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LEAVING CERTIFICATE EXAMINATION, 1996.

## Agricultural Science - Ordinary Level

Wednesday, 12 June - Afternoon 2.00 to 4.30

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**Six questions to be answered.**

1. Answer any six of the following:

- (a) Describe two characteristics of a named parasitic organism.
- (b) Explain, using a named example, what is meant by metamorphosis.
- (c) State the location in the animal body of each of the following:-  
Cerebellum, Ureter, Alveoli, Aorta.
- (d) Give an example of a symbiotic relationship which includes Red Clover.
- (e) List any two mineral elements necessary for the development of healthy bones in farm animals.
- (f) Distinguish between photosynthesis and respiration in plants.
- (g) Explain why it is important to maintain a high level of hygiene in a milking parlour.
- (h) Give two reasons why concentrates are fed to animals during the winter months.
- (i) Mention two factors which promote the incidence of twin-lambing on a well managed sheep farm.
- (j) Explain how parent rock material may influence the overlying soil.

**(60 marks)**

2. (a) Explain how you would determine soil texture in the laboratory.
- (b) Outline the advantages, accruing to a soil, due to the presence of any two named soil organisms.
- (c) Explain how good management practices assist in conserving soil structure.

**(48 marks)****OVER →**

3. (a) Outline the factors which influence the productive cycle of the sow.
- (b) Describe a laboratory experiment to show that the roots of plants are positively geotropic.
- (c) Outline the factors which determine the quality and quantity of ration required by a named farm animal.

**(48 marks)**

**OR**

3. (a) Indicate, with the aid of a labelled diagram, how Carbon or Nitrogen are recycled in nature.
- (b) Briefly describe an investigation to show the deficiency symptoms of a major named plant nutrient.
- (c) Describe how bacteria, present in the nodules of Leguminous plants, may be grown in the laboratory.

**(48 marks)**

4. (a) Outline the stages involved in conserving grass as silage.
- (b) Explain why the composition of grass makes it suitable for inclusion in the diet of ruminant animals.
- (c) Describe a laboratory investigation to indicate the presence of a named food constituent in leafy grass.

**(48 marks)**

5. (a) Describe the body characteristics of a named farm animal selected for breeding.
- (b) Explain how the growth and development of sheep or pigs may be adversely influenced by unsuitable environmental conditions in a farm enterprise.
- (c) Compare and contrast the management methods used in any two systems of animal production with which you are familiar.

**(48 marks)**

6. (a) Explain how the quality and yield of a named root crop or cereal may be influenced by management practices.
- (b) Describe a laboratory investigation to determine the percentage dry matter content of a named farm root crop.
- (c) Describe any two advantages arising from the inclusion of a root crop in a rotation on a tillage farm.

**(48 marks)**

7. (a) Explain each of the following terms:-  
(i) Monohybrid;  
(ii) F1 generation;  
(iii) Backcross.
- (b) Describe a simple genetic cross to show the effect of lack of dominance for a single trait in the coat colour in cattle.
- (c) Explain, using two examples, why it is necessary to know the genotype as well as the phenotype for a particular trait in the study of genetics.

**(48 marks)**

8. Answer any two of the following:-

- (a) Draw a labelled diagram of a transverse section of a leaf, identifying clearly the principal region associated with photosynthesis and the location of the spongy mesophyll.
- (b) Describe any three factors which influence the lactation period of milch cows.
- (c) Describe suitable housing conditions for the over-wintering of weanling spring-born calves.

**(48 marks)**

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

- (a) Synchronised breeding of ewes.
- (b) A change in the diet of a calf approaching six weeks after birth.
- (c) A decrease in the effectiveness of artificial fertilisers following adverse weather conditions.
- (d) The retention of good hedgerows on a farm.
- (e) A low pH in the soil in a coniferous woodland.

**(48 marks)**