

0174-008/508 Level 3 Advanced Technical Extended Diploma in Horticulture (1080)

Level 3 Horticulture – Professional Horticulture Theory Exam (2)

June 2018

1	State two visible signs of decay in trees. (2 marks)		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> • Branch dieback (1 mark) • Bracket fungi growing on trunk/branches (1 mark) • Peeling bark and lesions (1 mark) • Cankers and exuding sap (1 mark) • Hollow trunk and cavities (1 mark) • Parasitic fungal fruiting bodies at the base of tree (1 mark) • Fungal growths under bark (1 mark) 	1 mark for each answer to a maximum of 2 marks. Accept any other suitable answer provided.	2
2	a) Describe the development of epicormic shoots. (2 marks) b) State one specific factor that might stimulate epicormic shoot growth. (1 mark)		
	Acceptable answer(s)	Guidance	Max mks
	a) <ul style="list-style-type: none"> • Epicormic shoots arise from dormant buds in the bark (1) laid down when the young leading shoot first begins to grow (1) b) <ul style="list-style-type: none"> • Epicormic buds are stimulated to grow as a result of stress e.g sudden environmental change (1 mark), thinning (1 mark), crown dieback (1 mark), heavy pruning (1 mark), root death (1 mark), cold (1 mark). 	1 mark each answer up to a maximum of 2 marks. Accept any other suitable answer provided. Accept any other suitable answer provided.	3
3	a) Define the term 'coppicing'. (1 mark) b) Describe three factors that influence the timing of coppicing. (3 marks)		
	Acceptable answer(s)	Guidance	Max mks

	<p>a)</p> <ul style="list-style-type: none"> Coppicing - a pruning technique (1) where a tree or shrub is cut to near ground level in early spring (before bud break) to encourage vigorous young shoots (1). <p>b)</p> <ul style="list-style-type: none"> Cutting at this time of year means the plants are dormant (1 mark) there is no foliage to get in the way (1 mark) the tree will not bleed any sap (1 mark) It also avoids the nesting season (it is illegal to disturb nesting birds in the UK). (1 mark) 	1 mark for each answer up to a maximum of 3 marks. Accept any other suitable answer provided.	4
4	State three possible reasons for waste when undertaking landscape works. (3 marks)		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> Material waste through over-ordering (1 mark) Ordering wrong type of material (1 mark) Poor handling or storage of the material (1 mark) Damage caused by weather or mishandling (1 mark) Poor organisation of work leading to losses (1 mark) 	1 mark for each answer up to a maximum of 3 marks. Accept any other suitable answer provided.	3
5	<p>a) Define the term 'pollarding'. (1 mark)</p> <p>b) Describe three ways in which pollarding may help to avoid potential future problems with trees. (3 marks)</p>		
	Acceptable answer(s)	Guidance	Max mks
	<p>a)</p> <ul style="list-style-type: none"> Pollarding is a method of pruning that keeps trees and shrubs smaller than they would naturally grow. (1 mark) Pollarding is an ancient technique of tree management that involves the regular removal of branches above grazing height as a timber crop. The subsequent straight branches have many agricultural and building uses. Trees pollarded for ornamental features are often pollarded lower and more regularly, possibly annually, many produce juvenile growth that is characterised by large leaves but often no flowers if flowering is on old wood. Pollarding is often carried out on overgrown, urban trees but with mixed results since some species, especially when mature, do not respond well to such severe pruning. <p>b)</p> <ul style="list-style-type: none"> Pollarding maintains a desired height for the plants (1 mark) 	1 mark for each answer to a maximum of 3 marks. Accept any other suitable answer provided.	4

