



**RHS LEVEL 3 DIPLOMA IN HORTICULTURE
WRITTEN EXAMINATION**

10:00am Thursday 8th July 2010

MODULE F

**Horticultural Environment & Ecology
Resource Management in the Horticultural Enterprise**

Section A – Short Answer Questions

Candidate Number:.....

Candidate Name:.....

Centre Number/Name:.....

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module **F** is **2 hours**.
- ii) Answer **ALL** questions in Section **A**.
- iii) **ALL** questions in Section **A** carry equal marks.
- iv) Write your answers legibly in the spaces provided.
- v) Use **METRIC** measurements **ONLY**.
- vi) Where plant names are required, they should include genus, species and where appropriate cultivar.

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q1 State **FOUR** benefits of team building activities. **2**

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Q2 State **TWO** benefits and **TWO** limitations of using Information Communication Technology (ICT) when making presentations. **2**

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Q3 List the adverse effects of **EACH** of the following:

- i) acid rain;
- ii) nitrates.

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Q4 State **TWO** examples of non-statutory records relating to the use of machinery. **2**

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Please see over/.....

ANSWER ALL QUESTIONS

MARKS

- Q5** a) State which day a garden centre is not legally permitted to open to trade.
b) State the trading restrictions that apply to a garden centre for Sunday opening.

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- Q6** Identify a principal aim of COPR (Control Of Pesticide Regulation).

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- Q7** State **TWO NAMED** abiotic factors which are significant in the establishment of plants.

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Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q8 Define **EACH** of the succession terms:

- i) allogenic;
- ii) autogenic.

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Q9 Differentiate between weather and climate.

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Q10 State what is meant by **EACH** of the terms:

- i) profit and loss accounts;
- ii) balance sheet.

2

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RHS LEVEL 3 DIPLOMA IN HORTICULTURE WRITTEN EXAMINATION

10:00am Thursday 8th July 2010

MODULE F

Horticultural Environment & Ecology Resource Management in the Horticultural Enterprise

Sections B & C - Structured Questions

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module **F** is **2 hours**.
- ii) Answer **ONE** question from Section **B** and **TWO** questions from Section **C**.
- iii) **ALL** questions carry equal marks.
- iv) Write your answers legibly in the answer booklets provided.
- v) Use **METRIC** measurements **ONLY**.
- vi) Where plant names are required, they should include genus, species and where appropriate cultivar.

Please turn over/.....

Section B – Horticultural Environment & Ecology

Answer **ONE** question only from this section

		MARKS
Q11	a) Differentiate between primary and secondary plant succession.	4
	b) Describe, using a NAMED example, how natural plant associations may change the physical environment to enable the process of succession.	6
	c) Describe how competition within a plant community contributes to the process of succession.	10
Q12	a) Discuss the impact of climatic factors on the growth of plants.	8
	b) State with NAMED examples, how the characteristics of the soil and geography of the area can affect the choice of plants within a garden situation.	12

Please see over/.....

Section C – Resource Management in the Horticultural Enterprise

Answer **TWO** questions from this section

		MARKS
Q13	a) List SIX distinctly different sectors of the UK horticultural industry.	6
	b) Explain why different horticultural sectors are often located in specific areas of the UK.	6
	c) State the key trends affecting TWO of the sectors listed in a).	8
Q14	a) State FIVE elements that should be included in a job description.	5
	b) Explain the importance of evaluating the induction process.	5
	c) Describe the benefits of an annual staff appraisal system.	10
Q15	Explain the role of EACH of the following organisations in the UK horticulture industry:	
	i) HTA (Horticultural Trade Association);	5
	ii) DEFRA (Department for Environment, Fisheries & Rural Affairs);	5
	iii) IoG (Institute of Groundsman);	5
	iv) BALI (British Association of Landscape Industry).	5
Q16	a) Describe the steps involved in implementing quality in an organisation.	4
	b) Explain why the management of resource quality is important to the success of an enterprise.	10
	c) Describe TWO methods of maintaining resource quality in a NAMED horticultural sector.	6

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Module F

Horticultural Environment & Ecology

Resource Management in the Horticultural Enterprise

Candidates Registered	35		Total Candidates Passed	26	78.79%
Candidates Entered	33	94.29%	Passed with Commendation	10	30.30%
Candidates Absent	1	2.86%	Passed	16	48.48%
Candidates Deferred	1	2.86%	Failed	7	21.21%
Candidates Withdrawn	0	-			

Section A – Short Answer Questions

Q1 State **FOUR** benefits of team building activities.

