

Mark Scheme (Results)

Summer 2013

Principal Learning
Construction and the Built
Environment (CB307/01)

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Publications Code DP035653

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Question Number	Answer	Mark
1	<p>Parts of the external envelope include:</p> <ul style="list-style-type: none"> • External walls e.g. repointing to masonry, cladding repairs, repair of rendering, redecoration • Roof e.g. replacing broken tiles/slates, repointing of ridge and hip tiles • Doors / Windows e.g. redecoration, replacing broken glass, repair of flashings, replacement of sealant, furniture repair/replacement • Rainwater goods e.g. cleaning/clearing of leaves • Tanking/waterproofing e.g. repairing leaks • Fascia/soffit e.g. redecoration • Skylights e.g. replacing broken glass <p>Any other appropriate response</p> <p>Max 2 marks for each of any four descriptions. 1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.</p>	(8)

Question Number	Answer	Mark
2	<p>Ways of increasing a buildings lifespan include:</p> <ul style="list-style-type: none"> • Carrying out planned maintenance to the building fabric, services etc • Updating the building to comply with new/updated legislation • Cleaning the building to prolong the life of elements, components etc • Carrying out repairs to defective parts of the building • New installations to meet current demand • Updating heating/ventilation/air conditioning services • Maintaining a safe and healthy environment • Extending the building to provide additional functional space • Refurbishment to meet current demand or for change of use • Life-cycle replacement 	(8)

	<ul style="list-style-type: none"> • Cyclical maintenance to building fabric/ services etc • Servicing of mechanical installations <p>Any other appropriate response</p> <p>Max 2 marks for each of any four descriptions 1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only</p>	
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Question Number	Answer	Mark
3	<p>Environmental benefits of using green roof technology include:</p> <ul style="list-style-type: none"> • Reduced urban 'heat islands' effect • Extended roof life • Aesthetics • Reduce heating by adding mass and thermal resistance value • Reduce cooling • Reduce stormwater run off • Natural Habitat Creation • Filter pollutants and carbon dioxide out of the air • Filter pollutants and heavy metals out of rainwater • Help to insulate a building for sound • Increase agricultural space • Can provide recreational area <p>Any other appropriate response</p> <p>Max 2 marks for each of any four descriptions. 1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.</p>	(8)

Question Number	Answer	Mark
4	<p>Relevant Acts and Regulations include:</p> <ul style="list-style-type: none"> • The Building Regulations eg conservation of fuel and power • The Town and Country Planning Act eg limits change of use and extension and adaptation 	(6)

	<ul style="list-style-type: none"> • The Health and Safety at Work Act eg safe working practices • The Construction (Design and Management) Regulations eg designing for safe maintenance • The Equality Act eg access and egress • The Disability Discrimination Act • The Building Act eg compliance with building regulations • The Environmental Protection Act eg control of emissions • Landlord and Tenant Act eg leases <p>Any other appropriate response</p> <p>Max 2 marks for each of any three descriptions. 1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.</p>	
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Question Number	Answer	Mark
5	<p>Benefits of using proactive maintenance include:</p> <ul style="list-style-type: none"> • Overall lower maintenance costs • Flexible maintenance intervals • Reduced need for invasive maintenance • Helps identify potential breakdown causes • Increases asset availability • Increases asset performance • Increases asset operational effectiveness • Avoids expensive consequential losses • Improves planning accuracy • Increased life of asset • Improve safety for the personnel and public • Improves maintainability • Environmental benefits of a well maintained building • Predicts when an asset needs attention before damage occurs • Improved ability to accurately budget for maintenance work • Maintains high corporate image standards <p>Any other appropriate response</p> <p>Max 2 marks for each of any three</p>	(6)

	descriptions. 1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.	
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Question Number	Answer	Mark
6	Benefits of reed bed filtration include: <ul style="list-style-type: none"> • Provides carbon dioxide emission capture and sequestration • Adds to the local bio diversity • Provides habitat for wildlife • Improves water quality outflow • Provides an aesthetic environment • Protects watercourses from pollutants • Protects adjacent land from pollutants Any other appropriate response Max 2 marks for each of any three descriptions. 1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only	(6)

Question Number	Indicative Content
7	Asset management activities include: <ul style="list-style-type: none"> • Annual budgeting • Capital expenditure forecasts • Planned maintenance schedules • Asset management plans • Cost/benefit models • Inspection tasks • Whole life cycle costing • Operating strategies • Maintenance cycles • Renewal or decommissioning decisions • Best value mix of activities • Maintenance work programming • Maintenance work forecasting • Task bundling • Resourcing materials • Cost/risk impact • Planning resourcing efficiencies • Energy management plan • Monitoring and assessment of built asset performance • Asset valuations and depreciation

		<ul style="list-style-type: none"> Valuing and revaluing assets Determination of depreciation <p>Any other appropriate response</p>
Level	Mark	Descriptor
	0	No rewardable material / No marks for identification only
1	1-2	Limited understanding of asset management demonstrated with one or two activities briefly described and no application to the scenario
2	3-4	Clear understanding of asset management demonstrated with some activities described in more detail and increasing application to the project scenario
3	5-6	Sound understanding of asset management demonstrated with a range of activities fully described specifically focussed on the project scenario

Question Number	Indicative Content	
8	<p>Future maintenance requirements:</p> <p>High cost/specification materials are generally matched by improved environmental and operational performance over the long term, and have reduced maintenance requirements. Whereas cheaper low specification materials tend to deteriorate at a faster rate than high specification materials requiring more frequent or more extensive maintenance or repair. A material might be particularly durable in operational terms but be unacceptable in environmental terms, or conversely it could be that the adverse environmental impacts of a particular material were outweighed by its operational benefits, which could affect maintenance requirements.</p> <p>Any other appropriate response</p>	
Level	Mark	Descriptor
	0	No rewardable material / No marks for identification only
1	1-2	Limited understanding of specification of materials demonstrated with brief description and no application to the scenario.
2	3-4	Clear understanding of specification of materials demonstrated with a more detailed description and increasing application to the project scenario.
3	5-6	Sound understanding of specification of materials demonstrated and fully described, specifically focussed on the project scenario.

Question Number	Indicative Content	
9	Features of a sustainable community Include:	

		<ul style="list-style-type: none"> • Households and social groups that are active, inclusive and safe • Environmentally sensitive in terms of waste, traffic, pollution, resource depletion, etc • Good relationship between diverse economy, social and cultural interactions • Well governed • Well designed and built including good public spaces • Well connected to appropriate local services • Good transport and connectivity links • Suitable residential density • Adaptive to changing economic and environmental conditions • A flourish in local economy to provide jobs and wealth • Effective engagement by local people groups and businesses • Safe and healthy local environment with well designed public and green space • Sufficient size, scale and density and the right layout to support amenities • Buildings both individually and collectively that meet different needs over time • A well integrated mix of decent homes of different types and tenures to support a range of household sizes, ages and incomes • Good quality local public services including education and training opportunities, health care and community facilities, especially for leisure • A diverse, vibrant local culture encouraging pride in the community and cohesion within it • A sense of place • The right links with the wider regional, national and international communities <p>Any other appropriate response</p>
Level	Mark	Descriptor
	0	No rewardable material / No marks for identification only
1	1-2	Limited understanding of sustainable communities demonstrated with one or two components briefly described and no application to the scenario
2	3-4	Clear understanding of sustainable communities demonstrated with some components described in more detail and increasing application to the project scenario
3	5-6	Sound understanding of sustainable communities demonstrated with a range of components fully described specifically focussed on the project scenario.

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