



Mark Scheme (Results)

January 2021

Pearson BTEC First Award
In Construction and the Built Environment

(21635E)

Unit 11: Sustainability in Construction

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General marking guidance

- All learners must receive the same treatment. Examiners must mark the first learner in exactly the same way as they mark the last.
- Mark grids should be applied positively. Learners must be rewarded for what they have shown they can do rather than be penalised for omissions.
- Examiners should mark according to the mark grid, not according to their perception of where the grade boundaries may lie.
- All marks on the mark grid should be used appropriately.
- All the marks on the mark grid are designed to be awarded. Examiners should always award full marks if deserved. Examiners should also be prepared to award zero marks, if the learner's response is not rewardable according to the mark grid.
- Where judgement is required, a mark grid will provide the principles by which marks will be awarded.
- When examiners are in doubt regarding the application of the mark grid to a learner's response, a senior examiner should be consulted.

Specific marking guidance

The mark grids have been designed to assess learners' work holistically.

Rows in the grids identify the assessment focus/outcome being targeted. When using a mark grid, the 'best fit' approach should be used.

- Examiners should first make a holistic judgement on which band most closely matches the learner's response and place it within that band. Learners will be placed in the band that best describes their answer.
- The mark awarded within the band will be decided based on the quality of the answer in response to the assessment focus/outcome and will be modified according to how securely all bullet points are displayed at that band.
- Marks will be awarded towards the top or bottom of that band depending on how they have evidenced each of the descriptor bullet points.

SECTION A

Question Number	Answer	Mark
1	1 mark for each correct answer: B – High carbon content E – Manufactured	(2)

Question Number	Answer	Mark
2	Award 1 mark for naming each natural insulation materials. Any two from: <ul style="list-style-type: none"> • Sheep’s wool (1) • Hemp (1) • Flax (1) Accept any other appropriate answer.	(2)

Question Number	Answer	Mark
3	1 mark for each correct answer: B – To allow for correct disposal D – To promote recycling	(2)

Question Number	Answer	Mark
4	Award 1 mark for giving each way push taps can help to save water use. Any two from: <ul style="list-style-type: none"> • Cannot be left running (1) • Tap will run for a set time (1) • Limited amount of water for each push/flow rate cannot be increased (1) Accept any other appropriate answer.	(2)

Question Number	Answer	Mark
5	1 mark for each correct answer: D – Rising sea levels E – Greater risk of flooding	(2)

Question Number	Answer	Mark
6	Award 1 mark for giving each way undeveloped land can be negatively affected by construction activity. Any two from: <ul style="list-style-type: none"> • Loss of natural habitats (1) • Loss of woodland/hedgerows (1) • Loss of natural landscape (views) (1) • Waste disposal (landfill) (1) • Vehicle parking (1) • Ground contamination (1) • Watercourse/groundwater pollution (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
7	<p>A linked response that makes reference to any two of the following points. Up to two marks for an explanation.</p> <p>Any one from the following explanations:</p> <ul style="list-style-type: none"> • Waste may include harmful materials (1) which will pollute the ground/groundwater/water course (1) • Some materials will not degrade (1) so will be in the ground for the foreseeable future (1) • The natural landscape will be scarred (1) spoiling the aesthetics of the area (1) • Harmful gases may be produced by the waste (1) which will pollute the atmosphere (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
8	<p>1 mark for each correct answer:</p> <p>B – Green open spaces will be provided</p> <p>D – Animal habitats will be kept</p>	(2)

Question Number	Answer	Mark
9	<p>Award 1 mark for giving each way heating controls can improve the efficiency of a central heating system.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Separate controls for hot water and heating (1) • Controls when the system is on and off (1) • Thermostat turns system on and off (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
10	<p>Award 1 mark for giving each drawback of passive stack ventilation.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Dependent on weather conditions (1) • External pollutants may be drawn into the property (1) • Less control than mechanical systems (1) • Ducts are larger than mechanical systems (1) • Ducts ideally need to be vertical (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
11	<p>Award 1 mark for giving each reason why timber engineered joists contribute to sustainability, other than timber being a sustainable material.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Structurally efficient/use material economically (1) • Reduce construction time (1) • Easier to handle than solid joists (1) • Services can easily pass through joists (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
12	<p>Award 1 mark for giving each reason why small-scale wind turbines are not used in urban areas.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Can be noisy (1) • May be shaded from the wind by other buildings/do not produce electricity when there is no wind (1) • Need space that may not be available in an urban area (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
13	<p>A linked response that makes reference to any two of the following points. Up to two marks for an explanation.</p> <p>Any one from the following explanations:</p> <hr/> <ul style="list-style-type: none"> • To prevent dust from blowing in the air (1) and causing pollution to the surrounding area (1) • To trap the dust particles in the air (1) and cause them to fall to the ground (1) <hr/> <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
14	<p>A linked response that makes reference to any two of the following points. Up to two marks for each explanation.</p> <p>Any two from the following explanations:</p> <ul style="list-style-type: none"> • Regular maintenance/redecoration of buildings (1) to keep up/improve their appearance (1) • Renovation of existing buildings (1) to give them a new use (1) • Redevelopment (1) to provide new facilities for tourism/business/leisure/residential (1) • Construction employment (1) increases circulation of money in the local economy (1) • Marine development projects (1) increase number of visitors/allow for employment in port/harbour/marina facilities (1) <p>Accept any other appropriate answer.</p>	(4)

