

CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2003 question papers

0600 Agriculture

0600/01 Paper 1 (Multiple Choice), maximum mark 40

0600/02 Paper 2 (Core), maximum mark 70

0600/03 Paper 3 (Extended), maximum mark 60

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

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

CIE is publishing the mark schemes for the November 2003 question papers for most IGCSE and GCE Advanced Level syllabuses.

Grade thresholds taken for Syllabus 0600 (Agriculture) in the November 2003 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 1	40	-	29	23	19
Component 2	70	-	35	26	19
Component 3	60	44	31	-	-

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.

Grade A* does not exist at the level of an individual component.



CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 40

SYLLABUS/COMPONENT: 0600/01

AGRICULTURE
Paper 1 (Multiple Choice)



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0600	1

<i>Question Number</i>		<i>Question Number</i>	<i>Key</i>
1	B	21	D
2	C	22	D
3	D	23	B
4	A	24	A
5	A	25	B
6	D	26	C
7	A	27	C
8	B	28	B
9	A	29	C
10	B	30	A
11	D	31	D
12	C	32	A
13	C	33	A
14	B	34	A
15	D	35	D
16	C	36	B
17	C	37	D
18	C	38	D
19	C	39	C
20	B	40	B

TOTAL 40

CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 70

SYLLABUS/COMPONENT: 0600/02

**AGRICULTURE
Paper 2 (Core)**



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0600	2

1 (a)	sand; clay;			2
(b) (i)	remove water / to obtain correct weight of the soil sample			1
(ii)	CO ₂ / CO / little water / water vapour			1
(iii)	4g			1
(iv)	20%			1
(c) (i)	plot C;			1
(ii)	plot B;			1
(iii)	to get whole plot pH / overcome freak sample / accurate results			1
(d)	large spaces; ensure air (warm) circulation/prevent water logging; R : fertility			2
11				
2 (a)	suitable for crop;			
	Maize	Mahangu / Millet		
	Soil type	well drained sandy-loam	deep loam soils	
	Soil pH	Between 5,5 – 7	between 5,5 - 7	
	climate	rainfall 450 – 900mm	rainfall 400 – 700mm	
		cooler/warm temp/no frost / less frost / summer crop warm		3
(b) (i)	separate male & female flowers/small uncoloured petals/ no nectary/anthers hang out/stigma feathery;		any 3	3
(ii)	maintains soil nutrients; lowers disease risk			2
(iii)	not use chemical fertiliser / only use dung / compost / manure / green manure			1
(iv)	prevent erosion;			1
(v)	runner / cuttings forms; swells with food; from photosynthesis;		R : information about Potato	3
13				
3 (a) (i)	any suitable; animal but not poultry: concentrates (examples of concentrates only 1 mark); grass / hay / silage; R : fibre and roughage			2
(ii)	water/mineral lick;			1
(iii)	provide more protein/concentrates;			1
(iv)	only give limited/correct amounts; use containers/troughs;			2
(b)	all requirements; for animals current needs;			2
(c) (i)	small intestine / all three parts of the small intestine named			1
(ii)	stomach;			1
(iii)	aids digestion/emulsification of fats / neutralises the acid mixture			1
(iv)	4 stomachs of 1; presence of rumen; names of other 3 parts/shorter small intestine;			3
14				

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0600	2

4	(a)	(i)	pierces and sucks;		1	
		(ii)	plant sap easier to obtain/tissue softer;		1	
		(iii)	take nutrients / sucking juices; spread disease;		2	
	(b)	(i)	A pollutes/spray drifts/harms operator/ not specific; B other animals eat bait/chance bait not found; C does not kill / does not last longer	any 2	2	
		(ii)	correct dilution used; protective clothing; apply close to crop/not on windy day;	R : information on after use	3	
		(iii)	no environmental pollution/a natural method; specific; R : defination		2	11
5	(a)	(i)	insulation / cheap		1	
		(ii)	durability / long lasting / does not attract insects / does not catch fire easily		1	
		(iii)	prevents rain blowing in; acts as sun shade R :Shelter		2	
		(iv)	block - easier to clean;		1	
		(v)	48;		1	
		(vi)	disease/fighting/cannibalism/poor growth R : overcrowding		1	
	(b)		demand not high for rabbit meat;		1	
	(c)		composition - gravel 6, sand 3, cement 1 / 4; 2; 1 mixing detail; mould detail;		3	11
6	(a)		1& 2 evaporation; 3 transpiration; 4 seepage / drainage / infiltration	R : leaching	3	
	(b)	(i)	carbon dioxide / CO ₂		1	
		(ii)	osmosis for water into roots; active uptake for minerals into plant; xylem for transport to leaf; push/pull of transpiration stream;	any 3	3	
	(c)	(i)	for efficient leverage / easy to handle		1	
		(ii)	rod up causes suction with A closed; rod down closes B to prevent pushing water back;		2	10

CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 60

SYLLABUS/COMPONENT: 0600/03

**AGRICULTURE
Paper 3 (Extended)**



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0600	3

Section A

- 1 (a) (i) stumping/clearing / slash and burn;
ploughing; 2
- (ii) soil erosion; increased run-off of rain water/flooding;
leaching; increased CO₂ levels in air;
aesthetic reason; **max 2**
- (iii) e.g. Digging ditches / trenches; pipes;
ref. to location/ dimension/number of ditches; 2
- (b) soil type; yield;
climate; quality;
local pests and diseases; adaptability;
cost; availability; **R** : soil fertility **max 2**
- (c) $80\text{cm}^3 \times \frac{10\text{L}}{200\text{L}} = \underline{800\text{ cm}^3}$
4 cm³;; accept ml 2
[Total: 10]
- 2 (a) prevent overgrazing / allow grass to recover;
break life cycle of parasites; spread of diseases is controlled;
allows treatment of 'resting pastures';
different animals graze different plants;
breeding of animals is controlled; **max 3**
- (b) **ref.** to timing (pre and post planting)
ref. to application (broad casting and application with irrigation) ;
legumes/Lucerne/clover; 2
- (c) quality of drawing for **1** mark and **any 3** marks from
post and nail;
wire;
droppers; suitable dimension; concrete; **max 4**
- (d) species for hedge; soil preparation / planting method / watering;
clipping / pruning; dimensions/height/ spacing; reason for
choice of species/ reason for growing hedge e.g. Windbreak; **max 4**
[Total: 13]
- 3 (a) (i) 40 tonnes per hectare; 1
- (ii) Between 160 and 170 days; 1
- (iii) Between 25 and 35 tonnes/hectare; 1
- (iv) Spores and water/wind; (**both spores and a medium
needed for 1 mark**) 1
- (b) sum of returns – sum of cost; = to profit or loss;
if returns greater than costs then a profit has been made; 3
[Total: 7]

[Total for Section A: 30]

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0600	3

Section B

- 4 (a) frost; expansion of water;
in a crack in rock; repeatedly;
wind; blowing sand/ rock particles; wearing away;
running water/rivers / waves; carrying sand/rock particles;
expansion; contraction (of rocks); due to air temperature;
ref. to length of time; **max 10**
- (b) removal of minerals from soil;
dissolved;
carried downwards;
named example of mineral;
replaced by H⁺ ions;
makes soil more acidic;
enzymes are affected;
deficiency;
example of deficiency on plant growth; **max 5**
[Total: 15]
- 5 (a) (i) draws water;
and soluble mineral salts;
xylem;
water evaporates from the leaves;
by diffusion (of water vapour);
pulls/ sucks water / AW, up the stem;
cooling effect on leaves; **max 5**
- (ii) water evaporates from internal cell surfaces;
stoma; surrounded by guard cells;
become turgid; (water vapour lost by) diffusion;
to a lower water vapour concentration outside leaf;
(usually in) the light; **max 6**
- (b) entry via e.g. leaf;
through cuticle/stomata;
pesticides are soluble; carried in phloem;
both up and down plant/ all over plant; **max 4**
[Total: 15]
- 6 (a) cheaper than keeping bull;
choice of high quality semen;
semen can be transported/ frozen/ stored / semen can be used even
when the bull has long died ;
control of spread of sexually transmitted diseases;
no damage to cows by bulls;
ref to timing and increased success rate; **max 3**
- (b) (i) high quality of parents;
produce high quality offspring;
select only offspring with desired characteristic for breeding;
repeat over generations;
use of exotic/ foreign breeds;
named characteristic;
hybrid vigour; keep records; **max 5**

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – NOVEMBER 2003	0600	3

- (ii) fetus; head towards cervix/ born head first;
uterus contracts (rhythmically A/W;
cervix opens; water sac breaks/ loss of fluid;
foetus pushed through vagina; umbilical cord attached;
to placenta; released separately/ later;
OVP;

max 7
[Total: 15]

- 7 (a) ref. to banks of; river/stream;
max 2 for e.g. of materials used for dam;;
max 2 for e.g. of tools used for construction;;
wider at bottom;
because of increase in water pressure with increase in depth;
overflow pipe;
method of preventing erosion caused by water;

max 5

- (b) large insoluble materials/example; removed by grates / filters
settling tank;
max 2 for filled with stones/ gravel/sand;;
flocculation; use of alum;
disinfection/ use of chlorine; kill microorganisms;

max 5

- (c) turn off water;
remove handle and casing;
remove jumper;
unscrew nut holding washer;
fit new washer;
tighten nut;
reassemble tap;
pliers/ screwdriver/ spanner/ wrench;

max 5
[Total: 15]