



Mark Scheme (Results)

January 2016

BTEC Level 1/Level 2 First Certificate
(21635E)

Unit 11: Sustainability in
Construction

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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.
- All marks on the mark scheme should be used appropriately.
- All 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 a 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 about applying 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.

Question Number	Answer	Mark
1	1 mark for each correct answer: A - Bunded tanks D - Absorbent mats	(2)

Question Number	Answer	Mark
2	1 mark for each correct answer: C - Reduced local pollution E - Reduced transportation costs	(2)

Question Number	Answer	Mark
3	1 mark for each correct answer: B - Stone D - Timber	(2)

Question Number	Answer	Mark
4 (a)	1 mark for a result of over-development of an area Any one from: <ul style="list-style-type: none"> • Vacant buildings (1) • Vandalism (1) • Increase in/fear of crime (1) • Increase in traffic (1) • Over population (1) • Pollution (1) • Not aesthetically pleasing (1) • Parking (1) • Loss of open/green space (1) • Impact on property prices (1) • Pressure on public services (1) <p>Accept any other appropriate answers.</p>	(1)

Question Number	Answer	Mark
4 (b)	<p>Award 1 mark for each regeneration strategy that may be used to improve a run-down area, up to 2 marks</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Improve facilities/community centres/health centres/schools (1) • Attracting key businesses/brands • Refurbishment (1) • Redevelopment (to current standards) (1) • Improved transport links (1) • Encourage employment (1) • Improve safety (1) • Cleaner streets (1) • Community involvement/consultation (1) • Incentives for developing brownfield sites (1) • Create open spaces (1) • Planting of plants and trees (1) <p>Accept any other appropriate answers.</p>	(2)

Question Number	Answer	Mark
5	<p>Award 1 mark for each correct natural insulation products, up to 2 marks</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Sheep's wool/wool (1) • Straw (1) • Hemp (1) • Flax (1) • Thatch (1) <p>Accept any other appropriate answers.</p>	(2)

Question Number	Answer	Mark
6	<p>Award 1 mark for each disadvantage of solar hot water panels, up to 2 marks.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Heat is dependent on sunlight (1) • Water may not reach desired temperature (1) • Will require a secondary heat source (1) • Not aesthetically pleasing (1) • High initial installation costs (1) • Additional loading to roof/not suitable for all roof types (1) • Panels need to face south for maximum efficiency (1) • Slow return on investment (1) <p>Accept any other appropriate answers.</p> <p>Do not accept 'take up a lot of space', 'expensive' on its own.</p>	(2)

Question Number	Answer	Mark
7	<p>1 mark for a way in which damage to materials on a construction site can be prevented.</p> <p>Any one from:</p> <ul style="list-style-type: none"> • Correct storage/containers/bays/fenced areas (1) • Correct/careful handling (1) • Correct use (1) • Secure storage/employ security measures (1) • Protective coatings (1) • Appropriate working procedures / site management (1) <p>Accept any other appropriate answers.</p>	(1)

Question Number	Answer	Mark
8 (a)	<p>1 mark for a pre-fabricated structural building component that may be used in housing.</p> <p>Any one from:</p> <ul style="list-style-type: none"> • Conservatory roof (1) • Stairs (1) • Wall/timber frame walls (1) • Roof/roof truss (1) • Floor (1) • SIPs (1) • Beam/lintel (1) • Column (1) <p>Accept any other appropriate answers.</p>	(1)

Question Number	Answer	Mark
8 (b)	<p>A linked response that makes reference to ways in which waste is reduced by the use of pre-fabricated components.</p> <p>Up to 2 marks for each explanation.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Factory process (1) so processes can be more accurately controlled/higher degree of accuracy (1) • Higher degree of waste recycling / reuse (1) because factory environment allows for better segregation and collection (1) • Efficient use of resources/materials (1) because cutting of materials can be better controlled/planned/reduced over ordering (1) • Offcuts are reduced (1) because there is little or no onsite cutting required (1) • Reduced transport movement/cost (1) as separate deliveries for individual components/materials will not be required (1) <p>Accept any other appropriate answers.</p>	(4)

