

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA

Leaving Certificate Applied 2001

Vocational Specialism — Agriculture/Horticulture

(240 marks)

Wednesday 13 June 2001

Morning 9.30 to 11.00

Marking Scheme and Sample Answers
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General Directions

1. Write your EXAMINATION NUMBER in this space:
2. WRITE ALL ANSWERS INTO THIS ANSWER BOOK.

For the Examiner only

Question	Mark
Section 1	
1	
2	
3	
Section 2	
4	
5	
6	
7	
8	
9	
10	
11	
Total	

THERE ARE TWO SECTIONS IN THIS EXAMINATION

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

Section Two: Four questions must be answered.
Each question carries 30 marks.

Section One

(120 marks)

Answer two of the following questions. All questions carry equal marks.

1. As part of your L.C.A. course in Agriculture/Horticulture, you carried out various activities involving plants and/or animals. Describe such an activity using the following guidelines:

(a) Name the activity and give a brief description of it.

Name of activity	2 marks
Description	10 marks

(b) Describe two dangers you had to be aware of when you were carrying out this activity and how you managed them safely.

1. One point relevant to activity named.	10 marks
2. One other relevant point.	5 marks

(c) Name and describe two changes you would make if you were doing the same activity again.

1. One point relevant to activity named.	10 marks
2. One other relevant point.	5 marks

(d) List three careers associated with this activity and outline what work is involved in each.

1. Career Name of career and brief outline of work carried out.	10 marks
2. Career As above.	5 marks
3. Career As above.	3 marks

2. During this course you will have used or have seen equipment or machinery being used to carry out various activities. In relation to this statement, answer the following questions.

(a) Name two machines or pieces of equipment you used or saw being used during your course.

1. Name.	5 marks
2. Name.	5 marks

(b) State what each machine or piece of equipment named above was used for.

1. Use relevant to machine OR piece of equipment named in 2(a).	5 marks
2. As above.	5 marks

(c) State one danger associated with the use of the machines or pieces of equipment you have named above.

1. One danger relevant to machinery or equipment named in 2(a).	5 marks
2. As above.	5 marks

(d) Sketch a poster you might use to make people aware of the dangers of using one of the machines or pieces of equipment you have already named.

Name of machine or piece of equipment: _____

Poster incorporating 4 relevant points or features.

4 x 5 marks

Maximum of 15 marks if machine OR equipment is other than what was named in (a).

Give two precautions that people should take to ensure that this machine or piece of equipment is used in a safe manner.

1. **One relevant precaution.**

5 marks

2. **As above.**

5 marks

3. During your course in Agriculture/Horticulture, you visited workplaces where you saw various skills being used. In relation to one of these visits, answer the following questions.

(a) Name the workplace visited and state why it was chosen.

Name	5 marks
Why chosen Any two valid reasons	2 x 5 marks

(b) Give two ways in which you collected information on this visit.

1.	5 marks
2.	5 marks

(c) Name two skills you saw being used and state what that skill enabled the person to do.

1. Skill Any relevant skill.	5 marks
Use One relevant point.	5 marks
2. Skill As above.	5 marks
Use As above.	5 marks

(d) Name two pieces of advice you would give to someone carrying out one of the skills mentioned in (c) above.

Name of skill	
1. One point relevant to the named skill.	10 marks
2. As above.	5 marks

Section Two

(120 marks)

Answer any four questions from the following eight questions which are based on the modules you have studied.

All questions carry equal marks.

4. GROWING MEDIA

(a) What is meant by the term 'growing media'?

Any material in which plants can grow.

2 marks

(b) State whether the following statements are true (T) or false (F) by drawing a circle around the correct letter.

3 x 2 marks

Example: Seeds need moisture to germinate.

T

F

(1) Seeds can only be grown in soil.

T

F

(2) Frost helps in the weathering of rocks.

T

F

(3) Water is absorbed through the leaves of plants.

T

F

(c) It is important that tools are properly cleaned and maintained. In relation to a named tool, answer the following questions:

1. Draw a labelled diagram of a tool of your choice.

Name of tool: _____

Any one.

2 marks

Relevant drawing.

2 marks

2. Describe how this tool should be cleaned.

Wash / dry / remove grass / oil / brush / tap off clay, etc... Any two **2 x 2 marks**

3. How should this tool be stored.

Locked shed / special shed / dry shed / away from children / out of reach of rain / upright on hook, etc...

Any two 3 marks

(d) The quality of soil can be improved in many ways. Explain briefly what you would do in each of the following situations:

1. To improve a water-logged soil.

Drain / spike / deep plough / add lime, etc...

Any two 2 x 2 marks

2. To improve a soil which is very acid.

Add lime.

