

## Leaving Certificate Applied 2004

# Vocational Specialism

## Agriculture/Horticulture

(240 marks)

**Wednesday 9 June 2003**

**Morning 9.30 am to 11.00 am**

*For the Superintendent use only*

**Centre Stamp**

### ***General Directions***

1. Write your EXAMINATION NUMBER in this space

2. WRITE ALL ANSWERS INTO THIS ANSWERBOOK.

THERE ARE TWO SECTIONS IN THIS EXAMINATION

*Section One:* One question of which **twelve** parts must be answered.  
Each part carries 10 marks.

*Section Two:* Candidate must answer any **four** questions  
from this section, based on the modules studied.  
Each question carries 30 marks.

**For the Examiner only**

<b>Question</b>	<b>Mark</b>
<b>Section 1</b>	
<b>1</b>	
<b>Section 2</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	
<b>6</b>	
<b>7</b>	
<b>Grand Total</b>	
<b>Disallowed</b>	
<b>Total</b>	

**Section One**

**(120 marks)**

**Question 1. This is made up of eighteen parts i.e. (a) to (r). Any 12 parts must be answered. All parts carry equal marks (10 marks each).**

**1.**

(a) In this diagram of the cross-section of a plant root,  
name the structure labelled X

**X Xylem 5**

What is the function of this labelled part?

**Transport (carrying)/ carrying water/ carrying minerals 5**



(b) A plant that flowers every year is called

**Perennial 5**

Name one of these plants

**Lupin/ dahilia/ daffodils/ tulips/ crocus/ etc. 5**

(c) Name the gases that move into and out of the leaf during Photosynthesis

Gas passing **into** the leaf **CO<sub>2</sub> or carbon dioxide** 5

Gas passing **out of** the leaf **O<sub>2</sub> or Oxygen** 5

(d) Identify the tree/shrub shown in the picture

**holly/ Skimmia/ Pyracantha** 5

Suggest a reason for the thorny leaves

**protection/ defence/ stop animals eating it** 5

(e) The diagram shows a protective structure used to speed up plant growth.

Name the structure small tunnel/cloche 5

Name another structure that could also be used to speed up plant growth

Greenhouse/glasshouse/ polytunnel/ cold frame/ propagator 5

(f) Name **one** piece of safety equipment that would be used during the study of Agriculture/Horticulture

Any relevant personal or other safety equipment 5

What advice would you give to your fellow students about to eat lunch after working in the school garden or laboratory?

Wash hands/ do not eat in the work area/ be careful of what you drink or containers used for eating 5

(g) What is the process of removing the seed heads of grass to produce new grass growth called?

Topping 5

Leafy grass growth is got by using a fertiliser rich in the nutrient Nitrogen (allow a

trade name for a nitrate compound) 5

(h) Name the common Irish tree whose leaf is shown in the

diagram Ash Tree/ rowan tree/ mountain ash. 5

What piece of sports equipment is made from the timber of

this tree? Hurley 5



(i) The use of living creatures to control an insect pest is called

Biological (organic) control 5

Name one living creature used to destroy another insect pest ladybird/ nematodes/ mites/ bacteria/ parasitic wasps 5

(j) As part of your Agriculture/horticulture course you were involved in carrying out some research. Name **one** method you used to gather research information.

Survey/ questionnaire/ vox pop/ etc 5

Name one type of chart or diagram that you used to present your findings

Bar/ trend/ pie/ etc 5

(k) Name the scale used to measure how acid or alkaline a soil is pH 5

The addition of lime to a soil will make the soil

**More acid**      **More alkaline (5)**      **Less Alkaline**      **None of these**

Underline the correct answer to the above question.

(l) Identify the poisonous plant shown in the diagram.

Name (creeping/common) buttercup 5

The type of weed killer or herbicide used to remove this weed without killing the grass is called a

Selective weed killer or any acceptable trade name 5

(m) You investigated a number of careers or jobs as part of your study of Agriculture/Horticulture.

In the case of one named career or job how do you become qualified so as to be able to do this job in a proper and expert manner?

Name of career or job any career or job related to Ag/Hort 3

How to become qualified any relevant answer for named career/job 2

Name **one** skill required in this career or job one relevant skill 5

(n) The farm machine shown is used for what purpose?

Slurry spreading 5

Farmers should not use this machine when the weather is

Wet/ raining/ when rain is imminent 5

(o) Name a tree or shrub that uses wind to scatter its seeds/fruits.

Ash/ lime/ sycamore/ conifers(pines) etc. 5

What method does the 'robin run a hedge/cleavers/sticky back' use to scatter its seed/fruit?

