

**WARNING**

This Question Paper **MUST** be returned with your answer book at the end of the Examination:  
otherwise marks will be lost.

Write your Examination Number here →



# Coimisiún na Scrúduithe Stáit State Examinations Commission

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**LEAVING CERTIFICATE EXAMINATION, 2008**

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**AGRICULTURAL SCIENCE - ORDINARY LEVEL**

**FRIDAY, 20 JUNE – AFTERNOON 2.00 – 4.30**

*For the Superintendent use only*

Centre Stamp

*General Directions*

THERE ARE TWO SECTIONS IN THIS EXAMINATION.

*Section One:* **Six** questions must be answered.  
Each question carries 20 marks.

*Section Two:* **Three** questions must be answered.  
Each question carries 60 marks.

Total Marks: 300 marks.

You should not spend more than 45 minutes on Section One,  
leaving 105 minutes for Section Two.

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**Instructions**

- Answer **six** questions. Each question carries 20 marks.
  - Write your answers in the spaces provided.
  - Keep your answers short.
  - Write your examination number in the space provided.
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**Question 1.**

(a) Explain the term **parasite**.

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(b)

(i) Name **one** example of a parasite of a farm animal \_\_\_\_\_

(ii) Name the host animal that is affected by this parasite \_\_\_\_\_

(c) What is the difference between an ectoparasite and an endoparasite?

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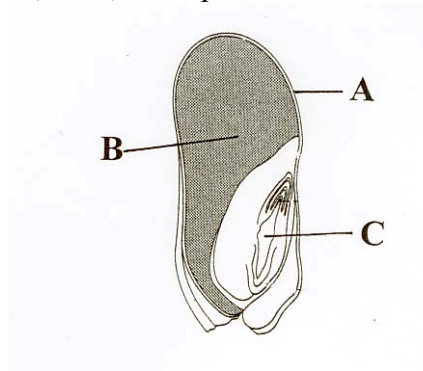
(d) Give **one** example of a parasite of a plant \_\_\_\_\_

**(20 marks)**

**[OVER**

**Question 2.**

- (a) The diagram below shows a longitudinal section of a maize grain. Match the labels A, B and C with the following parts; embryo plant, testa, endosperm.



A \_\_\_\_\_ B \_\_\_\_\_ C \_\_\_\_\_

- (b) What is the function of the endosperm?

\_\_\_\_\_

- (c) What is meant by the germination of a seed?

\_\_\_\_\_

- (d) State **three** factors necessary for the germination of a seed.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

**(20 marks)**

**Question 3.**

- (a) Name **one** compound fertiliser \_\_\_\_\_

- (b) State **one** difference between a compound and a straight fertiliser.

\_\_\_\_\_  
\_\_\_\_\_

- (c) Give **one** reason why compound fertilisers are used by farmers.

\_\_\_\_\_

- (d) Name **two** natural fertilisers.

(i) \_\_\_\_\_ (ii) \_\_\_\_\_

- (e) State **one** advantage of using these natural types of fertiliser.

\_\_\_\_\_  
\_\_\_\_\_

**(20 marks)**

**Question 4.**

Name the machine from the list below that is involved in the farming practices listed in the table. Each of the machines is shown below.

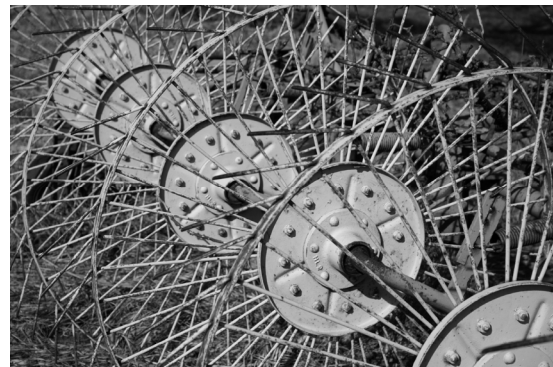
Roller, Tedder, Mower, Plough, Elevator Digger.