4 marks

3. To improve a soil with low organic content.

Add farmyard manure / humus / moss peat / leaf mulch / grass cuttings / repolugh straw stubble, etc...

Any two 2 x 2 marks

5. PLANT PROPAGATION

(a) State one advantage of vegetative propagation.

Cheaper / identical to parent / faster growth than from seed / shorter flowering period, etc...

Any one 2 marks

(b) Complete the following statements.

3 x 2 marks

1. Fungicides are used to Kill fungi.

2. A tuber / potato / runner / stolon is a form of stem.

3. Garden soil is not suitable for growing seeds in greenhouses because it contains too many organisms / bacteria / fungi.

(c) State three guidelines for caring for seeds after sowing and state the reasons for each.

1. Guideline Keep watered.	Any one 2 marks
Reason	Seeds can germinate / start to grow, etc...

Any one 2 marks

Reason **Seeds can germinate / start to grow, etc...**

Any one 2 marks

2. Guideline Keep at room (constant) temperature.	2 marks
Reason	Germination is faster.

2 marks

Reason **Germination is faster.**

2 marks

3. Guideline Watch out for fungi / disease.	2 marks
Reason	"Damping off" disease kills seedlings.

2 marks

Reason **"Damping off" disease kills seedlings.**

2 marks

(d) Plants needed regular care and attention. This can include re-potting a pot bound plant. Describe, with the aid of diagrams, the re-potting of a pot bound plant.

Description	Diagrams
Have a sterilized pot ready	
Water well	
New pot one size bigger than old	
Loosen pot from plant	
Pull pot from plant	
Loosen roots	
Trim off old roots	
Put peat in new pot	
Insert plant and fill around it	
Firm in and water, etc...	

Any five points

5 x 2 marks

6. GRASS

(a) Name one way in which pollination of grass can occur.

Wind	2 marks

(b) State whether the following statements are true(T) or false(F) by drawing a circle around the correct letter. 3 x 2 marks

Example: Seeds need moisture to germinate.	<input checked="" type="radio"/> T	<input type="radio"/> F
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(1) Grass is a monocotyledon. T F

(2) Silage is fermented grass. T F

(3) Clover is a common species of grass. T F

(c) Describe how you would find the dry matter content or pH of a sample of preserved grass under the following headings:

Name of test Dry matter content OR pH.	
Equipment needed Any two items relevant to the test named.	2 x 2 marks
Dry matter content: scales / balance / dessicator / oven / dish, etc...	
pH: Universal indicator / pH meter / test tube <u>or</u> soil test kit.	

What would you do to carry out this test?
Dry matter content: weigh / dry / reweigh / repeat until a constant mass is found / final mass is the dry matter content.
Any two 2 x 2 marks
pH: Dissolve soil / use deionised water / filter / add universal indicator / record colour change / match to chart.
Any two 2 x 2 marks

Explain why it is important to do this test.
Dry matter content: To estimate quality / quantity of feed.
2 marks
pH: To find out if the soil is suitable for growing a particular crop / plant.
2 marks

(d) You are invited to give a talk on grassland management and renovation. Write notes you might use for the talk under the following headings:

1. Weed control in grasslands.

Spray / plough / topping / more weeds means less grass / remove poisonous weeds, etc...
Any two 2 x 2 marks

2. Re-seeding.

Undertaken to improve quality of grass / increases grass yield / incorporate clover into pasture / get rid of weeds / time of year when job is done, etc...
Any two 2 x 2 marks

3. Fertilisers used in grasslands.

NPK / urea / slurry / farmyard / manure / used to improve soil / to improve grass growth, etc...
Any two 2 x 2 marks

7. GARDEN DESIGN

(a) Why is it important to consider aspect when choosing positions for plants in a garden?

Different plants have different light, moisture requirements / some plants prefer sunny / others prefer shady or damp environments, etc...
Any one 2 marks

(b) State whether the following statements are true(T) or false(F) by drawing a circle around the correct letter. 3 x 2 marks

Example: Seeds need moisture to germinate.	<input checked="" type="radio"/> T	<input type="radio"/> F
(1) The purpose of decking is to control weeds.	<input type="radio"/> T	<input checked="" type="radio"/> F
(2) Hard landscapes features must include bedding plants.	<input type="radio"/> T	<input checked="" type="radio"/> F
(3) Irrigation refers to the water management of plants.	<input checked="" type="radio"/> T	<input type="radio"/> F

(c) Name one feature that might be used in a back garden. Describe how you would cost this feature and where you would place it in the garden.

Feature: Name	2 marks
Costing: Make list of components of feature / check price of each item in garden centre / hire of machinery / cost of labour / calculate total cost.	
<div style="text-align: right;">Any two 2 x 2 marks</div>	
Where would you position this feature in the garden?	2 marks
Why would you choose this location.	2 marks

- (d) You are asked to design a back garden for a person who is wheel-chair bound.
 Draw a labelled diagram of the design you would use and indicate the following in the diagram:
 The position of the house
 The direction of N/S
 Two named features.

