



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

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**AGRICULTURE**

**5038/01**

Paper 1

**For Examination from 2012**

SPECIMEN MARK SCHEME

**1 hour 45 minutes**

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**MAXIMUM MARK: 100**

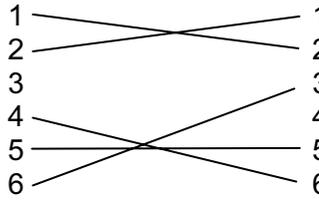
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This document consists of **7** printed pages and **1** blank page.



- 1 (a) (i) A [1]  
 (ii) A [1]
- (b) water; air; [2]
- (c) (i) dry it; [1]  
 (ii) 0.2; [1]  
 (iii) humus / living organisms / or remains of living organisms; [1]  
 (iv) sandy / sandy loam; [1]
- [Total: 8]**
- 2 (a) N ammonium nitrate / sulphate of ammonia / CAN;  
 P bone meal / castor meal;  
 K wood ash / seaweed;  
 muriate of potash / sulphate of potash / potassium nitrate; [4]
- (b) chlorophyll; [1]
- (c) (i) to get random samples; [1]  
 (ii) distilled water is neutral / has no chemicals to affect result; [1]  
 (iii) pH 7; [1]  
 (iv) indicator colour goes blue green / blue; [1]
- [Total: 9]**
- 3 (a) light from sun; a gas called carbon dioxide;  
 water from soil; a gas called oxygen; [4]
- (b) (i) less photosynthesis due to less light; R no photosynthesis  
 (ii) less transpiration due to less heat;  
 To gain a mark in both i & ii an explanation must be given [2]
- [Total: 6]**

- 4 (a) (i) A stigma; B ovary [2]  
 (ii) insect carries pollen to stigma; A self pollination [1]
- (b) gametes / male & female nuclei;  
 fuse / join; [2]
- (c) (i) palisade layer; A chloroplasts [1]  
 (ii) temperature / light intensity / CO<sub>2</sub> concentration / water concentration / humidity;  
 any 2 [2]
- [Total: 8]**
- 5 (a) (i) shape of leaves / size of flowers / shape of tubers / plant decumbent rather than erect /  
 tubers grow from runner rather than terminal / roots on tuber (and) runner in sweet  
 potato; R size ref. any 2 [2]  
 (ii) idea of fission rather than fusion; A ref to only one parent  
 R identical offspring / no variation; [1]
- (b) (i) more light so more food / less damage from ground pests / less fungal disease; [1]  
 (ii) two variables / not every variety was tested in both conditions; [1]
- (c) (i) nitrogen used to make protein / chlorophyll; [1]  
 (ii) diminishing returns; [1]
- [Total: 7]**
- 6 (a) C [1]
- (b) (i) hard grain / appropriate colour for crop; R plant withering  
 A appropriate reference e.g. for flour [1]  
 (ii) dry / good air flow / appropriate temperature; [1]
- (c) (i) prevent rats / vermin climbing up; [1]  
 (ii) harbours pests / not durable / catch fire; [1]  
 (iii) soaked in preservative / set in concrete; [1]
- [Total: 6]**

- 7 (a)  5 correct = 4 marks  
4 correct = 3 marks  
3 correct = 2 marks  
2 correct = 1 mark  
1 correct = 0 [4]
- (b) (i) groundnut cake;  
mangels / cassava / fodder beet;  
hay / dried grass; [3]
- (ii) higher protein; as in groundnut cake;  
or higher carbohydrate; as in cassava / fodder beet etc; [2]
- [Total: 9]**
- 8 (a) (i) D [1]
- (ii) D [1]
- (b) (i) recessive, because all first generation lack horns / horns reappear in second generations; [1]
- (ii) carried in gametes / on chromosomes;  
as DNA / genes; [2]
- (c) (i) lack of food / disease / difference in genetic make up; R one grew better [2]
- (ii) details of the ram/ his parents / progeny;  
e.g. growth rate / conformation; [2]
- [Total: 9]**
- 9 (a) saw / hammer / spade / auger / hacksaw / mattock / spirit level; any 4 [4]
- (b) (i) tins recycled / noise if disturbed; [1]
- (ii) using valuable wood resources / vulnerable to termites ; [1]
- (c) (i) B [1]
- (ii) B [1]
- [Total: 8]**

