

**MARK SCHEME for the October/November 2011 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) (i) legumes in both boxes;
- (ii) makes full use of nutrients / reduces weeds, disease / improves soil structure / OWTE  
Any two [2]
- (iii) allows long term use of land with lower or less inputs / minimal/no harm to the environment OWTE;;  
Any two [2]
- (b) (i) root nodule; [1]
- (ii) increase nitrates in soil when ploughed in / increases humus content of soil / more micro-organisms in soil / better ped structure / increase water, nutrient holding capacity;;  
Any three relevant – one mark for example  
two marks for explanation [3]

[Total: 9]

- 2 (a) (i) 'P' placed on Rock in fast flowing water; [1]
- (ii) root action / named example of weathering;  
how this breaks down rocks; [2]
- (b) (i) greater level area / good for irrigation or water use / less erosion;;  
Any two [2]
- (ii) naming an appropriate system; [1]  
outlining advantages and disadvantages (max three marks) [3]

[Total: 9]

- 3 (a) (i) **drainage** – poor good;  
**water holding** – good poor; [2]
- (ii) water slow to heat / air heats quickly / lots of airspace / any reference to latent heat;;  
Any two [2]
- (b) (i) pH 6–7; [1]
- (ii) lime / chalk / any other suitable material; [1]
- (iii) at pH 6.5 most nutrient available, and trace elements available; [2]
- (iv) at high pH's less magnesium means less available;  
to enter cattle so cattle more prone to magnesium stagers; [2]

[Total: 10]

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- 4 (a) (i) osmosis;
- (ii) transpiration;
- (b) guard cells open and close / brief description of how;  
use of word like 'turgor'; [2]
- (c) idea of absorb through stomata or leaf surface / translocated via phloem down to the root  
/ mention of energy;; [3]

[Total: 7]

- 5 (a) initial cultivation breaking up of soil;  
removal of weeds;  
firming and forming tilth;  
up to one mark for use of appropriate tools;  
Any three max [3]
- (b) (i) foliage dies down / skin of crop become mature / reference to size;;  
Any two [2]
- (ii) cool / dry / good air flow / dark;;  
Any two [1]
- (iii) galvanised sheet / plastic sheet / concrete or any suitable;  
advantages – cost / longevity / strength;;  
Any two [3]

[Total: 9]

- 6 (a) (i) fungus; [1]
- (ii) moist / humid / evening temperature above 20 °C / warm;  
(If from a hot climate accept cool and damp) [1]
- (b) (i) gametes – Rr; rr;  
offspring – Rr Rr; rr rr; [4]
- (ii) circle around either rr; [1]
- (c) produces identical plants / generally quicker /  
no opportunity to improve or get hybrid vigour / spread or build up disease;;  
Any three [3]

[Total: 10]

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- 7 (a) (i) correctly drawn lines pointing to duodenum and rectum;;
- (ii) pancreas drawn below stomach and joining duodenum;
- (iii) help in breaking down cellulose / mention of role of protease acting on protein and carbohydrase acting on carbohydrates OR action of enzymes described;; [2]
- (b) have no rumen but digestion of cellulose from caecum / appendix / OWTE;; [2]
- (c) regurgitate / chew cud;  
to gain bacteria and allow second stage of digestion from;  
material broken down by cellulose bacteria over night; [3]
- [Total: 10]**
- 8 (a) (i) label on diagram immediately after 'birth'; [1]
- (ii) easy to digest / carries antibodies / aids immunity / OWTE;; [2]
- (b) (i) cervix; [1]
- (ii) no need to keep a bull / choice of different sires; [1]
- (iii) description of selection of suitable sires and the idea of grading up explained;;; [3]
- [Total: 8]**
- 9 (a) not many quality animals / good quality animals get a higher price; [1]
- (b) less energy wasted / easier to monitor / ensures favourable conditions / OWTE;; [2]
- (c) cost of materials / investment;  
any borrowed money interest payments;  
extra output compared to conventional system after considering extra inputs;  
Possible long term harmful effects;  
OWTE; [5]
- [Total: 8]**