



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

AGRICULTURE

5038/01

Paper 1

For Examination from 2012

SPECIMEN MARK SCHEME

1 hour 45 minutes

MAXIMUM MARK: 100

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 / CO₂ concentration / water concentration / humidity;
 any 2 [2]

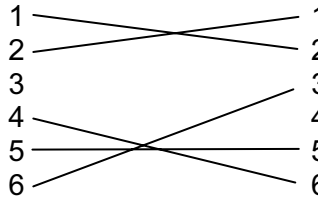
[Total: 8]

- 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]

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