Diagram of the Garden design.

Position of the house **1 mark**

Direction of N/S **1 mark**

Two named features:
Wide path / raised beds / no slopes or steps / rails on water features.
Any two appropriate features 2 x 2 marks

State two important features you have included in your garden design and give one reason why you would include these features.

1. Feature	2 marks
Reason	1 mark
2. Feature	2 marks
Reason	1 mark

8. GARDEN PLANTING AND MAINTENANCE

(a) What is a perennial plant?

A plant which grows every year.	2 marks

(b) State whether the following statements are true(T) or false(F) by drawing a circle around the correct letter. **3 x 2 marks**

Example: Seeds need moisture to germinate.	<input checked="" type="radio"/> T	<input type="radio"/> F
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(1) Bulbs are often planted in Autumn. T F

(2) Scarifying is a method of sowing seed. T F

(3) Growing plants organically does not involve the use of chemicals. T F

(c) Name two common pests or weeds found in a garden.

1. Pests: Slugs / greenfly / caterpillars, etc...	<u>Any two</u> 2 x 2 marks
2. Weeds: docks / nettles / thistles / shepherds purse, etc...	<u>Any two</u> 2 x 2 marks

In the case of each of the above pests or weeds named above in (c) describe how they can be controlled or treated.

1. Pests: slug pellets / egg shells / ladybirds / pick them off / spray them / use jars of beer. One method suitable for each of pests named	3 marks
2. Weeds: hoeing / weeding / spraying / mulching / mypox etc...	
One method suitable for each of the weeds named.	3 marks

- (d) The following terms relate to garden planting and maintenance.
Write notes on any four of them.

Mulches Spiking Shrubbery Lawn Sand Fertilisers Pruning

1. Mulches: material used to cover ground in a shrub bed used to keep down weeds / usually consists of bark chips, peat or stones, etc...	
Spiking: Method used to aerate lawn / machine or fork used to make holes in soil / improves grass growth / reduces moss / usually done in spring on compacted ground, etc...	Any two 3 marks
2. Shrubbery: area where shrubs grow / often found in garden plans / a low maintenance area / provides colour and interest in garden, etc...	
Lawn sand: consists of iron sulphate / used to kill moss / applied in spring.	Any two 3 marks
3. Fertilisers: chemicals used to promote growth of plants / applied as needed in spring, summer / examples include urea and 18:6:12 / controlled use, etc...	Any two 3 marks
4. Pruning: method used to control size and shape of shrub / also promotes fruiting in fruit trees / carried out using e.g. secateurs, loppers, saw in autumn, spring / done according to plant type / diseased wood may be cut out, etc...	Any two 3 marks

9. FORESTRY

- (a) How can the age of a tree be determined?

By counting the number of rings	2 marks
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- (b) State whether the following statements are true(T) or false(F) by drawing a circle around the correct letter.

3 x 2 marks

Example: Seeds need moisture to germinate.	<input checked="" type="radio"/> T	<input type="radio"/> F
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- | | | |
|--|------------------------------------|------------------------------------|
| (1) Topography is a method of felling trees. | <input type="radio"/> T | <input checked="" type="radio"/> F |
| (2) A hardy plant can be left in the ground during winter. | <input checked="" type="radio"/> T | <input type="radio"/> F |
| (3) The Beaufort scale measures temperature. | <input type="radio"/> T | <input checked="" type="radio"/> F |

(c) Name and describe four steps involved in planting a tree.

1. Pick a spot / dig a hole / make sure it is deep enough / wide enough, etc...	<u>Any two</u> 3 marks
2. Remove tree from pot / place in hole / add fertilizer, etc...	<u>Any two</u> 3 marks
3. Backfill in stages / heeling in the soil around it.	<u>Any one</u> 2 marks
4. Put in stake / tie / water it.	<u>Any one</u> 2 marks

(d) Write notes on any four of the following topics as they relate to forestry:

Soil pH	Seed preparation	Thinning
Drainage	Coillte	Rotation

1. pH: method of estimating acidity / alkalinity of soil / add universal indicator to filtrate / find colour on chart to match sample / some trees need particular soil types.	<u>Any two</u> 3 marks
Drainage: method of removing excess water from an area / dig a trench / put in pipes / used to prevent waterlogging of roots / roots might rot / plant trees on sloped ground and get runoff, etc...	<u>Any two</u> 3 marks

2. Seed preparation: the way in which seeds are treated prior to planting / cold treatment used to break dormancy / scarifying / treat with fungicides, etc...	<u>Any two</u> 3 marks

3. Coillte: Semi-State body responsible for forestry / they buy land / manage / plant forests, etc...	<u>Any two</u> 3 marks
Thinning: method used to remove weak or deformed trees from a forest / done 15 years into cycle / promotes further growth of wood / ensures that the correct density remains etc...	<u>Any two</u> 3 marks

4. Rotation: cycle from time of planting to time of harvest / length of cycle depends on tree types, etc...	<u>Any two</u> 3 marks

10. MILKING PRODUCTION AND PROCESSING

(a) Give one reason why milk is considered to be an all-purpose food.