Essential for increasing motivation and improved productivity, team building also aids goal setting, identifies strengths and limitations in staff and systems, creates improved cohesion and generally improves working relations and atmosphere. Candidates should ensure they identify **FOUR** distinct benefits.

Q2 State **TWO** benefits and **TWO** limitations of using Information Communication Technology (ICT) when making presentations.

Benefits include use of colour, integration of other media e.g. video clip, audio; ability to adapt and update easily,

Limitations include dependence on equipment reliability, availability of expertise, training time, expense.

Candidates should have the confidence to limit their answers to the **FOUR** factors requested.

Q3 . List the adverse effects of **EACH** of the following:

- i) acid rain;
- ii) nitrates.

Adverse effects of each are as follows:

Acid rain – includes physical burning and defoliation, lowering of soil pH with consequential locking up of some trace elements.

Nitrates – include excessive “soft” growth (susceptible to weather, pests and diseases) and run off into water courses causing eutrophication (loss of oxygen) leading to fish death and excessive vegetation.

A disappointing number of candidates thought that acid rain **INCREASED** the pH.

Concise but accurate information is required in short answer questions.

Q4 State **TWO** examples of non-statutory records relating to the use of machinery.

Popular examples included hours of use and maintenance records. Also relevant are guarantees and instruction manuals, service and repair records and also depreciation for contractors calculating machinery usage costs.

No significant errors were received to this question.

Q5 a) State which day a garden centre is not legally permitted to open to trade.

b) State the trading restrictions that apply to a garden centre for Sunday opening.

a) Either Christmas day or Easter Sunday is correct

b) There is no national legislation covering the opening hours of retail outlets under 280 sq.mtes.(very small) although there may be local council restrictions. Over 280 sq.mtres opening hours are restricted to 6 hours only between 10.00 and 6.00pm. Few candidates were able to answer part b adequately and most thought centres had to close by 4.00pm.

Q6 Identify a principal aim of COPR (Control Of Pesticide Regulation).

Overall, the aim is to approve (control) the advertisement, sale, supply, storage and use of pesticides. Some candidates went into excessive detail of one aspect of this legislation. rather than the broad aims.

Q7 State **TWO NAMED** abiotic factors which are significant in the establishment of plants.

These include temperature, humidity, wind speed and direction, rainfall etc. Focus was required on the (short term) *establishment* rather than the long term success and some credit was lost where this particular aspect was not identified.

Q8 Define **EACH** of the succession terms:

- i) allogenic;
- ii) autogenic.

Allogenic is caused by external agents e.g. fire, floods, mankind, grazing.

Autogenic is caused by natural evolution, biotic factors e.g. leaf litter accumulation, root exudations, shading and root competition.

Good examples enhanced the quality of answer.

Q9 Differentiate between weather and climate.

Candidates were expected to clearly identify weather as being a local and immediate term whereas climate is a more geographically general, average and long term concept. Credit was lost for lack of clarity but the question was generally well answered.

Q10 State what is meant by **EACH** of the terms:

- i) profit and loss accounts;
- ii) balance sheet.

Profit and loss accounts measure financial performance over a clear period of time, usually but not exclusively, 12 months. Balance sheets measure the actual worth of a business on one specific day, just as if the business was being sold. There is still a disappointing vagueness about the key difference of these basic documents with frequent reference to income, expenditure and profit appearing in explanations of balance sheets.

Sections B & C – Structured Questions

Section B – Horticultural Environment & Ecology

- Q11**
- a) Differentiate between primary and secondary plant succession
 - b) Describe, using a **NAMED** example, how natural plant associations may change the physical environment to enable the process of succession.
 - c) Describe how competition within a plant community contributes to the process of succession.

In part a) the examiners were looking for a clear distinction between the two. Primary succession begins in an area where there has never been any previous vegetation and it progresses due to the natural competitive replacement of one species by another as conditions change. Secondary succession occurs on those previously vegetated areas which have been disturbed in some way and then been allowed to resume the natural change.

In part b) a named example must be given, such as a deciduous woodland or chalk grassland, and the changes described should be linked to this. The focus is on the environmental (abiotic) changes brought about by the presence of changing plant communities as the sere progresses, such as those associated with the developing soil.