Animals/ humans/ hooks 5

(p) The male part of a flower is called the stamen/ anther/ pollen sac 5

The purpose of the coloured petals in a flower is to attract insects/ bees 5

(q) A layer of grass cuttings, leaves, bark or wood chips placed on the surface of the soil is called a

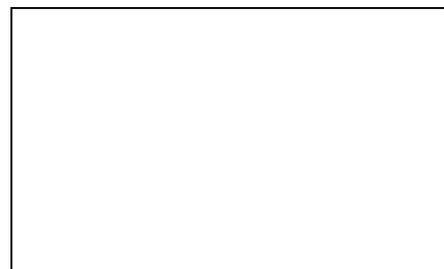
Mulch (allow compost) 5

The purpose of this layer is to

Prevent the growth of weeds/ keep area weed free 5

(r) Identify the garden tool shown in the diagram.

Bulb planter 5



Give one garden use for this tool.

Plants bulbs/ to a correct depth 3 + 2

**Section Two**

**(120 marks)**

Answer any 4 questions from the following six questions, which are based on the modules you have studied. All questions carry equal marks.

**1. BASIC HORTICULTURE**

(a) Hydroponics is the growing of plants in nutrient rich Water **3**

(b) Match the process in column A with the action in column C by placing the most appropriate action in column B. See shaded example.

Column A	Column B	Column C
<b>Pollination</b>	<b>Transfer of pollen</b>	Plant losing water
<b>Transpiration</b>	<i>Plant losing water</i> <b>2</b>	<b>Plants make food</b>
<b>Absorption</b>	<i>Intake of water and nutrients</i> <b>2</b>	<b>Transfer of pollen</b>
<b>Photosynthesis</b>	<i>Plants make food</i> <b>2</b>	<b>Intake of water and nutrients</b>

(c) The proper care and management of soil is important if you are to have strong and healthy plants.  
Name **three** activities you would carry out on your soil and state how the activity would improve the soil quality or fertility.

Activity No. 1 1 mark: digging/ manuring/ draining/ liming/ worms/ additives

Improves soil by 2 marks any correct matching answer

Activity No. 2 1 mark

Improves soil by 2 marks any correct matching answer

Activity No. 3 1 mark

Improves soil by 2 marks any correct matching answer

- (d) During your study of this module you investigated different types of growing media and how well plants were able to grow in the different media.

Name two growing media other than soil that you investigated.

1      **nutrient rich water/ peat moss/ Perlite/ etc.**      2 + 1

2 \_\_\_\_\_

Briefly describe, using words or diagrams, a test you would carry out to show which of the above named growing media was the best for growing your plants.

Any 3 points or steps in carrying out an appropriate test      2 + 2 + 2

(must compare two media)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What precautions would you take to make sure the test described would be a true and fair comparison of both growing media?

Any 2 correct points relating to carrying out the test      2 + 1

\_\_\_\_\_

i.e      equal volumes/ time/ water/ any relevant condition of growth/ same plant in both

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### 3. GARDEN DESIGN

(a) The Silver Birch is a tree grown for its light coloured **Bark** 3

(b) State whether the following statements are true or false, by ticking  the correct box.

- A patio must always be next to the house (2) True  False
- Trees should not be planted in the middle of a lawn (2) True  False
- A pergola can be used to shade a pathway (2) True  False

(c)

1 **Bulb**

2 **Root tuber**

3 **Corm**

2 + 2 + 2

Using the terms listed below identify the **three** reproductive structures pictured above by writing their correct names in the space provided.

**Corm**

**Runner**

**Bulb**

**Root tuber**

**Stolon**

Some bulbs of flowering plants undergo a treatment called 'forcing'. What would you do to force a bulb?

place bulbs in cold darkness then warm brightness/ 2

light- dark treatment/ spray with hormone

What is the advantage gained by 'forcing' bulbs?

earlier flowers/ big flowers/ less foliage' 1

(d) The **four** pictures show stages in the planting of a tree. Arrange the pictures in the correct order or sequence.



**A**

**B**

**C**

**D**

Correct sequence **D, B, A, C. Fully correct sequence 3 (first 2 D, B 1 mark)**

Using the above diagrams as a guide outline the steps to be followed to correctly plant a tree.

**If a logical sequence is followed mark as 2 + 2 + 1 + 1**

**D: Marking out a large area, digging the sod**

**B: loosening the root ball**

**A: staking the tree in the correct position in the hole**

**C: Firming the soil in around the tree**

From time to time trees need to be pruned or have damaged branches removed. What would you do when pruning to make sure the tree does not become diseased?

**Correct time of year/ clean/ correct cut (angle/place)/ correct equipment/ apply a wound**

**paint or dressing any 2 points at 2 + 1**

## 4. FLORISTRY, FRUIT & VEGETABLES.

(a) A common pest of flowers, fruit and vegetables that can be controlled using a beer trap is the

Slug/ snail 3

(b) Complete the following sentences in the spaces provided using the words listed below.