Question Number	Answer	Mark
9	<p>Award 1 mark for each way in which the excavated soil from the substructure of a building could be used.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Landscaping/gardens (1) • Raising ground levels (1) • Bunds (1) • Use as a fill material off site (1) • Use as a cover material on landfill sites (1) • Acoustic barrier (1) • Levelling site/filling holes/backfilling (1) • Green roofs (1) <p>Accept any other appropriate answers.</p>	(2)

Question Number	Answer	Mark
10	<p>Award 1 mark for each type of infrastructure required for a large housing project.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Roads (1) • Cycle Paths (1) • Foot paths (1) • Drainage (1) • Water (1) • Electricity (1) • Gas (1) • Telecoms (1) • Shops / community facilities / schools (1) • Parking (1) • Public transport facilities (1) • Services (1) (if 1 mark awarded for services do not accept an individual service for a further mark) <p>Accept any other appropriate answers.</p>	(2)

Question Number	Answer	Mark
11 (a)	<p>Award 1 mark for each material that may be used for sun-screens.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Metal (1) • Timber (1) • Fabric/cloth (1) • Plastic (1) <p>Accept any other appropriate answers.</p> <p>Do not accept glass/glass with protective/diffusive solar film, blinds.</p>	(2)

Question Number	Answer	Mark
11 (b)	<p>1 mark for a benefit of a south facing building. Any one from:</p> <ul style="list-style-type: none"> • Maximises light (1) • Maximises solar energy (1) • Maximises passive solar gain (1) • Recreational benefits to the owner (1) <p>Accept any other appropriate answers.</p>	(1)

Question Number	Answer	Mark
12	<p>A linked response that makes reference to keeping trees and hedgerows following development. Up to 2 marks for each linked explanation. Any two from:</p> <ul style="list-style-type: none"> • Plan the positioning/size/layout/orientation of buildings/roads (1) so trees, hedgerows and other planting can be retained (1) • Replacement planting (1) to make up for trees and hedgerows that were lost during construction (1) • Careful removal of existing trees/plants/hedgerows (1) relocating/replanting in a safer landscaped area (1) • Allow for areas of open space (1) to allow for future planting/wildlife corridors (1) • Reduction in density (1) because protection of wildlife is important (1) • By specifying protective measures / careful use of machines (1) to prevent damage during construction activities (1) • Consultation with local authorities (1) to comply with legislation for the protection of trees/hedgerows (1) • Cut down young trees if necessary (1) to enable mature trees to be retained (1) <p>Accept any other appropriate answers.</p>	(4)

Question Number	Answer	Mark
13	<p>1 mark for each correct answer:</p> <p>A - Cleaner air E - Improved health</p>	(2)

Question Number	Answer	Mark
14	<p>A linked response that makes reference to benefits of using a sustainable urban drainage system to the park and ride facility. Up to 2 marks for each explanation.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • Prevents localised flooding (1) because of local temporary storage of water/returns water to the ground at source (1) • Discharge of flow from the site can be controlled (1) thus limiting the flow from the site to what it was prior to the development / reducing the possibility of flooding downstream (1) • Reduction in contaminants discharged to watercourses / quality of downstream water can be maintained (1) as measures can be incorporated to reduce the effect of oil and other contaminants from vehicles (1) • Attenuation ponds/reed beds provide a habitat for wildlife (1) enabling ecosystems to be maintained/developed (1) • Reed beds provide natural water purification/remove contaminants (1) preventing deterioration of/improving ground water quality (1) <p>Accept any other appropriate answers.</p>	(4)