Farming Practice	Machine
Turning hay	
Harvesting potatoes	
Cutting grass	
Smoothing and firming seed bed	
Turning sod of earth	

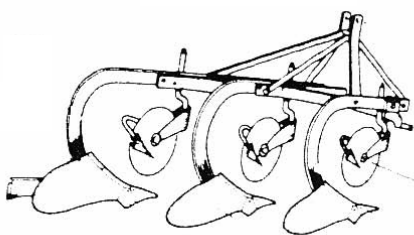
**Roller**



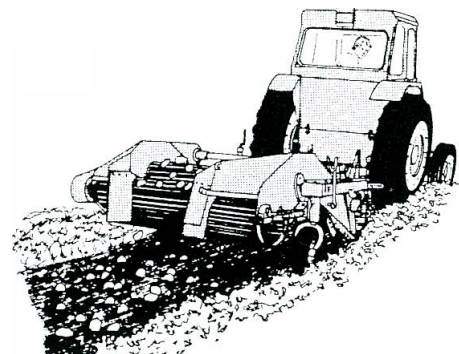
**Tedder**



**Plough**



**Elevator Digger**

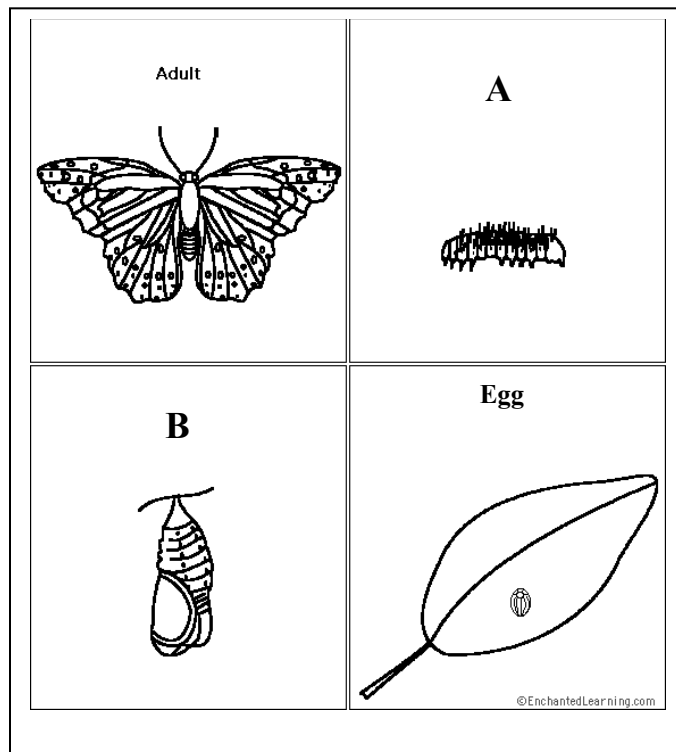


**Mower**

**(20 marks)**

**Question 5.**

The diagrams below show the lifecycle of the cabbage white butterfly.



(a) Name the stages **A** and **B**.

**A** \_\_\_\_\_ **B** \_\_\_\_\_

(b) What is the name given to the type of change in the life cycle of an insect as shown in the diagram? \_\_\_\_\_

(c) (i) Damage can be done to crops by this insect. Which of the above stages does the most damage? \_\_\_\_\_

(ii) State what type of damage is done to crops.  
\_\_\_\_\_

(d) Name **two** other insects that show this type of change in their life cycles.