	<ul style="list-style-type: none"> • The technique will also reduce shade and define the plants' shape (1 mark) • This method is also employed to prevent tall trees from obstructing electrical wires and phone lines when planted on streets (1 mark) • Pollarding controls and restricts the maximum shape and size of a tree depending on the species and pollarding cycle period. Less chance of damage to overhead wires, property etc. (1 mark) • Smaller pollarded trees are less likely to cause problems with shading. (1 mark) • Pollarding often creates longer lived trees that will produce healthy new branches, there is less likelihood of deadwood or branches failing provided the coppicing regime is maintained. Pollarded trees must however be continually maintained since the branches formed by pollarding are more susceptible to snapping if left. (1 mark) • Pollarding regularly prevents the need for removal of large branches that can be detrimental to trees as well as expensive. (1 mark) 		
6	Give two examples of taxation records a horticultural company would need to keep. (2 marks)		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> • VAT (1 mark) • Income tax PAYE (1 mark) • National Insurance contributions (1 mark) • Corporation Tax (1 mark) 	1 mark for each answer to a maximum of 2 marks. Accept any other suitable answer provided.	2
7	a) State two business areas for which the partners in a partnership share responsibility. (2 marks) b) Give two financial aspects for which each partner has responsibility. (2 marks) c) Give two reasons why it may be advantageous to work in a partnership rather than operate as a sole trader. (2 marks)		
	Acceptable answer(s)	Guidance	Max mks
	a) <ul style="list-style-type: none"> • Partners share the business's profits (1 mark), any losses the business makes (1 mark) and bills for purchases for the business, e.g. stock or equipment (1 mark), staff management e.g. hiring and firing, terms and conditions of employment (1 mark) b) <ul style="list-style-type: none"> • Each partner pays tax on their share. (1mark) • Each partner must fill in their own tax returns. (1 mark) • Each partner must pay their own national insurance. (1 mark) 	1 mark for each example up to a maximum of 2 marks. Accept any other suitable answer provided. 1 mark for each example up to a maximum of 2 marks. Accept any other suitable answer provided.	6

	<ul style="list-style-type: none"> Each partner must keep self-assessment records. (1 mark) <p>c)</p> <ul style="list-style-type: none"> Combined expertise and skills (1 mark) More capital may be available for the business (1 mark) Business is easy to establish and start-up costs are low (1 mark) Greater borrowing capacity from two (or more people) (1 mark) Easy to change your legal structure later if circumstances change. (1 mark) Greater labour force with an interest in seeing the business succeed. (1 mark) 	1 mark for each example up to a maximum of 2 marks. Accept any other suitable answer provided.	
8	List four physical resource requirements for a landscaping company. (4 marks)		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> Vehicles (1 mark) Machinery (1 mark) Tools (1 mark) Equipment (1 mark) Materials (1 mark) Staff (1 mark) 	1 mark for each answer up to a maximum of 4 marks. Accept any other suitable answer provided.	4
9	Define the primary, secondary and tertiary production sectors in the horticultural industry. (3 marks)		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> Primary production involves acquiring raw materials e.g. growing plants (1 mark) Secondary production is the manufacturing and assembly/construction process. (1 mark) Tertiary production refers to the services that support the processes such as marketing, banks and insurance. (1 mark) 	1 mark for each answer up to a maximum of 3 marks. Accept any other suitable answer provided.	3
10	Explain what information a regional horticultural supplier could utilise from their customer profiles to develop their market reach. (4 marks)		
	Acceptable answer(s)	Guidance	Max mks
	<ul style="list-style-type: none"> Demographic profile e.g. age, gender, ethnicity. (1) A survey of customer numbers over a set period of time (1) to gauge an accurate overview of the trading(1) An analysis of the customer socio-cultural type (1) in order to ensure that the business is targeting appropriate groups (1). 	1 mark for each answer up to a maximum of 4 marks. Accept any other suitable answer provided.	4