Question Number	Answer	Mark
15	<p>A linked response that makes reference to a way that local infrastructure could be developed to encourage cycling to the railway station. Up to 2 marks for an explanation.</p> <p>Any one from:</p> <ul style="list-style-type: none"> • Provision of dedicated cycle ways/cycle crossings/cycle bridges (1) because cyclists do not need to share roads with other vehicles/feeling of safety/improved access for cycles (1) • Provision of cycle lanes on existing roads (1) so provides a safer space for cycles on the road/ shorter / direct routes are possible/ because cycle paths do need to follow roads / one way systems (1) • Restriction on vehicular access on existing roads (1) so provide safer cycling conditions (1) • Traffic signals with dedicated times for cyclists (1) separating cycle movements from other traffic (1) <p>Accept any other appropriate answers.</p> <p>Do not accept cycle storage as this is contained within the scenario.</p>	(2)

Question Number	Answer	Mark
16	<p>A linked response that makes reference to the advantages of building on a greenfield site. Up to 2 marks for each explanation.</p> <p>Any two from:</p> <ul style="list-style-type: none"> • No demolition/removal work is required (1) as the site is free of redundant buildings and infrastructure (1) • Site was free from industrial pollution (1) because there will not have been any previous development on the site (1) • Construction/substructure costs are likely to be lower (1) because ground conditions are more likely to be consistent/lack of man-made obstructions or basements / pollutants etc (1) • Provided maximum design flexibility to meet project requirements (1) because there will be fewer constraints/existing infrastructure (1) • New facility requires reduced maintenance (1) because facility was built to current standards and using sustainable materials (1) • Was designed to meet current and future needs (1) because there were fewer constraints from existing infrastructure or buildings (1) • Located close to feeder roads (1) which reduces car use into the town centre (1) • Allowed for the incorporation of open green space and park land (1) allowing space for people to meet/allowing ecosystems to develop (1) • Was easier to incorporate SUDS (1) due to site having no existing infrastructure in place. <p>Accept any other appropriate answers.</p>	(4)

Question Number	Indicative content	Mark
17	<p>Discussion of the advantages and disadvantages of the mainline railway station and the park and ride facility in creating sustainable communities in the two towns.</p> <p>Advantages of mainline railway station:</p> <ul style="list-style-type: none"> • Allows local residents to commute to the city for work • Allows local residents opportunity to easily travel to the city and beyond • Raises the prosperity of the area • Transport system with potential to reduce local pollution <p>Disadvantages of mainline railway station:</p> <ul style="list-style-type: none"> • Takes labour away from the town due to opportunities in the city • Increase house prices due to number of commuters on higher salaries <p>Advantages of park and ride facility:</p> <ul style="list-style-type: none"> • Provides transport for tourists to the historic town • Reduces congestion within town centre • Improves air quality in town centre • Can be accessed from trunk road • Reduces the need for town centre parking • Provides parking for tourists in motorhomes • Safety/security to park and ride facilities <p>Disadvantage of park and ride facility:</p> <ul style="list-style-type: none"> • Not popular with all drivers as some don't like inconvenience of taking the shuttle bus • Not convenient to return to car with shopping • Has taken up greenfield space • Restricted operating hours • Shuttle buses only drop off in town centre / hospital may not be convenient for all users <p>Accept other appropriate answers.</p>	(8)
Level	Descriptor	
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0 0 marks	No rewardable material	
1 1-3 marks	A few key points identified, or one point described in some detail. The answer is likely to be in the form of a list. Only one viewpoint considered. Points made will be superficial/generic and not applied/directly linked to the situation in the question. The learner shows a basic understanding of sustainable communities.	
2 4-6 marks	Some points identified, or a few key points described. Consideration of more than one viewpoint but there will be more emphasis on one of them. The answer is unbalanced. Most points made will be relevant to the situation in the question, but the link will not always be clear. The learner shows a good understanding of sustainable communities.	
3 7-8 marks	Range of points described, or a few key points explained in depth. Most sides of the case are considered and the answer is well-balanced, giving weight to most viewpoints. The majority of points	

	<p>made will be relevant and there will be a clear link to the situation in the question.</p> <p>The learner shows a developed understanding of sustainable communities.</p>
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