to (moisture on) soil particles;	

	Pa	ge 5	Mark Scheme: Teachers' version GCE O LEVEL – May/June 2011	Syllabus 5038
			Section B	Syllabus 5038 Ino hor er 5038 Ino hor dage con
		<i></i>		(B)
3	(a)	(i)	name of crop	[not go
		(ii)		co
			primary cultivation;	
			purpose; secondary cultivation;	
			purpose;	
			incorporation of fertiliser/manure;	[max 4]
	(b)	(i)	weeds compete with crop;	
			for light;	
			moisture;	
			nutrients; harbour pests;	
			and disease;	
			reduce yield;	
			contaminate crop;	
			reduce quality;	
			may be poisonous; may hamper harvesting;	[max 6]
			may namper narvesting,	
		(ii)	digging/ploughing in (annual) weeds before planting;	
			early planting;	
			manual weeding; use of hoe/cultivator;	
			use of herbicide;	
			named example/detail of selective/non-selective re. timing;	
			use of clean seed;	
			crop rotation; mulching/cover crops;	[max 5]
			muching/cover crops,	[max 3]
				[Total: 15]
	(a)	(i)	growing two or more crops on one field/piece of land;	
	(4)	(1)	in sequence over consecutive growing seasons;	[2]
		(ii)	arable and livestock farming;	
		. ,	on one farm;	[2]
		(iii)	one/the same crop is grown on a piece of land;	
			over several growing seasons;	[2]

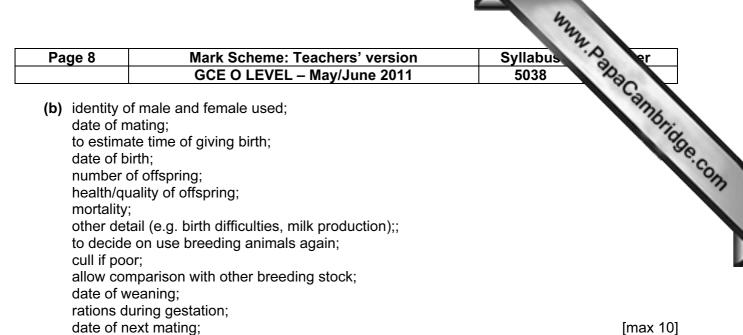


[min 3 marks for each of (i) and (ii) to max 9]

[Total: 15]

- 10 (a) (i) stocking rate must be correct; avoid overstocking; to prevent overgrazing; causes loss of/prevents rapid regeneration of palatable/nutritious grasses; poorer grass/weeds colonise(s); use of fertilisers; irrigation; re-seeding;
  - (ii) avoid overgrazing/control grazing; leads to loss of vegetative/soil cover; soil easily eroded; by wind/water; and animals;
  - (iii) avoid overgrazing; (only if not given in (i) or (ii)) bare patches allow weeds to establish; (only if not given in (i)) may be less nutritious than grasses; may be poisonous; use of burning; herbicides;
    [min 2 marks for each of (i), (ii) and (iii) to max 9]

	e 7	Mark Scheme: Teachers' version	Syllabus of er
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r f k r	cattle ref. to preve can a fence becoi reduc	ng can be controlled; kept in paddocks/camps; o rotational grazing; ents selective grazing; woid overgrazing; ed pasture can recover/be improved; mes more productive; ces need for grass burning; e can be left ungrazed to provide for dry season/make silag	Syllabus 5038 e/hay; [max 6] [Total: 15]
	p c r v fi tl <b>ii)</b> n	oot hairs; provide large surface area; concentration of cell sap greater than water/solution in soil; ef. to osmosis; vater moves <u>down</u> a concentration gradient/from high to low rom soil to (root hair) cell; hrough partially permeable membrane; passive process/does not require energy; ninerals dissolved in soil water/only absorbed from solutior uptake usually against a concentration gradient;	
	r	equires energy;	or each of (i) and (ii) to max 9
i i i i i i	suitat impro impro use o impro use o impoi	ation of the soil; ole depth for root penetration; ove aeration; ove drainage; of humus/organic matter to open soil texture; oves root respiration; of fertiliser; rtance of phosphates; rotation to avoid pests/disease which may attack root syste	em;
		ole spacing/avoid overcrowding;	[max 6
			[Total: 15
(a) (	(i) r	name of livestock	[no mark
<b>(</b> i	ii) p	product appropriate to livestock named;	[1
	ii) a	as appropriate to product – storage conditions (cool/dry etc	.);
(ii	c p	other storage detail; processing (method + detail);; grading;	



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[Total: 15]