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

**(20 marks)**

**Question 6.**

Match up a plant structure from the following list with a process in the table.  
The first one is completed as an example for you.

potato tuber, flower, stoma, xylem, chloroplast, root

Plant Process	Plant structure
Support of plant	root
Transport of water	
Vegetative propagation	
Pollination	
Photosynthesis	
Gaseous exchange	

(20 marks)

**Question 7.**

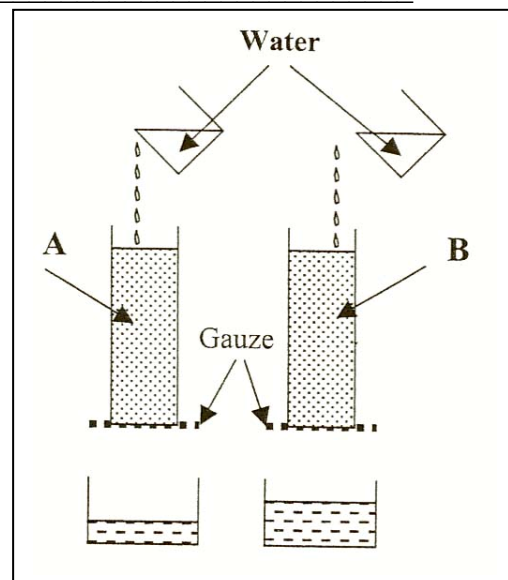
The diagram shows an experiment that was set up to investigate drainage in two soil samples.

- (a) Which soil sample, A or B, has the better drainage? \_\_\_\_\_
- (b) Give a reason for your answer. \_\_\_\_\_

- (c) Which sample, A or B, is more likely to be a clay soil?

- (d) Give **two** benefits of clay to the soil.

- (i) \_\_\_\_\_
- \_\_\_\_\_
- (ii) \_\_\_\_\_
- \_\_\_\_\_



- (e) Describe a benefit of sand to the soil.

\_\_\_\_\_

\_\_\_\_\_

(20 marks)

[OVER

## Section Two (180 marks)

### Instructions

Write your answers to Section Two in your answer book.

Answer any **three** questions. Each question carries 60 marks.

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#### Question 8.

- (a) State **four** precautions taken by a farmer to ensure the safe birth of a calf.
- (b) Give **two** benefits of feeding colostrum to a newborn calf.
- (c) Write a note about any **two** procedures carried out on calves within the first six months.
- (d) Describe **three** housing requirements of young calves.
- (e) What is the importance of tagging animals on the farm?
- (f) Explain how scour in calves is prevented and treated.

**(60 marks)**

#### Question 9.

In cereal production, farmers have a choice of sowing winter or spring varieties.

- (a) Give any **two** disadvantages of sowing spring varieties.
- (b) Give **two** reasons why winter varieties are sown.
- (c) What are the main benefits of sowing certified seed?
- (d) Name one pest of cereal crops. Explain how it affects the plant and how it is controlled.
- (e) Describe **three** procedures followed to ensure proper storage of cereal grain.
- (f) State the expected yield in tonnes per hectare of a named spring cereal crop.

**(60 marks)**



**Question 10.** Answer any **two** parts (a), (b), (c).

**(30, 30)**

- (a) In relation to each of the following, give **two** advantages of each agricultural practice on the farm.
- (i) Liming of soil.
  - (ii) Rotation of crops.
  - (iii) Rolling a seed bed.
  - (iv) Spraying herbicide on pasture.
- (b) Explain the difference between each of the following pairs.
- (i) Raised bog and blanket bog.
  - (ii) Paddock grazing and strip grazing.
  - (iii) Production of hay and production of silage.
  - (iv) Tillering and tilling.
- (c) Give **two** advantages of each of these procedures.
- (i) Cattle and sheep grazing together.
  - (ii) Covering a silage pit with polythene.
  - (iii) Including clover in a grass seed mixture.
  - (iv) Shearing of sheep.

**(60 marks)**

**Question 11.**

- (a) Name any **three** ingredients, apart from minerals, that you would find in a sheep concentrate and explain why each one of them is present.
- (b) Name **four** factors that influence the feeding value of silage.
- (c) Outline the changes that occur in the diet of a lamb during its first six months.
- (d) Name **one** disease caused by the lack of a mineral in any animal and explain how it affects this animal.
- (e) Give **one** reason for feeding hay to young cattle or young sheep.