In part c) It is important to state examples of factors that plants are competing with each other for. Each species of plant is adapted in some way to benefit in this competition process. Half the marks for part (c) were given for accounts of physical or growth pattern adaptations which benefit certain plants and thus facilitate their success at a certain point in the succession process. The rest of the marks were given for a good description of 'how' the process of competition within changing abiotic conditions enables succession to take place; also for describing the properties of colonisers (r strategists) compared to competitors (k strategists).

In part a) potential candidates are reminded to look carefully at the mark allocation at the end of each section. A concise account of the differences was required. A lengthy account of an example of succession was not requested and the mark allocation did not warrant this. Many candidates had difficulty in actually describing what the process of succession actually involves, but could give an example.

In part b) the process of succession takes place mainly because the plant species at any point in time are actually contributing to a change in the abiotic conditions thus conveying an advantage to other species which competitively replace those bringing about that change. A few candidates did not appear to fully understand this and thus had difficulty in giving examples of change. However, overall, this section was answered quite well.

In part c) many candidates had difficulty keeping to the question and quickly began to describe changes brought about by competition, which fits into part (b) answer, rather than describing 'how' competition contributes to the process. Again, the importance of re-reading the question when answering it cannot be over-emphasised.

- Q12** a) Discuss the impact of climatic factors on the growth of plants.
- b) State with **NAMED** examples, how the characteristics of the soil and geography of the area can affect the choice of plants within a garden situation.

The focus in the first part of the question was change in growth or growth patterns brought about by climatic factors such as light intensity, rainfall and wind velocity, to name but three. The importance of the chosen factors can be highlighted but must be linked to changes in growth as a result of changes in or variations in that factor.

In part b) the marks were allocated equally between soil (e.g. pH, depth, organic content, etc) and geographical (altitude, latitude, exposure, topography, etc) characteristics. Each characteristic mentioned should be linked to a named plant example associated with a condition associated with that characteristic (e.g. soil pH - calcicoles (pH >7) [named example] and calcifuges (pH <7) [named example]).

Observations on Answers

In part a) it is important to link answers to the effect on plant growth. Candidates should take care not to be vague; to say 'that it affects growth' or 'that it is important for growth' does not tell us how it does or why it is! Also answers should not only mention 'extremes' of climate, most plants exist within reasonably acceptable climatic conditions. An account of how 'climate change' threatens plant biomes or individual species was not asked for.

In part b) when talking about 'east' vs. 'west' of the UK then the differences in conditions brought about by 'position' must be described and linked to examples. Some candidates became drawn into describing the overall climate and weather patterns and why they exist, bringing in an account of the North Atlantic Conveyor current. This was not required. The focus is on how the conditions affect choice of plants not how the conditions are brought about! Some candidates muddled parts (a) and (b) answers. Again, the importance of re-reading the question is important. Also, it is important to give the correct full generic and species names (and if possible cultivar) when naming examples. General names are not acceptable.

Candidates who gave concise answers, clearly distinguishing each point by using a new sentence or a break in the paragraph, were at an advantage. Adherence to the question ensured that points were relevant and extraneous material was not included (which would gain no marks and just wastes time). There is no advantage in writing a long paragraphs about one single point. Equally bullet-pointing does not allow for good flow and linking of points.

Section C – Resource Management in the Horticultural Enterprise

- Q13** a) List **SIX** distinctly different sectors of the UK horticultural industry.
- b) Explain why different horticultural sectors are often located in specific areas of the UK.
- c) State the key trends affecting **TWO** of the sectors listed in a).

This question was set to assess candidates' knowledge of the UK horticultural industry with particular reference to current issues the industry is facing.

This was a very popular question with a high percentage of candidates tackling it.

Candidates who correctly identified and listed the different sectors of the horticulture industry gained full marks; the examiner was looking for sectors such as fruit production, salad cropping, garden retail. Some candidates were however let down by listing individual crops grown, rather than sectors. As an example, tomato production is not a sector of the industry; however protected cropping, or salad production, is.

Generally candidates answered the second part of the question well, showing a detailed understanding. Some candidates however did not give sufficient detail in their answers, which were very generalised. The examiner was, for example, expecting candidates to talk about increased light levels for salad production on the south coast of the UK. Simplistic statements claiming it is warmer in the south did not contain sufficient detailed factual information to be awarded marks. An explanation of current issues affecting the location of horticultural businesses, for example proximity to transport hubs for shared delivery in the hardy nursery stock industry were rewarded with full marks.

