

Mark Scheme (Results)

January 2012

Principal Learning
CB307 Value and the Use of the Built
Environment: Protecting and
Maintaining

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Question Number	Answer	Mark
1	<p>Reasons for carrying out building maintenance include:</p> <ul style="list-style-type: none"> • To maintain comfort levels for the building occupants • To maintain safety/security for the building occupants • To maintain appearance of both the interior and exterior of the building • Maintains cleanliness of both the interior and exterior of the building • Creates a good impression for users, visitors etc • Reduces the running costs in terms of energy etc • Reduces replacement costs • Reduces operational costs • Reduces degradation of the building fabric • As a response to a fault or failure • To maintain the operational functions of a building • To retain the value of a building and increase saleability • To maintain the safety of the building for occupants and users • To extend the life of a building <p>Any other appropriate response</p> <p>Max 2 marks for each of any four descriptions.</p> <p>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 used to maintain comfort levels of building users include:</p> <ul style="list-style-type: none"> • Providing a clean and healthy internal environment • Maintaining internal air quality • Maintaining a comfortable temperature for building users • Maintaining a comfortable humidity levels for building users • Noise reduction • Reducing light shadow, flicker etc 	

	<ul style="list-style-type: none"> • Eliminating or reducing glare from windows or processes • Avoiding unpleasant smell from waste materials/ drainage related facilities • Maintaining adequate ventilation • Avoiding poor use of colour schemes • Eliminating or minimising movement or vibration of the structure • Controlling air velocity – draughts • Maintaining safety and security for building users • Maintaining correct water temperature for bathing and showering • Zone control of temperature levels by the asset manager • Maintaining welfare facilities, toilets etc., in good working condition • Maintaining the health and safety of the building adds to comfort and feeling of wellbeing • Well decorated areas add to psychological comfort <p>Any other appropriate response Max 2 marks for each of any four descriptions.</p> <p>1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only</p>	(8)
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Question Number	Answer	Mark
3	<p>Environmental benefits of using timber frame technology include:</p> <ul style="list-style-type: none"> • Timber is a renewable resource • Waste efficient; the parts of the logs that are not used for timber are used for paper, chipboards or energy • Once used, the timber can be recycled or biodegraded. • Trees produce oxygen and absorb carbon dioxide, helping to reduce global warming • Reduced carbon footprint • Timber source from FSE and PEFC accredited forests • Reduced impact to the environment when compared to other forms of construction • Reduced foundation requirements due to a lighter structure • Effectively insulated lowering energy 	

	<p>demand and reducing carbon emissions</p> <ul style="list-style-type: none"> • Uses less energy during the manufacturing process than alternative materials. • The design and manufacturing process optimises the use of materials to reduce unnecessary wastage • Timber waste can be reused or recycled, limiting materials sent to landfill • Reduced on-site waste • A natural material that can easily be reused or recycled • Off cuts are integrated into the production process • Timber frame construction has lower embodied energy than other forms of construction • The processing of the timber results in less pollution than other forms of construction <p>Any other appropriate response</p> <p>Max 2 marks for each of any four descriptions.</p> <p>1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.</p>	(8)
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Question Number	Answer	Mark
4	<p>Sustainable energy sources include:</p> <ul style="list-style-type: none"> • Biomass fuels • Wind turbines to generate electricity • Ground/air source heat pumps • Photovoltaic cells • Solar power • Hydroelectric power • Tidal generated power <p>Any other appropriate response</p> <p>Max 2 marks for each of any three descriptions.</p> <p>1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.</p>	(6)

Question Number	Answer	Mark
5	<p>Resources that help to manage building assets include:</p> <ul style="list-style-type: none"> • Competent staffing and experienced /trained workforce • Specialist plant and equipment • Information technology management systems • Access systems for working at height • Surveying equipment for example total stations, moisture meters • Use of outside contractors for specialist work • Archives of building drawings and plans • Construction Design and Management file • Service manuals <p>Use of Construction Information resources, including:</p> <ul style="list-style-type: none"> • Building condition survey reports • RICS guidelines • Best practice reports • Capital programme – funding reports • Whole life costing database • Management information database • Performance indicators database • Needs and use database • Maintenance database • Environmental survey reports • Access audits • Accessibility plans • Time and cost predictions • Central asset database and reporting systems • Performance benchmarks • Key performance indicators • Cost guidance • Energy audits <p>Any other appropriate response</p> <p>Max 2 marks for each of any three descriptions.</p> <p>1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only.</p>	(6)