- A large scale production unit requires a higher level of management and **disease control** 2
- The shelf life of flowers, fruits and vegetables can be extended by keeping them **cool** 2
- A common method used to grade flowers, fruit and vegetables is one based on **quality** 2

**quality      disease control      watering      cool      freezing      colour**

(c) In relation to a **named** flower or fruit or vegetable that you have investigated write a brief note on each of the following.

Name name of flower or fruit or vegetable, No Marks

A disease that would damage the crop

<b>Any correct disease for the named flower or fruit or vegetable</b>	<b>3</b>
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Symptoms of the disease

<b>Any 2 symptoms of this named disease</b>	<b>2 + 1</b>

Precautions, steps taken to prevent an outbreak of this disease in the named crop.

<b>Any two precautions such as spraying/ rotation/ burning or proper disposal of garden waste</b>	<b>2 + 1</b>

(d) As part of this module you studied a flower or fruit or vegetable. In the case of a named flower, fruit or vegetable describe what would happen if you did not use enough fertiliser.

Name of flower or fruit or vegetable Any named flower or fruit or vegetable **No Marks**

Effect on the flower or fruit or vegetable burning/ discolouration/ bolting/ stunted growth/ low yield/ death

**3 marks**

Describe using the following headings as a guide what you would do to make sure that the above listed conditions for growth could be met for a named flower, fruit or vegetable.

Name of flower or fruit or vegetable Any named flower or fruit or vegetable **No marks**

Preparation of the soil.

<b>Addition of manure/ cultivate/ digging/ raking/</b>	<b>2 + 1</b>
<b>Addition of peat moss</b>	
<b>Addition of leaf mould or garden compost</b>	
<b>Addition of fertiliser</b>	

Creating protection from the wind.

<b>Use of cloche/ low tunnel/green house/ poly-tunnel.</b>	<b>2 + 1</b>
<b>Planting in a sheltered position</b>	
<b>Use of a mesh netting to create a windbreak</b>	
<b>Use of hedging/ fencing/ trellis/ fleece</b>	

Prevention of pests and diseases.

<b>Correct planting/ ventilation,</b>	<b>2 + 1</b>
<b>Preventative spraying</b>	
<b>Slug traps etc</b>	
<b>Netting/scare crow/picking/</b>	

## 5 FORESTRY

- (a) The timber product got by compressing and gluing very fine sawdust is called

<b>Fibreboard/ MDF</b>	<b>3</b>
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- (b) Match the correct word in column A with the correct words in column B to give an answer in Column C. **See shaded example**

Column A	Column B	Column C
<b>1 Rainfall</b>	<b>a Wet and Dry bulb Thermometer</b>	<b>1 + c</b>
<b>2 Humidity</b>	<b>b Anemometer</b>	<b>2 + a (2)</b>
<b>3 High/low temperature</b>	<b>c Rain Gauge</b>	<b>3 + d (2)</b>
<b>4 Wind speed</b>	<b>d Max and Min Thermometer</b>	<b>4 + b (2)</b>

- (c) As part of your study of this Forestry module you used plant keys which allowed you to identify trees from their various features.

Name **three** features other than its leaf you might use when identifying a tree

any 3 of the following: **Bud/ twig/ bark/ shape/ cones/ flower** 1 + 1 + 1

Name a coniferous tree commonly used in forestry in Ireland see p 49 syllabus 1

How would you identify this tree using one of the features named above?

**Identify one feature for the named tree/reference to use of plant keys 2**

The winter twigs of some trees are easily identified from **one** unusual or obvious feature. In the case of **one** tree you have studied name the feature that clearly identifies its winter twig.

Name of tree **Any named tree 1**

Feature **Correct unusual or obvious feature for the named tree 2**

(d) Coillte is the name of an organisation involved in the forestry industry in Ireland. Outline the role played by this organisation in the forestry industry

**Any correct answer in relation to Coillte's role in the commercial production of forestry**

**2 marks**

Forestry in Ireland is mainly located in upland and mountain areas. Suggest **two** reasons for this choice of location.

1 **cost/ environment/ soil/ climatic/ not agricultural land/ etc.** **2 + 1**

2

What effect does this choice of location have on the types of forestry trees planted in Ireland?

**Any correct point in relation to tree type** **2**

**e.g. Evergreens grow at higher altitude/ poorer soils than hardwoods**

What are the effects of locating forestry in upland and mountain areas on the uses of these areas for leisure and recreation?

**Any 3 relevant points: water tables/ floods/ habitat loss or change/ access/ amenity**

**environmentally friendly industry** **2 + 2 + 1**

## 6 GRASS

- (a) Name a species of 'weed' grass which spreads using underground stems or rhizomes is called

Scutch or couch grass 3

- (b) State whether the following statements are true or false, by ticking  the correct box.

