

**MARK SCHEME for the October/November 2010 question paper  
for the guidance of teachers**

**0600 AGRICULTURE**

**0600/03**

Paper 3 (Extended Theory), maximum raw mark 80

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.

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- 1 (a) can digest poor grass / tolerate heat / tolerate drought / hardy – needs little support / fast runner can escape predators / able to pull carts etc / large ears for increased sweat gland / high fertility

1 mark for comments regarding production quality  
any two features 2 marks [2 max]

- (b) (i) good confirmation / meaty carcass / meaty hind quarters / dual purpose animal / good milk / good meat / able to cope with hot weather / reference to size qualified / no horns

any two features 2 marks [2 max]

- (ii) select initial good specimen;  
breed with South Devon, select calf;  
breed again with South Devon, repeat;

1 mark for suggestion as to how this helps meat or milk production or general on introducing helpful characteristic. [3 max]

- (c) collecting semen from desired cattle / freezing;  
use instead of using bull to fertilise cow;  
general explanation / collection/ storage / implantation;  
relevant stages described [3 max]

**[Total: 10]**

- 2 (a) (i) rake / rotovator / hoe / disc harrow / spring harrow; [1]

- (ii) drag over ploughed soil / breaks up lumps / creates fine tilth / compact OWTE

any three clear points  
OR  
two well explained points [3 max]

- (b) (i) ammonium sulfate / nitro chalk / LAN / CAN / ammonium nitrate; [1]

- (ii) know exact concentration of nutrient / easy to apply / reference to rate of action / ease of use / concentrate easy to store / availability OWTE

any two relevant [2]

- (iii) loss of humus bacteria / decline in soil structure / tilth / more prone to erosion / lower pH  
any two [2 max]

- (iv) reduce physical damage to soil OWTE / reduce loss of organic matter / slow run off / loss of moisture by evaporation;  
general reference to less disruption so less loss of water  
evaporation / water loss 1 mark max [2]

**[Total: 11]**

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3 (a) transpiration stream / up xylem tissue / root pressure / cohesion / tension OWTE;;

(b) starch / glucose;

transported / idea of translocation up to stored seed & flower – down to root sink / role of phloem tissue

or part well explained;;; [4]

(c) reduces surface area / less water loss by transpiration;; [2]

[Total: 8]

4 (a) *respirator*                      *protect nose / lung*  
gloves                                  keep off hands OWTE  
protection suit                      keep off body OWTE

accept any reasonable answer  
1 mark for type of protection  
1 mark for relevant reason [max 2]

(b) translocated / systemic / selective  
glyphosphate / roundup / M.C.P.A. / named product; [1]

read instructions, mix correctly, protective clothing, follow instructions  
spray rate, suitable weather conditions, dilution, spray away from body / other people;;; [3]

(c) annual weeds – hoe / fork / cultivation

1 mark for method  
1 mark for description [2]

perennial weed – loosen / pull out / dig out / repeated cutting back /  
make clear not to leave bits behind

1 mark for method  
1 mark for description [2]

[Total: 10]

<b>Page 4</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>
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- 5 (a) antiseptic sterilise housing / clean wounds / clean skin / clean equipment / clean clean shears. [2]
- antibiotics kill bacterial infection / surface creams / udder cream / administered by tablet injection
- any two relevant [2]
- (b) foot and mouth / anthrax / TB / Newcastle disease / mad cow disease; [1]
- (c) vaccination programme / tending sick animals / euthanasia / problem birth / education / dipping / quarantine;; [2 max]
- [Total: 5]**

- 6 (a) off ground / keep dry / prevent vermin / overhanging roof / air gap for ventilation / waterproof roof OWTE;;; [3 max]
- (b) (i) ease of access / proximity of markets / services / size- big enough / level site / access to materials/ not flooding area / reference to suitable site e.g. shade / OWTE
- any two 2 marks [2 max]
- (ii) idea of economy of scale explained / quicker pay back; communal working together more efficient OWTE; [2]

(iii)

material	job / use	advantage of use	disadvantage of use
wood	walls	availability low cost	termite attack /rots
concrete	raised floor	avoids flooding	difficult to construct remove / destroy later.
corrugated sheeting	roofing	easy to use / waterproof avoids rats etc	not readily available
palm leaves	roofing and walls	readily available ventilation	short life

all 4 correct 2 marks  
2 correct 1 mark [2 max]

- (iv) higher price in future market / winter feed for family or livestock OWTE;; [2]
- [Total: 11]**

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- 7 (a) (i) lying down at midday / grazing early and late / chewing cud between 10.00 and noon  
any other relevant any two [2]
- (ii) signs of ill health or disease / birth / heat [2]
- (b) chew-mix micro-organisms, break down of cellulose  
1 mark for named organism i.e. fungus / bacteria / worms or any appropriate mini beast / general explanation of micro organism [1]  
description of passage through stomach / digestive tract [3 max]
- [Total: 8]**
- 8 (a) orange / red;  
NOT yellow alone but accept orange/yellow [1]
- (b) better species / more diversity / more growth / less weed growth;; [2]
- (c) more micro-organisms – better base exchange / nutrients become available / flocculation / drainage improved;; [2]
- (d) pH fall / idea of cattle removing Ca / Lime / idea of leaching Ca / acid nature of animal waste / grazing reduces plant cover and so more leaching  
any suitable [2 max]
- [Total: 7]**

Page 6	Mark Scheme: Teachers' version	Syllabus
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- 9 (a) (i) easy construction / low cost / conservation/storage of water / HEP / irrigations;
- (ii) evaporation / land loss / prone to dry in hot weather /  
idea of clean supply of water /  
not flooding unless explained /  
prevents flooding; [1]
- (iii) sufficient inflow of water to meet storage ability /  
large surface area giving larger area for possible pollution; [1]
- (iv) less flow of water / become dry / danger of flooding / explain idea of breaking;  
less flooding below dam explained /  
effect on local micro climate e.g. increased local rain fall; [2]
- (v) strength / withstand force / idea higher pressure at the base;; [2]

(b) settled / filtered / pumped / stored in dark / sterilisation method / pH control / flocculation

3 marks for 3 steps

2 marks for 2 steps and 1 for explanation

[3 max]

[Total: 10]