

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA

LEAVING CERTIFICATE EXAMINATION, 2001

AGRICULTURAL SCIENCE — ORDINARY LEVEL

WEDNESDAY, 13 JUNE — AFTERNOON 2.00 to 4.30

SIX QUESTIONS TO BE ANSWERED

SIX QUESTIONS TO BE ANSWERED

1. Answer **any six** of the following:

- (a) Explain how saliva helps the digestion of food.
- (b) State **two** properties of sandy soils.
- (c) Name (i) a dairy breed,
 (ii) a beef breed.
- (d) Explain, by means of a diagram, the difference between the seed heads of barley and oats.
- (e) Give **two** benefits of clover in a grassland sward.
- (f) Name **two** by-products of sugar beet production.
- (g) Give **two** reasons why earthing-up is carried out in the cultivation of potatoes.
- (h) Explain how external parasites cause ill-health among farm animals.
- (i) Explain how the use of pesticides in farming could harm the wildlife of the countryside.
- (j) Name **two** plants which belong to the Family Compositae.

(60 marks)

2. Air and water in soil are present in the soil pores.

- (a) Explain **three** factors which influence the extent of the pores within the soil.
- (b) Describe a laboratory or field experiment to investigate the percentage air in a soil.
- (c) Name **four** components, other than air and water, present in a loam soil.

(48 marks)

3. (a) Write brief notes on **each** of the following:
- (i) housing requirements of a new-born calf,
 - (ii) use of mineral licks in animal production,
 - (iii) autumn ploughing.

(b) State **three** reasons why hedgerows are important on farms.

(c) State **two** advantages of catch crops on a mixed tillage/livestock farm.

(48 marks)

OR

3. (a) Describe the management and feeding of cows during the three months after calving.

- (b) (i) Describe a grazing management system which could be used on an intensive beef farm.
(ii) Explain the benefits of the mixed grazing of cattle and sheep on a dry stock farm.

(48 marks)

4. (a) Describe **four** practical steps involved in making good quality silage.

(b) Describe **two** methods a farmer can use to measure the quality of silage.

- (c) Suggest quantities of silage required for the following over a five month winter period:
(i) weanling heifer, (ii) two year old steer.

(48 marks)

5. Describe a laboratory or field method to determine **any two** of the following:

- (a) Percentage moisture in a sample of soil.
- (b) Presence of protein in a foodstuff.
- (c) Productivity of an area of grassland over a grazing season.
- (d) Hygienic quality of a milk sample.

(48 marks)

6. (a) Explain why the in-wintering of sheep is an important part of intensive sheep production.

(b) Describe the management and feeding of lambs or bonhams from birth to weaning.

(c) List the bodily characteristics to be considered in the selection of new breeding stock in a named enterprise.

(48 marks)

7. (a) Explain the following terms:
 (i) allele, (ii) haploid, (iii) gamete, (iv) hybrid.
- (b) A wheat plant homozygous for red kernel (**RR**) is crossed with a plant homozygous for white kernel (**rr**). The offspring (**F1**) were heterozygous. The offspring were then crossed with a plant homozygous for white kernel. Copy the following into your answer book and complete the spaces (genotypes in brackets, phenotype on lines).

The genotypes of the original parents	(RR)	X	(rr)
The gametes produced by each parent	()	X	()
The genotype of the offspring (F1)		()	
The phenotype of the offspring (F1)		_____	
The genotype of the second generation parents	()	X	()
The gametes produced by each parent	() ()	X	()
The genotype of the second generation (F2)	()		()
The phenotype of the second generation (F2)		_____	_____

(48 marks)

8. Answer **any two** of the following:

- (a) State **four** factors which influence the composition of farmyard manure.
- (b) Describe **three** methods involved in the safe storage of a named cereal for a period of six months after harvesting.
- (c) Discuss the growing of a named root crop under the following headings:
 (i) soil suitability,
 (ii) pre-sowing cultivations,
 (iii) disease control,
 (iv) harvesting.

(48 marks)

9. Give a scientific explanation for **any four** of the following:

- (a) The presence of a large population of daisies in an overgrazed pasture.
- (b) The formation of an iron pan in a soil profile.
- (c) Variation in the length of the grass growing season throughout the country.
- (d) The influence of environmental temperature on the weight gain of pigs.
- (e) The production of carbon dioxide in the animal body.

(48 marks)

BLANK PAGE

BLANK PAGE