

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**0600 AGRICULTURE**

**0600/02**

Paper 2 (Core 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) donkeys; [3]
- (ii) geese; [3]
- (iii) sheep; [3]
- (b) no preventative chemical disease control / antibiotics; [2]  
pastures managed without artificial fertiliser; [2]
- (c) (i) legume and legume; [1]
- (ii) farmer – less expense for fertiliser / pesticides / higher yield so more money; [2]  
(Reject gets more money unqualified.)  
soil – maintains structure / aeration or drainage / less nutrient depletion; [2]
- (iii) pigs fertilise / provide nitrate with dung and urine; [2]  
pigs turnover soil / clear weeds; [2]
- [Total: 10]**
- 2 (a) (i) anywhere that touches water-rock interface; [1]
- (ii) freeze thaw explained; [2]  
wind effect explained; [2]  
chemical action explained; [2]
- Any two [2]
- (iii) leaves fall, rot into humus; [2]  
roots break up / separate soil; [2]
- (b) wind breaks; [3]  
planting; [3]  
contour ploughing; [3]  
(Allow use crop rotation, do not overgraze.) [3]
- [Total: 8]**
- 3 (a) (i) drainage – poor good; [2]  
water holding – good poor; [2]
- (ii) add lime / sand / FYM; [1]  
Reject add fertiliser. [1]
- (iii) many / large air spaces so rapid air exchange; [2]  
air warms more quickly than sand particle; [2]
- (b) (i) laying of porous pipes beneath soil; [2]  
digging ditches; [2]

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- (ii) drainage will allow air into soil;  
for root respiration / nitrogen fixing; [2]

[Total: 9]

- 4 (a) photosynthesis;  
cooling;  
transport;  
support / turgidity;  
Any two. [2]

- (b) osmosis; [1]

- (c) transpiration; [1]

- (d) water out exceeds water in / loss of turgidity;  
due to lack of soil water / extreme wind / dry atmosphere; [2]

- (e) water drops can magnify light and scorch leaves / evaporates before it can sink into soil /  
transpiration at night means less loss and turgidity maintained; [1]

[Total: 7]

- 5 (a) (i) for named cereal digging / turning over soil described;  
weed removal; (Allow at any stage.)  
tilth creation described; [3]

- (ii) appropriate fertiliser named;  
appropriate timing e.g. before sowing, at emergence; [2]

- (b) (i) dry / cool;  
well ventilated; (Allow good air flow.) [2]

- (ii) oil / creosote / paint; [1]

- (iii) shape of cone causes pest to go upside down and lose grip; (Reject cannot climb up.) [1]

- (iv) thatch – readily available; good insulation;  
iron – long lasting; cannot harbour pests; (Reject cost unqualified.) [2]

[Total: 11]

- 6 (a) (i) fungus / phytophthora; (Allow bacteria if related to tomato.) [1]

- (ii) humid / damp / wet; (Reject windy / hot.) [1]

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(b) do not spray in / into wind;  
do not eat;  
keep spray nozzle close to crops;  
Any one. [1]

(c) (i) Rr rr ;  
R r r r single alleles;  
Rr rr Rr rr all R r ;  
  
Punnett square / gametes and F<sub>1</sub> given; [4]

(ii) rr; [1]

(iii) Rr; [1]

**[Total: 9]**

7 (a) (i) correct labels – duodenum = circle of gut by liver;  
rectum = circular end gut; (Reject anus opening.) [2]

(ii) correct position – within circle of gut by liver; [1]

(iii) chemical break up; (Allow ref to enzymes.)  
mechanical break up;  
detail e.g. role of any major part; (Reject ref to absorption and hind gut.) [3]

(b) isolate the animal; [1]

(c) they do not have a rumen / four chambered stomach / do not regurgitate / chew cud; [1]

**[Total: 8]**

8 (a) birth \_\_\_\_\_ anther  
egg \_\_\_\_\_ germination  
mating \_\_\_\_\_ ovary  
ovary - - - - - ovule  
sperm \_\_\_\_\_ pollen grain  
testis \_\_\_\_\_ pollination

5 correct = 4 marks

3 or 4 correct = 3 marks

2 correct = 2 marks

1 correct = 1 mark

[4]

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(b) fusion / coming together;  
of gametes / eggs and sperm; [2]

(c) between birth and weaning; [1]

(d) provides high fat / nutrients; to meet growth demands;  
provides antibodies; to provide immunity /fight disease;  
easy to digest; for immature digestive system;

Any pair. [2]

**[Total: 9]**

9 (a) good quality animals get high price;  
there are few good quality animals;  
price increased when number of animals decreased

Any one. [1]

(b) cleanliness / fresh bedding;  
fresh food / water;  
ventilation / fresh air;

Any two. [2]

(c) protein needed for growth;  
high carbohydrate for energy;  
minerals / vitamins for development / disease prevention; [3]

(d) previous sibling slaughter weights / growth rates;  
conformation / fat levels of siblings or parents; [2]

**[Total: 8]**