**(60 marks)**

**[OVER**

**Question 12.**

- (a) Draw a labelled diagram of a plant cell, as seen under a light microscope.
- (b) Where in a cell are the chromosomes found? State a function of the chromosome.
- (c) Explain the following terms as used in genetics:
- (i) Gamete,
  - (ii) Haploid,
  - (iii) Mutation.
- (d) Red colour in flowers is controlled by the allele (**R**), which is dominant over the allele for white colour (**r**).
- (i) Copy the following into your answer book and complete the spaces (genotypes in brackets, phenotypes on lines) to show a cross between a plant with a homozygous red flower and a plant with a white flower.

The genotypes of the original parents    (**RR**)    X    (**rr**)

The gametes produced by each parent    ( )    X    ( )

The genotype of the offspring    (    )

The phenotype of the offspring    \_\_\_\_\_

- (ii) The offspring of the above cross were crossed with a plant with a white flower. Copy the following into your answer book and complete the spaces (genotypes in brackets, phenotypes on lines) to outline this cross.

The genotypes of the second generation parents                          ( )    X    (**rr** )

The gametes produced by each parent                          ( ) ( )    X    ( )

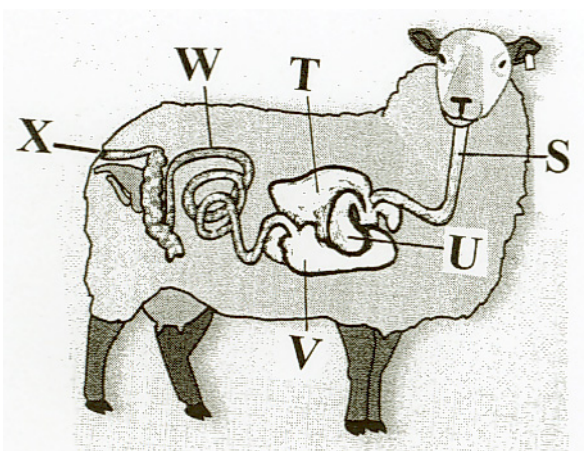
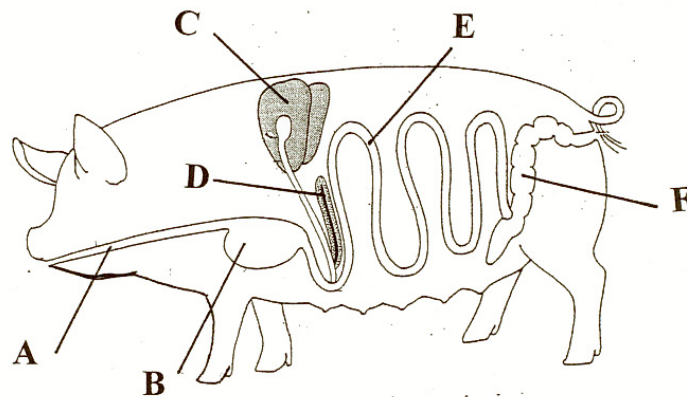
The genotypes of the second generation                          ( )                  ( )

The phenotypes of the second generation                          \_\_\_\_\_                  \_\_\_\_\_

**(60 marks)**

**Question 13.**

- (a) Digestion is the process during which food is broken down and absorbed.
- (i) Name **one** enzyme that helps in digestion and name the food that it breaks down.
  - (ii) Bile is a liquid that helps to break down fats.
    - 1. Where is bile stored?
    - 2. Explain how this liquid affects fat molecules.
    - 3. State what substances fats are broken down into.
  - (iii) Give **three** functions of the liver.
  - (iv) In what part of the digestive system does absorption of food into the blood stream take place?
- (b) The diagrams show the digestive system of a sheep and of a pig.
- (i) Name the parts labelled A, B, C, D, E, F.
  - (ii) Name the parts labelled S, T, U, V, W, X.  
(The reticulum has not been labelled)
  - (iii) State **two** differences between the digestive system of a pig and a sheep.



**(60 marks)**

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