The final part of the question was answered very well by some candidates who correctly identified trends affecting the industry, and discussed with reference to published articles in the trade press the potential significance of the current cuts in public spending on grounds maintenance contracts. Other candidates discussed carbon footprinting, and the current trend towards local food production.

However some candidates discussed hydroponic growing, cool chain and other initiatives that have been common practice in the industry for many years. Other candidates were let down by failing to understand what was meant by the term "trend."

The examiners would strongly recommend candidates to read trade journals such as Horticulture Week to assist them in developing an up to date knowledge about the UK horticulture industry.

- Q14** a) State **FIVE** elements that should be included in a job description.
- b) Explain the importance of evaluating the induction process.
- c) Describe the benefits of an annual staff appraisal system.

This question was devised to assess candidates' technical knowledge relating to the recruitment and management of staff in the horticulture industry.

This was a very popular question with a high percentage of candidates tackling it.

Generally candidates who had researched this area gained high marks and gave accurate, detailed factual answers. However candidates who used anecdotal evidence based on their own employment experience gained lower marks, as their answers were not sufficiently factual or detailed.

Some candidates lost marks in the first part of the question by suggesting the personal specification and other recruitment documents should be part of the job description, however candidates who listed elements such as job title, where the post is based and a clear description of roles and responsibilities gained high marks.

The second part of the question asked candidates to explain the **importance** of **evaluating** the induction process. Candidates who tackled this task by making clear statements such as "monitor effectiveness of process to ensure the employee(s) attended, to ensure all relevant areas have been covered and to identify improvements necessary" for example gained full marks.

However some candidates lost marks by failing to appreciate the question was asking candidates to explain the **importance** of **evaluating** the induction process and simply listed five elements of an induction process.

The examiner would recommend that candidates take time at the start of the examination to read the questions very carefully, and to take great care to ensure they answer the question that is being asked. Underlining important words in the question can help to ensure the answer is relevant.

Candidates should ensure they are answering what the question is asking, rather than simply writing everything they know about the broad syllabus area being examined.

The examiner would also recommend that candidates read management texts or visit the business link website to ensure they are up to date in their understanding of management issues.

Q15 Explain the role of **EACH** of the following organisations in the UK horticulture industry:

- i) HTA (Horticultural Trade Association);
- ii) DEFRA (Department for Environment, Fisheries & Rural Affairs);
- iii) IoG (Institute of Groundsman);
- iv) BALI (British Association of Landscape Industry).

This question was devised to assess candidates' knowledge of the UK horticulture industry.

Candidates who had a detailed knowledge of the role of these organisations gained high marks.

However some candidates lost marks by failing to give detailed, accurate factual answers.

For example the examiner was expecting answers in the HTA section of the question to include that the HTA lobbies parliament on behalf of members and the UK horticulture industry, operates the national garden gift voucher scheme, offers accredited training courses, supports members through advice lines and runs business improvement schemes.

A similar level of factual detail was expected for each organisation.

The examiner would recommend candidates to both regularly visit the websites of organisations involved in the industry and to read the trade press, where such organisations latest initiatives are discussed.

- Q16**
- a) Describe the steps involved in implementing quality in an organisation.
 - b) Explain why the management of resource quality is important to the success of an enterprise.
 - c) Describe **TWO** methods of maintaining resource quality in a **NAMED** horticultural sector.

This question was devised to assess candidates detailed technical knowledge of the management of quality in a horticultural business.

Candidates who were able to relate their answers to widely adopted models of quality management gained high marks.

In the first part of the question the examiner was anticipating answers with conventional models of implementing quality systems such as:

analyse the business or activity in question,
plan the approach,
decide if new processes are required,
check that the processes are working,
revise the processes.

Some candidates gained full marks as their answer was both detailed, accurate and factual

Other candidates however lost marks by simply stating that it is important that horticultural organisations produce quality services.

In the second part of the question the examiner was anticipating answers which explored the link between the quality of inputs, such as raw materials, equipment, training and the quality of outputs.

In the final part of the question candidates who were able to describe relevant methods of maintaining resource quality in the horticulture industry gained high marks, however candidates who were unable to give detailed factual answers scored much lower marks.

The examiner would recommend candidates read relevant management text books, visit relevant websites to develop their factual knowledge and understanding of horticultural management.

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