



Coimisiún na Scrúduithe Stáit State Examinations Commission

Scéimeanna Marcála

Eolaíocht Talmhaíochta

Scrúduithe Ardteistiméireachta, 2007

Gnáthleibhéal

Marking Scheme

Agricultural Science

Leaving Certificate Examination, 2007

Ordinary Level



**Coimisiún na Scrúduithe Stáit
State Examinations Commission**

LEAVING CERTIFICATE AGRICULTURAL SCIENCE

ORDINARY LEVEL

MARKING SCHEME

Leaving Certificate 2007
Agricultural Science – Ordinary Level
Marking Scheme

Section One

Answer any **six** questions

6(20)

Question 1.

- (a) Landrace/ Large White/ Duroc/ etc. **4**
- (b) disinfection/ iron injection/ cutting teeth/ castration/ tail docking/ infra-red lamp or reference to temperature/ suckling or colostrum/ avoid crushing/ maintain hygiene (keep farrowing crate clean)/ control disease/ feeding of sow any two **2(4)**
- (c) meal available to young without access to mother **4**
- (d) weaner house/ fatterer house/ farrowing house/ dry sow house any two **2(2)**

Question 2.

Candidate must name a different fertiliser in each case

	Nitrogen	Phosphorus	Potassium
Name of an artificial fertiliser that supplies this element 3 (4)	Urea/ sulphate of ammonia/ calcium ammonium nitrate (CAN) NET Nitrate Accept compound	Rock phosphate/ superphosphate/basic slag Accept compound	Muriate of potash/ sulphate of potash/ Accept compound
Deficiency symptoms 3 + 3 + 2	vegetation yellow/ stunted growth	discoloured vegetation/ short roots/ poor germination/ reduced tillering	scorching or withering or discolouration of leaves/ prone to disease/ poor fruit formation

Question 3.

- (a) oestrogen/ progesterone/androgens/ testosterone/ androsterone/ LH/ FSH **4 + 3**
- (b) one matching function for each of two hormones **4 + 3**
- (c) oxytocin [allow prolactin] **3**
- (d) below brain (hypothalamus)[allow head] **3**

Question 4.

Name of animal	Earthworm 2	Hen (chicken) 2
Phylum	Annelida 2	Chordata 2
Give one feature of the phylum	Segments/ chaetae 2	Backbone/ dorsal nerve cord 2
Name one benefit of the animal to agriculture	Soil fertility/aeration (makes holes)/ mixes soil/ improves drainage/ adds humus 4	Eggs/meat (food)/ manure/ fertiliser/ nitrogen 4

Question 5.

- (a) to prevent run-off of N/ to prevent pollution (of streams)/ to avoid waste of fertiliser or of money/ N not taken up by growing plants **4**
- (b) shelter for wildlife/ food source for wildlife/ protection for crops/ shelter for farm animals/ absorb carbon dioxide/ replenish oxygen/ biodiversity/ wildlife corridors/ aesthetic/ REPS/ noise reduction/ natural fence **2(4)**
- (c) prevents disease/ prevents build up of pests/ prevents compaction/ prevents deterioration of soil structure/ prevents loss of organic matter/ weed control/ rests soil **2(4)**

Question 6.

- (a) Charolais/ Simmental/ Limousin/ Blonde d'Aquitaine/ Belgian Blue/ etc. any three **4 + 2(2)**
- (b) wider choice of males/ better chance of conception / less dangerous/ cost/ easier transport
any two **4 + 2**
- (c) to show cow has been mated/ to show cow is in heat/ to allow farmer predict calving date
4
- (d) 283 days (280 – 285)/ 40 - 41 weeks/ 9.5 months **2**

Question 7.**4(5)**

- (a) fixes nitrogen/ increases palatability/ high in protein/ keeps production up during low grass production/ high mineral content/ increases nutritive value/ weed control/ denser sward
- (b) keeps bacterial or microbial or germ growth low
- (c) incorrect time of sowing/ late harvesting/ straw is too tall/ straw is too weak/ straw diseased/ too much N fertiliser/ heavy rainfall/ wind/ variety
- (e) more suitable food than silage/ supplies nutrients or minerals or named mineral/ development of rumen/ micro-organisms for rumen/ introduces fibre/ stimulates rumen function

Section TwoAnswer any **three** questions**3(60)****Question 8.**

- (a) (i) igneous/sedimentary/metamorphic **3(3)**
(ii) any one point related to a named rock **6**
igneous – molten rock/ cools fast/ solidifies [allow volcano or lava]
sedimentary - sediments accumulate/ compacted (or cemented)
metamorphic – intense heat/ acts on igneous (or sedimentary) rock
[if formation not related to a name, 3 marks may be awarded]
- (iii) igneous – granite/basalt
sedimentary – limestone/ sandstone/ shale
metamorphic – marble/ slate/ gneiss/ schist/ quartzite **3**
[allow 3 marks for a correct example matching a named rock type]
- (b) (i) name **3**
diagram of soil profile **6, 3, 0**
three main horizons labelled **3(2)**
(ii) one matching feature **3**
- (c) diagram **6, 3, 0**
experiment **6 + 4 (3)**
add water/ to soil / stir or shake/ pour into glass cylinder/ add water/ leave to settle/ time/
note different layers/ different sized particles
- OR**
- dry/ soil/ place on sieve/ different sieve sizes/ shake or wash through/ time/ repeat/ collect/
weigh/ calculation

Question 9.

