

Mark Scheme (Results) January 2010

Principal Learning

Construction CB307 Value and Use of the Built Environment: Protecting and Maintaining

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January 2010

Publications Code DP022699

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

SECTION A

Question Number	Answer	Mark
1	<p>Description of any four of the following methods:</p> <ul style="list-style-type: none"> • Use of sustainable materials • Use of renewable fuels • Recycling of grey water • Storage of surface water • Reed beds for foul drainage • Energy efficient water heaters • The use of catalytic converters • Passive stack ventilation systems • Micro combined heat and power plants • Solar hot water heating • Energy efficient condensing gas boiler • Orientation of the building to gain maximum use of heat and light • Use of green roofs • Use of conservatories for solar harvesting • Recycled construction materials • Use of brown field sites • Ground/air source heat pumps • Insulation of the external envelope • Use of double/triple glazing systems • Extend the life of a building e.g. refurbishment <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 more detailed description. No marks for identification only</p>	(8)

Question Number	Answer	Mark
2	<p>Description of any four of the following procedures:</p> <ul style="list-style-type: none"> • Undertaking life-cycle costing • Preparing an energy management plan • Preparing and implementing a risk management plan • Preparing an operational plan • Developing a maintenance management strategy and plan • Use of on-site labour maintenance team • Monitoring and assessing the performance of built assets • Developing an asset strategy • Preparing a capital investment plan • Conducting asset valuations and depreciation • Conducting valuing and revaluing assets • Assessing the useful life of an asset • Calculating depreciation • Recording asset expenditure • Use of security systems to limit vandalism and break-in <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 more detailed description. No marks for identification only</p>	(8)

Question Number	Answer	Mark
3	<p>Description of each of the following four stages:</p> <p>Stage 1</p> <ul style="list-style-type: none"> • Identify the deterioration/problem <p>Stage 2</p> <ul style="list-style-type: none"> • Determine the actual cause <p>Stage 3</p> <ul style="list-style-type: none"> • Evaluate the repair options which could include issues surrounding safety <p>Stage 4</p> <ul style="list-style-type: none"> • Carry out the repairs which could include gaining access to the property <p>MAX 2 marks for each description of four stages.</p> <p>1 mark for a simple description 2 marks for more detailed description. No marks for identification only</p>	(8)

SECTION B

Question Number	Answer	Mark
4	<p>Description of any three of the following transport strategies:</p> <ul style="list-style-type: none">• Sustainable transport systems• Use of trams• Car sharing schemes• Car share lanes• Limit car parking spaces• Congestion charging• Bus lanes• No-car lanes• Pedestrianisation• Road building policy• Use of canals• Cycle pathways• Park and ride• Cycle purchase schemes• Strategy for encouraging the use of electric vehicles• Direct limited stop bus and train routes <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 more detailed description. No marks for identification only</p>	(6)

Question Number	Answer	Mark
5	<p>Description of any three of the following benefits:</p> <ul style="list-style-type: none"> • Allows long term maintenance planning. • Increased longevity of a building. • Minimises disruption for building owners and users. • Allows for cost analysis of running costs. • Greater cost efficiency over reactive emergency maintenance. • Maintains the aesthetics value of a building structure. • Ensures the building is available and operational when required by the user and the community. • Ensures balanced distribution of workload. • Reduces potential consequential damage and costs • Reduces the need for reactive maintenance • Planned maintenance ensures a healthy internal environment • Well maintained environment generates a feeling of wellbeing among stakeholders and users. <p>Any other appropriate response</p> <p>MAX 2 marks for each of any three benefits.</p> <p>1 mark for a simple description 2 marks for more detailed description. No marks for identification only</p>	(6)

Question Number	Answer	Mark
6	<p>Description of any three of the following strategies:</p> <ul style="list-style-type: none"> • Monitor • Maintain • Overhaul • Replace • Predict and plan • Redesign <p>Any other appropriate response</p> <p>MAX 2 marks for each of any three strategies.</p> <p>1 mark for a simple description 2 marks for more detailed description. No marks for identification only</p>	(6)

SECTION C

Question Number	Answer	Mark
7	<p>Description and evaluation of two of the following methods:</p> <ul style="list-style-type: none"> • Loft insulation • Draught proofing and basic gap filling • Improved heating controls • Thermal blinds • Professional draught-proofing of windows and doors • Secondary glazing • Insulation of suspended ground floors. • Double glazing low emissivity glass • Internal wall insulation • External wall insulation • Upgraded boilers • Photovoltaic or solar hot water heating • Ground source heat pumps • Wood-fired boilers • Energy efficient appliances • Insulation of solid walls ceilings and floors • Condensing combination boilers • Thermostatically controlled radiators • Use sustainable principles. <p>Any other appropriate response.</p> <p>MAX 3 marks for each of any two methods.</p> <p>1 mark for a simple description 2 marks for a more detailed description 2 marks for a simple description with some evaluation 3 marks for a more detailed description with evaluation. No marks for identification only</p>	(6)

Question Number	Answer	Mark
8	<p>Description and evaluation of two of the following materials:</p> <ul style="list-style-type: none"> • Sand • Gravel • Locally sourced wood • Sand-lime brickwork • Crushed rock/hardcore • Thatch • Sheep's wool insulation • Wood fibre • Flax and hemp • Recycled or reclaimed materials - allow generic response only once. <p>Any other appropriate response</p> <p>MAX 3 marks for each of any two materials.</p> <p>1 mark for a simple description 2 marks for a more detailed description 2 marks for a simple description with some evaluation 3 marks for a more detailed description with evaluation. No marks for identification only</p>	(6)

Question Number	Indicative Content	
9	<p>Requirements:</p> <ul style="list-style-type: none"> • Thermal elements (floors, roofs, walls) must meet specified U-values. • Fittings, including windows, roof lights, doors and vents must be draught proofed to specified standards. • If more than 25% of an element is being renovated, the whole must meet the specified U-value. • If an element is retained or becomes part of the 'thermal envelope' the whole must be upgraded. • The surface area covered by windows and roof lights in a new extension is limited. • Conservatories over 30m² must be thermally separated from the building. • Installing energy metering <p>Any other appropriate response</p>	
Level	Mark	
	0	No rewardable material
1	1-2	Some relevant requirements identified with a brief description and no analysis.
2	3-4	Some relevant requirements identified with a more detailed description and some basic analysis.
3	5-6	Sound description and analysis of a range of relevant requirements.

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