

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

International General Certificate of Secondary Education

**MARK SCHEME for the November 2004 question paper**

**0600 Agriculture**

0600/03

**Paper 3 (Extended Theory), maximum mark 80**

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does 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 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.



**Grade thresholds** taken for Syllabus 0600 (Agriculture) in the November 2004 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 3	80	55	38	25	16

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.



**NOVEMBER 2004**

**INTERNATIONAL GCSE**

**MARK SCHEME**

**MAXIMUM MARK: 80**

**SYLLABUS/COMPONENT: 0600/03**

**AGRICULTURE  
Paper 3 (Extended Theory)**



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- 1 (i) appropriate example of infectious disease;  
selective breeding;  
appropriate example of stress in a farm animal; **3**
- (ii) (antibiotics) are given to animals to prevent bacterial disease;  
antiseptics used to kill microorganisms outside the body; **2**
- (iii) two appropriate statements  
e.g. reference to distance;  
e.g. reference to facilities;  
named treatment;  
named prevention;  
provide education/information **max 2**
- (iv) notifiable disease;  
isolation;  
quarantine;  
restriction of movement;  
restriction to importing livestock;  
slaughter; **max 3**
- Total 10**
- 2 (a) (i) e.g. grasshopper, locust, leaf miners, beetle;  
reject biting and chewing pest **1**
- (ii) reduces area for photosynthesis;  
consumes soluble carbohydrate;  
allows entry of harmful microorganisms;  
qualified water loss; **max 2**

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**b (i)** 2000\* 15/200;  
= 150 g/0.15 kg; **2**

**(ii)** (absorbed by leaves) via cuticle/stomata;  
translocated;  
via phloem;  
(eaten by insect) when feeding on leaf;  
poisonous to insect/kills insect; **max 4**

**Total 9**

**3 (a) (i)** provides energy; **1**

**(ii)** (movement of particles) from high concentration to low concentration;  
until evenly distributed/along a concentration gradient; **2**

**(b) (i)** soil water more dilute than cell sap/root hair;  
so passes in by osmosis;  
across selectively permeable membrane;  
process repeated across cortex A/W;  
until reaches xylem;  
water raised up through plant by water tension;  
caused by transpiration; **max 5**

**(ii)** guard cells;  
open and close stomata;  
open during day/closed at night;  
allowing high water loss/preventing water loss;  
AVP (detail); **max 3**

**Total 11**

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- 4 (a)** absorption/uptake;  
 plant (protein);  
 denitrification; **3**
- (b) (i)** sheep manure; **1**
- (ii)** soluble (nitrate);  
 in rain water;  
 passes down through soil; **max 2**
- (iii)** axes right way round;  
 axes scaled and labelled correctly;  
 accurate plotting;  
 bar chart drawn neatly with ruled edge; **4**
- (iv)** washed away/leached away;  
 eutrophication in rivers A/W; **2**
- (v)** (root) nodules;  
 contain microorganisms;  
 (which can fix) atmospheric nitrogen;  
 decomposition of ploughed in plants;  
 (putting) nitrates into soil; **max 3**
- Total 15**
- 5 (a) (i)** sperm/male sex cell;  
 implanted inside female;  
 moves to and fuses with ovum;  
 appropriate reference to haploid diploid; **max 3**
- (ii)** cheaper than keeping bull;  
 exotic breeds;  
 reference to mounting problems;  
 reference to season; **max 3**

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(b) (i) 60 – 64 kg;

(ii) water use to produce milk;

(iii) colostrum;

antibodies;

vitamin A/riboflavin;

(iv) pass immunity to calves;

during feeding

**max 5**

**Total 11**

**6 (a)** level base;

method of weed suppression;

ratio of sand/cement/aggregate;

method of shuttering;

finishing;

reference to appropriate tool;

**max 3**

(b) access; + reason;

water/electricity supply; + reason;

topography; + reason;

security; + reason;

wind direction; + reason;

suitability of ground; + reason;

bogginess of ground; + reason;

**max 5**

**Total 8**

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- 7 (a) (i) 2000 27,33,31;  
2001 34,38,36; **2**
- (ii) 1998;
- (iii) greatest production of living mulch/greatest yield with no mulch; **2**
- (b) (i) reduces water loss from soil;  
suppress weeds;  
close planted cereals do not need mulch because no soil evaporation; **max 2**
- (ii) plants that grow between crop; **1**
- Total 7**



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**8 (a)** cost:

reference to drought/flood resistance;

yield;

reference to pest resistance;

availability;

consumer preference;

**max 3**

**(b)** clearing/digging;

fertilising/dressing;

levelling;

watering;

**max 2**

**(c)** dry;

method of avoiding loss to pests;

security;

**max 2**

**(d)** calculate both returns and inputs;

subtract inputs from returns;

**max 2**

**Total 9**