

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA

LEAVING CERTIFICATE EXAMINATION, 2000

AGRICULTURAL SCIENCE - ORDINARY LEVEL

WEDNESDAY, 14 JUNE - AFTERNOON 2.00 - 4.30

SIX QUESTIONS TO BE ANSWERED

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

- (a) Name two sedimentary rocks.
- (b) Mention three constituents of the blood.
- (c) Explain why nitrogen is an important plant nutrient.
- (d) Explain each of the following: pollination, diffusion.
- (e) Give two reasons why a balanced diet is vital for young farm animals.
- (f) State two causes of farm pollution.
- (g) Mention three factors which influence the germination of seeds.
- (h) Draw a labelled diagram to show the location of each of the following on a grass plant: ligule, sheath, node.
- (i) Explain why aphids are controlled in seed potato production.
- (j) Give two reasons why clover is desirable in a pasture sward.

(60 marks)

- 2.
- (a) Outline any two practices used on a farm to improve soil drainage.
 - (b) Describe a laboratory experiment to show flocculation in a soil.
 - (c) Explain, using examples, the difference between physical and chemical weathering of rocks.

(48 marks)

3. (a) Explain why old poorly managed grassland is unsuitable for the production of good quality silage.
- (b) Mention the principal grass species that are desirable in permanent grassland sward.
- (c) Describe a laboratory investigation you carried out to extract chlorophyll from a leaf **or** to show the presence of starch in a leaf.
- (48 marks)**

OR

3. (a) Explain why the diet of ruminant animals is mainly grass.
- (b) Draw a labelled diagram to describe the structure of the lung of a farm animal.
- (c) Explain, using examples, why digestive juices contain enzymes.
- (48 marks)**

4. (a) Mention the principal methods used for livestock improvement in a named farm enterprise.
- (b) Describe three factors which influence the growth rate and health of a named one year-old farm animal.
- (c) Mention the principal constituents in fresh milk. Outline a laboratory test to show the presence of one of the constituents you have named.
- (48 marks)**

5. (a) Explain why cereals are a suitable foodstuff for farm animals.
- (b) Explain why crop rotation is practised on a tillage farm.
- (c) Describe an investigation you carried out to determine (i) the purity, and (ii) the percentage germination, of a sample of cereal seeds.
- (48 marks)**

6. (a) Outline the important factors in the selection of replacement farm stock for breeding.
- (b) Describe any three housing conditions that are necessary in a pig production unit on a farm.
- (c) Describe three environmental factors which may affect farm animals housed over the winter months.
- (48 marks)**

7. (a) Explain the importance of chromosomes in plant and animal cells.
- (b) In peas, yellow seeds (YY) are dominant over green seeds (yy). State the phenotype and genotype of the seeds on a pea plant resulting from each of the following:
- (i) a heterozygous (Yy) plant crossed with another heterozygous (Yy) plant.
- (ii) a heterozygous plant (Yy) crossed with a homozygous recessive (yy) plant.
- (c) Explain the benefit of cross-breeding in plants and animals.
- (48 marks)**

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

- (a) Describe the rearing of a young heifer up to mating stage, under each of the following headings:
- (i) feeding (ii) disease prevention and control.
- (b) Describe a sheep enterprise with which you are familiar under each of the following headings:
- (i) feeding (ii) selection of breeding stock.
- (c) Describe the life cycle of the liver fluke. Explain how a knowledge of the cycle assists the farmer in controlling this animal pest.
- (48 marks)**

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

- (a) Poor establishment in a newly sown field of wheat.
- (b) The production of carbon dioxide in the animal body.
- (c) The lack of green colour in plants growing in the dark.
- (d) The presence of starch in potato tubers.
- (e) The topping of a grassland sward.
- (48 marks)**