UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2009 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) any named cereal crop

(ii) America
Asia
Europe
Africa
all correct 2 marks
two correct 1 mark [2]

(iii) low energy use/no need of such energy OWTE [1]

(iv) rise/increase [1]

(b) (i) use of expendable materials/impact on ground water/high cost/lower pH/
not recycled or lack of humus OWTE [2]

(ii) increased run off/loss of water/tropic effect
loss of top soil/erosion/leaching of nutrients
any two [2]

[Total: 9]

2 (a) (i) **A** (clay) [1]

(ii) large surface area/impervious/high clay content/close fitting particles OWTE [1]

(iii) idea of pipe 1 mark
idea of infill 1 mark [2 max]

(iv) save space/lasts longer/no hazard to stock
more reliable than ditches/ditches block earlier [1]

(b) (i) one mark for each correct axis and appropriate label
2 marks for ALL bars accurately represented
(1 if only 3 accurate 0 if less) [4 max]

(ii) Destroyall [1]

(iii) toxicity
ease of application
specificity
cost effectiveness
environmental implications
better control of pest
better control of disease
higher yields
more varieties suitable for use
more food more profit
greater input to national economy
amount of chemicals required OWTE
any three [3]

[Total: 13]

3 **(a)** mark for each appropriately indicated position
air to root of legume 1 mark
lightning to ground 1 mark [2

(b) rotating crops – any order to include a legume crop [2]

(c) uses/cycles different nutrients, reduces build up of pests, diseases & weeds/increases soil fertility [2]

(d) clover/lupins/peas/beans or any appropriate species [1]

(e) increase/fix nitrate in soil/add humus
less fertiliser used/better soil structure any two [2]

[Total: 9]

4 **(a)** **(i)** movement of water from more positive WP to negative WP
OR accept strong to weak via a selectively permeable/or semi permeable membrane [2]

(ii) water drawn out by reversal of osmosis/
plant wilts/scorching leaves/death [4]

(b) **(i)** reduced surface area/reduced water loss [1]

(ii) shade from sun/reduced wind speed [1]
accept idea that trees increase local rainfall

[Total: 8]

5 **(a)** dry/vermin free/suitable water content/
ventilated/protection to stop people falling in OWTE
any three [3]

(b) suitable % moisture in crop/colour/smell/
fruit or seed ripe and mature OWTE
any two [2]

(c) know exactly how many units used/more effective/higher yield/better control of pests and disease/crops look better/keep better

describing examples 2 marks
justification reasons explained 2 marks [4 max]

[Total: 9]

6 **(a)** **(i)** a variation of a gene
the idea of dominant or recessive (MM Mm)

(ii) correct diagram punnet/square/lines
Mm MM mm [2]

(iii) idea of chick with two recessive alleles 1:2:1 ratio
diagram only 1 mark [2]

(b) **(i)** increased fat/slower growth 1 mark
calmer or better tempered/easier to handle/no sperm/not able to reproduce/
better for working [2]

(ii) check offspring for faults
check the offspring are good OWTE [2]

(iii) boar/bull can serve when female is in season
young stock difficult to tell when in season
can follow up missed AI accept cost [2]

(iv) the period over which milk is produced OWTE [1]

(v) provides antibodies/immunity/easy to digest/
correct nutrients/simply good nutrient OWTE [2]

[Total: 14]

7 **(a)** *(box 1)* clean/reliable/more sterile water/less likely to run dry reliable = more water
(box 2) unreliable/easily polluted/can run dry
(box 3) needs more cleaning/polluted/dirty/further from farm unit.
(box 4) lots available/less pipe work needed/easier to reach [4 max]

(b) idea of filters/settlement/sterilisation/sand/gravel/micro-strainers/sieves
accept then boil or chlorination
accept flocculation process or any workable process [2]

[Total: 6]

8 **(a)** to do work/increase production
accept make work easier [1]

(b) **(i)** **A** accept **C** if good reason [1]

(ii) reason – cost, ease of use/repair OWTE [2]

(c) **(i)** **B** [1]

(ii) reason – needs to work over bigger area
need to share cost OWTE [1]

[Total: 6]

9 **(a)** clear/burn/cut or idea of removal
plough/cultivate/drain/fence OWTE

(b) cost of land/cost to clear/prepare/
productivity output/profit [2]

[Total: 6]