	<ul style="list-style-type: none"> • An analysis of the customer socio-cultural type (1) in order to develop new areas that would match the changes in socio-cultural demand (1). • Details of the customer age group (1) to either adapt the products to those groups or develop products to attract other groups (1). • Market segmentation (1) to enable a business to better target its products at the right customers. • A survey of the geographical location of the customers (1) to investigate presence of competitors or develop transport links (1). 		
11	<p>a) Explain how financial records can be used to monitor business performance. (4 marks)</p> <p>b) Explain how physical records can be used to monitor staff performance and output. (4 marks)</p>		
	Acceptable answer(s)	Guidance	Max mks
	<p>a)</p> <ul style="list-style-type: none"> • Monitoring of production levels (1 mark) to give data on inputs and outputs, and relate to staff costs and income (1 mark) • Recording and analysing the costs of production (1 mark) to identify key factors and put in place contingencies, alternative suppliers or products to control production costs (1 mark) • Assessing the financial efficiency of the business (1 mark) by examining real time financial and physical data and adjusting inputs and staffing accordingly (1 mark) • Budget setting based on sound financial principles, historical business records and future predictions based on market intelligence and trends. (1 mark) <p>b)</p> <ul style="list-style-type: none"> • Setting and monitoring review periods for staff, including probationary, appraisals and follow up action in order to ensure that staff are informed, set appropriate targets and developed appropriately. (1 mark) • Ensuring appropriate remedial actions to underperforming areas, or individual staff if required are put in place in a developmental and legal manner (1 mark) • Monitoring staff output based on agreed targets, offering incentives for meeting targets. • Ensuring staff compliance with appropriate legislation such as Health and Safety at Work Act (1974), the Equality Act (2010), Data Protection Act (GDPR 2018) (1 mark) • Planning training needs to meet the requirements of the organisation and the individual. (1 mark) 	<p>1 mark for each answer up to a maximum of 4 marks. Accept any other suitable answer provided.</p> <p>1 mark for each answer up to a maximum of 4 marks. Accept any other suitable answer provided.</p>	8

12	<p>a) Define the term 'Geo-membrane' in the context of landscaping. (1 mark)</p> <p>b) Give two examples of where a Geo-membrane would be of practical application in the construction of a bark or gravel path. (2 marks)</p> <p>c) Describe two problems that can arise when using a Geo-membrane. (2 marks)</p>		
	Acceptable answer(s)	Guidance	Max mks
	<p>a)</p> <ul style="list-style-type: none"> • Any permeable membrane (usually made of synthetic polymers in sheets) used with soils, rock or earth in order to block the migration of weeds and stones (1 mark) <p>b)</p> <ul style="list-style-type: none"> • Used as a separation membrane, preventing substrate mixing with the underlying layers / act as a barrier to larger stones coming through the lower layers. (1 mark) • Used as a weed suppressant. (1 mark) • Quick solution to joining two incompatible materials. (1 mark) <p>c)</p> <ul style="list-style-type: none"> • Geotextile's become an environmental issue because it's non-biodegradable. (1 mark) • Becomes a trip hazard when exposed. (1 mark) • Substrate needs frequent replenishment. (1 mark) • Becomes aesthetically unpleasing in time. (1 mark) • Most are biodegradable (1 mark) • Soil can become compacted, anaerobic if incorrect materials used. (1 mark) 	<p>1 mark for each answer to a maximum of 2 marks. Accept any other suitable answer provided.</p> <p>1 mark for each answer to a maximum of 2 marks. Accept any other suitable answer provided.</p>	5
13	<p>Discuss the importance and implications, in a professional context, of using the correct tools and equipment for horticultural activities. (12 marks)</p>		
	Acceptable answer(s)	Guidance	Max mks
	<p>Indicative content</p> <ul style="list-style-type: none"> • Legislation - Control of Substances Hazardous to Health • Risk assessment (Health and safety) • Tools and equipment appropriate to the task • Insurance of physical resources • Quality management systems • Relevant legislation to landscaping and tree and shrub work described e.g. COSHH, Public liability insurance, employer liability insurance, planning permission, TPO • Construction standards and regulations, e.g. CITB card • Appropriate industry certificate of competence e.g. relevant chainsaw certificate, PA1 and PA6 spraying certificates • Site problems • Equipment/machinery breakdown 		12

	<ul style="list-style-type: none"> • Inappropriate equipment/machinery on site • Training and instruction • Manufacturers handbooks • Work specification <p>Band: 1-4 marks Reference made to health and safety aspects, importance of correct operation and procedures To access the higher band several examples given.</p> <p>Band: 5-8marks Good coverage of topic including safe working practices, minimising environmental impact and waste To access the higher marks in this band some evaluation of legislation needs to be referred to.</p> <p>Band 9-12 marks A detailed and clear understanding with appropriate examples and accurate and specific detail included. To access the higher marks in this band an evaluation of the importance of quality, risk of breakdown or site problems and insurance need to be included.</p>		
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