End-of-unit assessment: answers

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| **Question** | **Answer** | **Mark** |
| 1 | Explain **one** advantage of using volumetric construction (1) and a linked justification (1).   * Pre-built sections/modules are built off-site (1) therefore it reduces the amount of on-site waste (1). * Pre-built sections/modules are built in a factory (1) therefore they do not slow down the construction process due to bad/inclement weather (1).   Accept any other correct additional response. | 2 |
| 2 a) | Correct definition of the initials SIP (only answer)   * Structural insulated panels | 1 |
| 2 b) | Correct name of parts A and B from:  Part A   * Internal or external (1) * Rigid board (1) * Sheathing material (1)   Part B   * Insulation material (1) * Insulating core (1) * Foam core (1) * EPS / XPS (1) | 2 |

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| 3 | Any **two** advantages of using panelised sections in the construction industry:   * Saves time. * Reduces delays due to weather/rain/ extreme cold. * No need to store materials on-site. * Improved heat insulation.   Accept any other correct additional responses. | 2 |
| 4 | An isometric drawing that includes an image drawn with a ruler or freehand.    Marks to be awarded for the following:  Accurate setting out of the overall form of the house (ground floor, upper floor, roof) (1).  Accurate proportion of the house (width, length, height) (1).  Correct application of isometric conventions and techniques (1).    Correct positioning and proportion of the following features (maximum 6 marks).  Patio doors (1)  Splitting of the patio doors to show the three panels (1)  Small upper window (1)  Upper large windows (1)  Lower large windows (1)  Single opening in small upper window (1)  Opening/orientation of upper window openings (1)  Opening/orientation of lower window openings (1)  A drawing of a building  Description automatically generated | 9 |
| 5 | Students might refer to some/all of the following in their responses, but students should be rewarded for other pertinent contextualised answers:  Volumetric construction techniques:   * The houses will be relatively small/ modular in design therefore bathrooms/kitchen areas could be completed off-site. * Whole units would be big and may present problems delivering and off-loading into position. * Potential difficulties off-loading large units in a relatively small area / small roads. * Volumetric construction much more suited to identical units such as those in high-rise buildings where the floor levels/plans are identical. * Modules/units can be built whilst the foundations are being constructed. * Bathrooms and kitchens can be delivered in situ in modules leaving only the services to be connected once in place.   SIP panels:   * Will be built off-site and delivered when needed which speeds up the overall build time because the panels can be being made whilst the foundations are being worked on. * Relatively lightweight when compared to other forms of modular construction which means that lifting gear on-site can be an appropriate size for the plot. * Can be installed quickly with relatively few workers on-site with houses capable of being constructed with roofs inside five working days. * The houses will have high thermal insulation properties. * If any of the wooden panels are exposed to wet/damp conditions before they have external finishes applied, they can become damp/ swell/develop mould in the long run. * Allows for standardised panels but with a degree of flexibility to change and make the houses a little bit different.   Accept any other appropriate/alternative responses. Answers will only be accepted if qualified with information from the context of the question. | 12 |

The following information comes from the Pearson Mark Scheme.

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| **Level** | **Mark** | **Descriptor** |
| 0 | 0 | No rewardable content. |
| 1 | 1–4 | * Demonstrates a basic analysis of the situation by superficially breaking down the different aspects into component parts (AO3a). * Demonstrates basic application of knowledge and understanding that is partially relevant to the context of the question (AO2). * Demonstrates a basic evaluation which partially considers different factors/events and competing points, leading to a conclusion which is superficial or unsupported (AO3b). |
| 2 | 5–8 | * Demonstrates a good analysis of the situation by breaking down the different aspects into component parts (AO3a). * Demonstrates good application of knowledge and understanding that is relevant to the context of the question (AO2). * Demonstrates a good evaluation which considers different factors/events and competing points, leading to a conclusion which is partially supported (AO3b). |
| 3 | 9–12 | * Demonstrates a thorough analysis of the situation by comprehensively breaking down the different aspects into their component parts (AO3a). * Demonstrates comprehensive application of knowledge and understanding that is consistently relevant to the context of the question (AO2). * Demonstrates a thorough evaluation which comprehensively considers different factors/events and competing points, leading to a conclusion which is well supported (AO3b). |

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