- Grasses do not produce flowers (2) True  False
- Wind is the main pollination agent for grass (2) True  False
- All grass seeds must be dormant for more than **one** year before growing (2) True  False

- (c) The cutting and saving of grass involves a lot of various machines. Identify **one** hazard associated with each of the following machines and how that hazard can be minimised or prevented. The hazard identified should be different for each machine.

Mower hazard Any correctly identified hazard; blade/petrol 2

Prevention Any appropriate precaution or safe practice 1

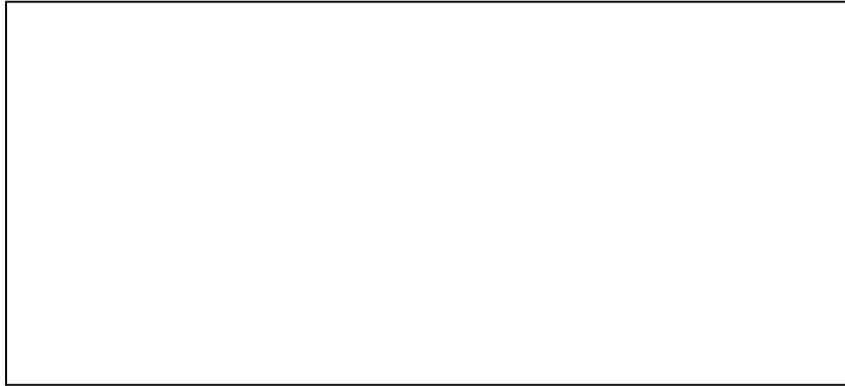
Round or Square Baler hazard as above but not a repeat: rotating parts/crush injury 2

Prevention \_\_\_\_\_ 1

Tractor hazard as above but not a repeat: PTO/noise 2

Prevention \_\_\_\_\_ 1

(d) Name the grassland plant whose root and flower is shown in this photograph Clover **2**



What living organism is present in the nodules labelled X? Bacteria **2**

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Why is it considered an advantage to have this plant included as part of a seed mixture for grassland?

Adds/ fixes nitrogen into the soil, etc **2**

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In some parts of Ireland grassland regularly needs to be drained. **One** method commonly used is mole draining. Briefly explain how this method of draining is carried out.

Any 2 correct points **2 + 1**

Machine makes a slit in the ground/ gravel inserted

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Outline **one** advantage and **one** disadvantage of mole draining as a method of draining excess water from grassland

Advantage speed/ cost/ minimal cultivation/minimal disturbance **2**

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Disadvantage short lived/ prone to collapse/limited use to certain soil type **1**

## 7 MILK AND MEAT PRODUCTION

(a) The vitamin destroyed by the heat when milk is pasteurised is vitamin C 3

(b) Match the correct word in column A with the correct statement in column B to give an answer in Column C. **See shaded example**

Column A	Column B	Column C
<b>1</b> Castration	<b>a</b> Impregnate the animal	<b>1 + d</b>
<b>2</b> Insemination	<b>b</b> Disease of the udder	<b>2 + a (2)</b>
<b>3</b> Mastitis	<b>c</b> Period of pregnancy	<b>3 + b (2)</b>
<b>4</b> Gestation	<b>d</b> Sterilising a male animal	<b>4 + c (2)</b>

(c) During your study of this milk or meat animal you visited a milk or meat production unit. What observations did you make in relation to the following important areas of production?

Hygiene Any 2 relevant points 2 + 1

clothing/use of chemicals/washing/cleaning/hot water or steam supply/ washing udders

/ filters/ screens/ doors/ separate machine/ production/storage areas

Animal welfare Any 2 relevant points 2 + 1

scrapers/ bedding/ ventilation/ appropriate transportation/ housing/ handling etc

Safety and Hazard prevention Any 2 relevant points 2 + 1

non-slip floors/ locks on slurry tanks/ secure pens/ etc

- (d) In modern farming the selective breeding of animals is important so that the animal produced is ideal for the production of milk or meat. State what features make a good milk or meat animal.

Name of milk or meat animal \_\_\_\_\_ **Named Animal** **No marks**

Features

<b>Any 2 features, traits, characteristics</b>	<b>2 + 2</b>

Approximately what % of the ideal trait is passed on from parent to offspring

<b>25% max</b>	<b>2</b>
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Outline some of the dangers associated with the highly selective breeding of animals.

<b>Weak/ highly strung/ excitable</b>	<b>any two</b>	<b>2 + 1</b>
<b>Prone to injury/ disease</b>		
<b>Reduced lifespan</b>		
<b>Sterility /expensive/ loss is serious problem</b>		

Name **two** symptoms that you would alert you to the fact that an animal is in heat

<b>Any 2 symptoms or behaviours</b>	<b>2 + 1</b>
<b>Bulling/ rising/ discharge/ receptive</b>	