Question Number	Answer	Mark
6	<p>Advantages 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 • Lessens potential unexpected impact upon the organisations activities • Maintains operational efficiency <p>Any other appropriate response</p> <p>Max 2 marks for each of any three descriptions.</p> <p>1 mark for a simple description. 2 marks for a more detailed description. No mark for identification only</p>	(6)

Question Number	Indicative Content
7	<p>The Facilities Management role includes:</p> <ul style="list-style-type: none"> • Co-ordinate the safe and secure operation of the business park • Maintain and preserve the park assets and value • Maintain the external park environment • Maintain the internal office environment including the heating, lighting and air conditioning requirements • Co-ordinate/carryout cleaning and waste disposal • Enforce legislation with regards to sustainability • Produce planned preventative maintenance schedules

		<ul style="list-style-type: none"> • Plan/co-ordinate/carry out maintenance work • Repair scheduling • Co-ordinate/carry out alteration, refurbishment work • Ensure cost effective operations • Identify areas of opportunity for energy and water consumption reduction • Monitor use of cleaning methods • Co-ordinate/conduct waste audits to estimate levels of waste and recycling leaving the premises • Space management and planning • Human resources • Lettings • Site security <p>Any other appropriate response</p>
Level	Mark	Descriptor
	0	No rewardable material / No marks for identification only
1	1-2	Limited understanding of facilities management demonstrated with one or two roles briefly described and no application to the scenario
2	3-4	Clear understanding of facilities management demonstrated with some roles described in more detail and increasing application to the project scenario
3	5-6	Sound understanding of facilities management demonstrated with a range of roles fully described specifically focussed on the project scenario.

Question Number	Indicative Content
8	<p>Main elements that would require planned preventative maintenance include:</p> <ul style="list-style-type: none"> • Internal and external walls including redecoration, cleaning insulation etc • Internal and external glazing including replacement and cleaning • Roof coverings including flashings, guttering etc • Internal and external doors including redecoration locks, hinges, handles etc • Electrical services including wiring, fittings and fixtures • Plumbing including pipes, fittings, valves, insulation • Sanitation including fittings, drainage, pipes etc • Boiler plant including filters, power supply, cleaning etc • Air conditioning system including filters • Water treatment services including fittings and fixtures • Lift services including gear, cables, doors plant room etc.

		<ul style="list-style-type: none"> Rainwater systems including pipes, inspection chambers gulleys etc <p>Any other appropriate response</p>
Level	Mark	Descriptor
	0	No rewardable material / No marks for identification only
1	1-2	Limited understanding of planned preventative maintenance demonstrated with one or two elements briefly described and no application to the scenario
2	3-4	Clear understanding of planned preventative maintenance demonstrated with some elements described in more detail and increasing application to the project scenario
3	5-6	Sound understanding of planned preventative maintenance demonstrated with a range of elements fully described specifically focussed on the project scenario.

Question Number	Indicative Content	
9	<p>Types of sustainable thermal insulation include:</p> <ul style="list-style-type: none"> Sheep's Wool insulation– a natural product Flax based insulation – a natural product with high specific heat capacity CFCs - carbon fibre, carbon fibre board, graphite felt, soft carbon felt Cellulose for example old newspapers Wood Fibre – sourced from sustainable forests and suitable for multiple insulation applications Agricultural fibre – field grown crops for example low grade recycled cotton Cotton insulation - primarily from recycled, post-industrial cotton textiles, like denim Expanded Clay Aggregate – lightweight aggregate in the form of blocks slabs and fill <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 thermal insulation demonstrated with one or two types briefly described and no application to the scenario
2	3-4	Clear understanding of sustainable thermal insulation demonstrated with some types described in more detail and increasing application to the project scenario
3	5-6	Sound understanding of sustainable thermal insulation demonstrated with a range of types fully described specifically focussed on the project scenario.

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