Question Number	Answer	Mark
15	<p>Award 1 mark for giving each site practice that the developer may use that contribute to sustainability.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Protective fencing around trees (1) • Correct storage of materials (1) • Use of silt traps in temporary drains (1) • Dust reduction (1) • Correct storage of fuels and chemicals (1) • Water and social area for workers (1) • Relocation of animal habitats (1) <p>Accept any other appropriate answer.</p>	(2)

Question Number	Answer	Mark
16	<p>A linked response that makes reference to any two of the following points. Up to two marks for an explanation.</p> <p>Any one from the following explanations:</p> <hr/> <ul style="list-style-type: none"> • Workers will not need to travel (1) reducing vehicle emissions (1) • Providing local employment (1) adding money to the local economy (1) <hr/> <p>Accept any other appropriate answer.</p>	(2)
Question Number	Answer	Mark
17	<p>A linked response that makes reference to any two of the following points. Up to two marks for each explanation.</p> <p>Any two from the following explanations:</p>	

	<ul style="list-style-type: none"> • Pond will store water (1) so prevent the overloading of downstream watercourses/sewers (1) • Allows controlled discharge of storm water (1) within the capacity of the downstream watercourse/sewers (1) • Deals with the increased surface run off on site (1) so there is no need to improve the downstream drainage system (1) • Pond provides natural habitat (1) to support aquatic life and other types of wildlife (1) <p>Accept any other appropriate answer.</p>	(4)
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Question Number	Answer	Mark
18	<p>A linked response that makes reference to any two of the following points. Up to two marks for each explanation.</p> <p>Any two from the following explanations:</p> <ul style="list-style-type: none"> • Timber is a natural/sustainable material (1) that can be regrown/low embodied energy (1) • Quick form of construction reducing time on-site (1) which minimises the impact on the natural environment/on wildlife (1) • Prefabricated form of construction (1) which will reduce the amount of on-site waste (1) • Allows for a large amount of thermal insulation to be incorporated (1) which will reduce 	

	the ongoing energy requirements of the building (1)	(4)
	Accept any other appropriate answer.	

Question Number	Answer	Mark
19	<p>Discussion of what could be included in the refurbishment of Building 1 to improve its sustainability. The response should relate to the property in the scenario and should discuss how each improvement will improve and contribute to sustainability.</p> <p>This may include:</p> <ul style="list-style-type: none"> • Increasing the insulation to reduce heat loss to reduce heating costs. Insulation could be included in the ground floor, walls and roof space. • Replacing the windows with double/triple glazing to reduce heat loss to reduce heating costs. Sound insulation from the road will also be improved. • Draught proofing of windows – will be achieved if new windows fitted. • Fitting an insulated front and rear doors. • Energy saving lighting to be fitted through out. • Energy efficient heating source e.g. combination boiler as this will provide hot water without the need to store water. • Low water use fittings – dual flush toilet and eco shower head. <p>Accept any other appropriate answer.</p>	(8)

Level	Descriptor
0 0 marks	No rewardable material.
1 1–3 marks	A few points identified, or one point described. The answer is likely to be in the form of a list. Points made will be superficial/generic and not applied/directly linked to the scenario and question. Shows a basic understanding of sustainable refurbishment of an older property.
2 4–6 marks	Some points identified, or some points described or explained. The answer is unbalanced. Most points made will be relevant to the scenario and the question, but the link will not always be clear. Shows a good understanding of sustainable refurbishment of an older property.
3 7–8 marks	Range of points described, or a number of points explained in depth. The majority of points made will be relevant and there will be a clear link to the scenario and the question. Shows a developed understanding of sustainable refurbishment of an older property.



Llywodraeth Cynulliad Cymru
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