**[Section A Total: 70 marks]**

- 10 (a)** dull eyes;  
 dull coat;  
 discharges from mouth/eyes/nose;  
 colour/state of faeces/urine;  
 fever;  
 abnormal behaviour (e.g. abnormal gait/isolation/weakness/inactivity);  
 loss of appetite;  
 reduced production;  
 specific symptoms/lesions for named disease;; [max. 6] [6]
- (b)** animals resist disease better;  
 with warmth/suitable temperature;  
 adequate space/good ventilation;  
 helps avoid spread of parasites/airborne pathogens;  
 cleaning/disinfecting housing/utensils;  
 to remove/destroy pathogens/sources of infection;  
 clean food;  
 clean water;  
 to avoid vectors/vermin;  
 balanced diet;  
 avoids deficiency disease;  
 examples used to illustrate any of the above;;; [max. 9] [9]
- [Total: 15]**
- 11 (a)** irrigation;  
 use of fertilisers;  
 liming;  
 weed control;  
 sowing legumes;  
 re-seeding with improved grasses;  
 drainage of swampy areas;  
 OVP (e.g. details of pest control);  
 detail of any of these;;;;; [max. 5] [5]
- (b)** enclosure protects animals;  
 land divided into paddocks;  
 rotational grazing;  
 detail 1;  
 detail 2;  
 recovery of grass;  
 reduction of parasites;  
 dry/winter season fodder conserved;  
 strip grazing;  
 use of moveable/electric fencing;  
 helps avoid overgrazing/erosion; [max. 7] [7]

- (c) fewer stock losses;  
higher stocking rate possible;  
less parasite infestation;  
greater yield;  
more products to sell; [max. 3]

[3]

**[Total: 15]**

- 12 (a) avoid contact with skin;  
wear protective clothing;  
such as respirator;  
overall;  
other example;  
don't eat/drink/smoke when spraying;  
read instructions;  
for correct dilution;  
and mixing;  
use on correct crop/situation;  
allow correct interval before harvest;  
spray downwind;  
avoid spraying in very windy conditions;  
so spray does not blow on to operator;  
animals/people;  
other crops;  
water sources;  
don't wash out containers in streams etc.;  
dispose of containers safely;

- (b) store chemical in original container;  
with label;  
so instructions are present;  
and substance is not mistaken for anything else;  
store in secure;  
dry;  
cool conditions;

[max. 15]

**[Total: 15]**

- 13 (a) monoculture is commercial/crop mainly for sale;  
inputs necessary;  
market for products necessary;  
may not be profitable on small area;  
mixed farming gives greater self-sufficiency in food;  
animal products/examples;  
crop products/examples;  
crop residues can be fed to animals;  
animal dung used as fertiliser/soil conditioner;  
less reliance on transport;  
for food for human consumption;  
for animal fodder;  
for fertilisers;  
reduces costs;  
less risk if one enterprise fails; [max. 8]

[8]

- (b) climate;  
 amount/seasonality of rainfall;  
 temperatures;  
 topography;  
 examples;  
 soil type;  
 pH;  
 other environmental factor;  
 markets;  
 demand;  
 transport availability;  
 availability of necessary inputs;  
 availability of labour;  
 OVP (e.g. size of land available); [max. 7] [7]

[Total: 15]

- 14 (a) fruit/seed dispersal;  
 by wind;  
 example/good description of feature;  
 by man/animals;  
 example/good description of feature;  
 explosive/self dispersal;  
 example/good description of feature;  
 by water;  
 example/good description of feature;  
 perennial weeds;  
 spread by vegetative material;  
 example/description;  
 when ploughing/digging/hoeing; [max. 7] [7]

- (b) use of herbicides;  
 selective/non-selective;  
 example of chemical or situation;  
 post-/pre-emergence;  
 example of chemical or situation;  
 hoeing/hand picking (annual weeds);  
 specified cultivations (such as ploughing);  
 bury weeds;  
 planting rate/spacing/use of cover crops;  
 slashing/grazing (in plantations/orchards);  
 controlled burning;  
 crop rotation;  
 mulching;  
 use of clean seed/planting material;  
 OVP (e.g. early planting); [max. 8] [8]

[Total: 15]

[Section B Total: 30]

[Paper Total: 100]