- (a) better daily gain/ more output per ha/ control of parasites/ named parasite/ better use of grass/
sheep eat around dung pats/ sheep grazing increases tillering/ different dung and urine/ prevent
tufts or improves pasture **6 + 2(3)**
[allow maximum of 3 marks for reference to management or supervision]
- (b) (i) removing animals from farm [allow slaughter or sale] **6**
(ii) injury (lameness or bad feet)/ low milk yield/ low milk fat/ low milk protein/ mastitis/
fertility problems/ birthing problems/ bad temperament/ bad teeth/ foot rot/ disease/
improving stock/ age/ prolificacy/ poor conformation/ poor fleece **6 + 2(3)**
[allow a maximum of 2(3) for reference to disease or named disease]
- (c) replacement of stock/ breed of animal/ disease prevention/ good quality grass/ mineral lick/
time of calving/ time of turnout to grass/ pre-calving body condition/ good quality silage/ meals/
milking interval or frequency/ grazing system/ stocking rate/ winter housing/ use of fertiliser or
lime **6 + 2(3)**
- (d) (i) water/ casein (protein) / fat/ carbohydrate or lactose or sugar/ mineral or named/
vitamin or named **3(3)**
(ii) name of constituent **1**
method **4(2)**
sample of milk/ apparatus/ named reagent (any two)/ any **two** procedural points/ result/
control

- Question 10.** Answer any two parts (a), (b), (c). **2(30)**
- (a) (i) right atrium (auricle)/ right ventricle/ left atrium (auricle)/ left ventricle **4(3)**
 [if atrium and ventricle correctly labelled without reference to left or right award 6 marks, if atrium and ventricle wrongly placed allow 3 marks]
- (ii) four arrows [allow full marks if arrows show complete flow from atrium to ventricle and upwards towards arteries] **4(3)**
- (iii) transport of food/ transport of hormones/ transport of oxygen/ transport of carbon dioxide/ transport of waste/ distribution of heat/ transport of lymphocytes (defence system or fight disease)/ produces clots **2(3)**
- (b) (i) has a rumen (has a special stomach or a stomach with four chambers)/ chews the cud **6**
- (ii) food churned/ bacteria or protozoa/ digest (break down)/ cellulose(fibre) **6 + 6**
- (iii) small intestine or ileum **3**
- (iv) amylase/ lipase/ trypsin/ chymotrypsin/ sucrase/ lactase/ peptidase **6 + 3**
- (c) (i) A = enamel B = dentine C = jaw or bone **3(3)**
- (ii) incisor/ canine/ premolar/ molar any two **6 + 6**
- (iii) cutting/ tearing/ grinding **2(3)**
- (iv) $\frac{3}{3}$ $\frac{1}{1}$ $\frac{4}{4}$ $\frac{3}{3}$ **3**

Question 11.

- (a) (i) unit of inheritance/ controls a trait or example/ code or instruction/ part of chromosome/ piece of DNA **3**
- (ii) one allele not dominant over other or example **3**
- (iii) identical genotype or exact copy **3**
- (b) (i) nucleus **3**
- (ii) 19 **3**
- (iii) calves/ compared to others **2(3)**
- (c) (i) (Y) (y) **2(3)**
 (Yy) **3**
 Yellow **4**
- (ii) (Yy) **3**
 (Y) (y) **3(3)**
 (Yy) (yy) **2(3)**
 Yellow Purple **2(4)**

Question 12.

- (a) sample of seeds/ weigh/ sieve or separate/ collect/ weigh/ calculate/ repeat **6 + 3(3)**
- (b) (i) kale/ rape/ stubble turnip/ grass/ legume / cabbage/ lettuce **3**
[do not accept clover]
- (ii) to supply organic matter/ draws down CO₂/ winter feeding for livestock/ controls weeds/ protects soil structure/ conserves moisture/ prevents leaching of minerals/ to fix nitrogen (if legume) **3(3)**
- (c) name of disease **3**
name of crop [accept potato] **3**
control of disease **6**
- (d) weigh sample of food/ place in oven/ heat to 100 °C/ leave (time)/ remove and cool/ weigh/ repeat/ constant mass/ calculation **6 + 5(3)**

Question 13.

- (a) flushing – before or during or after mating **6**
fed at low rate/ followed by high feeding rate/ gaining weight/ to increase fertility / good pasture/ low stocking rate **3**
steaming up – before lambing **6**
fed concentrated diet/ about six weeks/ before lambing/ to avoid twin-lamb disease **3**
- (b) good hygiene or example/ free nose and mouth from mucus immediately after birth / cut navel and dip in disinfectant/ ensure lamb is warm/ ensure lamb gets colostrum/ lambs left with mothers in lambing pens/ ensure good milk supply/ castration/ tail docking/ water / vaccination of lamb/ disease control or example/ creep feed/ weaning at 12-14 weeks/ dosed/ dipped or sprayed/ clean pasture **6 + 3(3)**
- (c) sale of fleece/ prevention of blowfly or green bottle/ prevent overheating (animal welfare)/ prepare for housing/ more space inside house/ stronger lamb/ easier to identify thin ewe **6 + 3**
- (d) named disease **3**
cause **3**
symptom **6**
control **6**