It contains protein / carbohydrate / fat / calcium / it is good for bones.	<u>One point</u> 2 marks

(b) State whether the following statements are true(T) or false(F) by drawing a circle around the correct letter.
3 x 2 marks

Example: Seeds need moisture to germinate.	<input checked="" type="radio"/> T	<input type="radio"/> F
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(1) Yoghurt is made from whey. T F

(2) Milk is normally stored below 6°C. T F

(3) A heifer is a female animal that has not yet produced a calf. T F

(c) Write notes on the dairy cow under the following headings:

(1) The best time of the year for calving.

Spring / February, March	2 marks
Cow produces milk which matches growth pattern for year / grass is the cheapest form of feed / a 10 month lactation followed by 2 months dry gives animal a chance to recover	
<u>Any one</u> 2 marks	

(2) Type of feed given to cows.

Grass: March to October / Silage: November to February / ration of cereal / nuts for lactating cows.	<u>Any two</u> 2 x 2 marks

(3) Importance of hygiene in dairying.

Very important.	2 marks
Good hygiene helps to keep the numbers of bacteria low / bacteria multiply very quickly in milk / makes milk safe for human consumption, etc...	
<u>Any one</u> 2 marks	

(d) Many tests are carried out on milk when it reaches the creamery. In relation to these tests, answer the following questions.

(1) Name two tests carried out on milk when it arrives in the creamery.

1. Name E.g. protein / fat, etc...	Any relevant test 2 marks
2. Name E.g. Delvo / methylene blue / antibiotic test etc...	Any relevant test 2 marks

(2) State what is measured in one of these tests and describe how this test is carried out.

Name of test: One of the tests named above	
What does this test measure?	2 marks
Description of test. Description of named test.	2 marks

(3) Why is it important to carry out this test on milk?

One valid reason relevant to the test named	2 marks

11. MEAT PRODUCTION

(a) Name one important precaution you would take when transporting animals to minimise stress.

Don't have too many animals in trailer / make sure floor is not slippery / have adequate ventilation.	
	Any one 2 marks

(b) State whether the following statements are true(T) or false(F) by drawing a circle around the correct letter. 3 x 2 marks

Example: Seeds need moisture to germinate.	<input checked="" type="radio"/> T	<input type="radio"/> F
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(1) Meat can be preserved by salting.	<input checked="" type="radio"/> T	<input type="radio"/> F
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(2) Artificial insemination is important in breeding animals.	<input checked="" type="radio"/> T	<input type="radio"/> F
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(3) Meat and bonemeal can be fed to cattle in Ireland	<input type="radio"/> T	<input checked="" type="radio"/> F
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(c) An animal needs to be looked after when giving birth to its offspring. Describe how you would look after an animal of your choice during this time under the following headings:

Name of animal: e.g. Cow / sheep / pig / horse / dog, etc...	1 mark
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How would you know that this animal (mother) was about to give birth?

Any relevant sign for the animal named	2 marks
e.g. restless / swollen udder / water bag with fluid, etc...	

Name two steps you would take to look after the mother at this time.

1. Any one appropriate step e.g. give her a bed of straw / leave her alone for a few hours / keep an eye on her, etc...	2 marks
2. As above	2 marks

What would you do with the newborn animal immediately after birth?

Keep warm / disinfect navel with iodine / leave with mother / ensure that the baby gets colostrums / clear airways, etc...	Any two 3 marks

(d) Write notes on the health of a meat animal you have studied under the following headings:

Name of meat animal: e.g. bullock / heifer / pig / sheep / cattle, etc...	1 mark
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(1) Signs of good health in this animal.

One sign relevant to the animal named	2 marks
e.g. shiny coat / good appetite / gaining weight / staying with other animals, etc...	

(2) Signs of illness in this animal.

One sign relevant to the animal named	2 marks
e.g. animal on its own / staggering / unable to get up / having a high temperature, etc...	

(3) Two notifiable diseases which could affect this animal.

1. Name of disease.	1 mark
2. Name of disease.	1 mark

(4) Two steps that you would take if you discovered that this animal was sick.

1. Any one appropriate step	3 marks
e.g. isolate / give medicine prescribed by vet / keep warm and dry, etc...	
2. As above	2 marks