|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **3 marks** | **2 marks** | **1 mark** |  |
| Identifies and organises relevant information | Writes clear introduction including relevant information and identifies valid assumptions related to the aspects of the investigation | Writes clear introduction including relevant information. | Writes an outline of the investigation. |  |
|  | **Bridge Design 1 (4 marks)** | **Bridge Design 1 (3 marks)** | **Bridge Design 1 (2 marks)** | **Bridge Design 1 (1 mark)** |
| Chooses effective models and methods | Concise, clear organisation of data and presented in appropriate sequence format for all four questions | Data is clearly organised and presented in appropriate sequence format for any three questions | Data is clearly organised and presented in appropriate sequence format for any two questions | Data is presented in appropriate sequence format for just one question. |
| **Bridge Design 2 (4 marks)** |  | **Bridge Design 2 (2 marks)** |  |
| Data is clearly organised and presented in appropriate sequence format to decide the following:   1. Constant increment value to the left/right of the longest cable. 2. Value of the constant proportion to the left/right of the longest cable. |  | Data is clearly organised and presented in appropriate sequence format to decide any one of the following:   1. Constant increment value to the left/right of the longest cable. 2. Value of the constant proportion to the left/right of the longest cable. |  |
|  | **Bridge Design 1 (4 marks)** | **Bridge Design 1 (3 marks)** | **Bridge Design 1 (2 marks)** | **Bridge Design 1 (1 mark)** |
| Follows mathematical conventions and accuracy | All relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation for all four questions for Design 1. | All relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation for all four questions for Design 1 with minor errors. | Most relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation for two questions for Design 1. | Some relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation for one question for Design 1. |
| **Bridge Design 2 (4 marks)** | **Bridge Design 2 (3 marks)** | **Bridge Design 2 (2 marks)** | **Bridge Design 2 (1 mark)** |
| All relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation to show the total amount of cabling required. | All relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation to show the total amount of cabling required with minor errors. | Most relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation to show the total amount of cabling required. | Some relevant processes of sequence and series have been correctly chosen, applied, and shown correct mathematical calculation to show the total amount of cabling required. |
| Links mathematical results to data and contexts to reach reasonable conclusions |  | **3 marks** | **2 marks** | **1 mark** |
|  | Effective development and testing of valid conjectures and assumptions. | Mostly effective development and testing of valid conjectures and assumptions. | Attempted development or testing of a reasonable conjecture or assumption. |
|  | **4 marks** | **3 marks** | **2 marks** | **1 mark** |
| Communicates mathematical reasoning, results and conclusions | Coherent, concise, and logical justification of procedures, mathematical ideas, and reasoning used to develop logical arguments and conclusions. | Coherent, concise and logical justification of procedures, mathematical ideas, and reasoning used to develop logical arguments and conclusions with minor errors. | Effective communication of mathematical ideas and reasoning to develop mostly logical arguments. | Some appropriate communication of mathematical ideas and reasoning. |