**GCSE Mathematics (1MA1)**

**Themed papers – Statistical Diagrams: Stem and Leaf**

**Compiled from student-friendly mark schemes**

**Please note that this mark scheme is not the one used by examiners for making scripts. It is intended more as a guide to good practice, indicating where marks are given for correct answers. As such, it doesn’t show follow-through marks (marks that are awarded despite errors being made) or special cases.**

**It should also be noted that for many questions, there may be alternative methods of finding correct solutions that are not shown here – they will be covered in the formal mark scheme.**

**NOTES ON MARKING PRINCIPLES**

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| --- |
| **Guidance on the use of codes within this mark scheme** |
| M1 – method mark. This mark is generally given for an appropriate method in the context of the question. This mark is given for showing your working and may be awarded even if working is incorrect.  P1 – process mark. This mark is generally given for setting up an appropriate process to find a solution in the context of the question.  A1 – accuracy mark. This mark is generally given for a correct answer following correct working.  B1 – working mark. This mark is usually given when working and the answer cannot easily be separated.  C1 – communication mark. This mark is given for explaining your answer or giving a conclusion in context supported by your working.  Some questions require all working to be shown; in such questions, no marks will be given for an answer with no working (even if it is a correct answer). |

**Question 1 (Total 2 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **Working an or answer examiner might expect to see** | **Mark** | **Notes** |
|  | 74 – 31 | M1 | This mark is given for identifying the ages of the youngest and oldest people in the social club |
| 43 | A1 | This mark is given for the correct answer only |

**Question 2 (Total 3 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **Working or answer an examiner might expect to see** | **Mark** | **Notes** |
|  | 1 6 8 9  2 2 2 3 3 4 5 8  3 1 3 4  4 0 1 | B2 | These marks are given for a fully correct stem and leaf diagram  (B1 is given for an ordered diagram with one error or omission or for an unordered diagram) |
|  | key 4|1 is 41 | B1 | This mark is given for an appropriate key |

**Question 3 (Total 5 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **Working or answer an examiner might expect to see** | **Mark** | **Notes** |
| (a) | |  |  | | --- | --- | | 6 | 4 7 9 9 | | 7 | 0 0 1 5 6 6 7 | | 8 | 0 0 1 1 2 4 7 | | 9 | 1 4 | | B2 | These marks are given for a correctly ordered stem and leaf diagram |
| Key: 6 ⏐ 4 = 64 units | B1 | This mark is given for a correct key |
| (b) | 6 students failed their French test | C1 | This mark is given for using the stem-and-leaf diagram to find out how many students failed their French test (scoring less than 71) |
| Omar is wrong since  ≠ | C1 | This mark is given for a correct conclusion with a comparison of fractions |

**Question 4 (Total 5 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **Working or answer an examiner might expect to see** | **Mark** | **Notes** |
| (a) | 164 | B1 | This mark is given for a correct answer only |
| (b) | No and  = 28%  **or**  30% of 25 = 7.5 but only 7 students have height greater than 170 cm | C2 | This mark is given for a complete argument |
| 7 students **or**  **or**  30% of 25 = 7.5 | (C1 | Only 1 mark is given for a start to the argument) |

**Question 5 (Total 3 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **Working or answer an examiner might expect to see** | **Mark** | **Notes** |
| (a) | 11th in a list of 21 heights is 165 | B1 | This mark is given for the correct answer only |
| (b) | The median height of the boys (165 cm) is greater than the median height of the girls (162 cm) | C1 | This mark is given for a correct statement about the medians |
| The range of the boys’ heights (41 cm) is smaller than the range of the girls’ heights (45 cm) | C1 | This mark is given for a correct statement about the ranges  (NB: to get both marks at least one must be interpreted in the context of the question) |

**Question 6 (Total 2 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Part** | **Working or answer an examiner might expect to see** | **Mark** | **Notes** |
|  | incorrect key; units should be years  missing entry (of 29)  incorrect order in the “4” leaf | C2 | These marks are given for any two error found amongst the three which appear on the diagram  (C1 is given for one error found) |

**Performance data:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Q** | **Taken from** | | | **Total Marks available** | **TOPIC** | **Spec Ref** | **AO** | **% Mean marks** | **Edexcel mean averages Marks of candidates who achieved grade:** | | | | | | |
| **Q** | **Series** | **Paper** | **ALL** | **5** | **4** | **3** | **2** | **1** | **U** |
| 1 | 13 | Nov-19 | 3F | 2 | Statistics | S4 | 1 | **78** | 1.56 | 1.87 | 1.81 | 1.62 | 1.14 | 0.47 | 0.07 |
| 2 | 11 | Mock Set 2 | 3F | 3 | − | − | − | **−** | − | − | − | − | − | − | − |
| 3a | 14a | Jun-18 | 3F | 3 | Statistics | S2, S4 | 2 | **55** | 1.65 | 2.35 | 2.09 | 1.79 | 1.32 | 0.67 | 0.16 |
| 3b | 14b | Jun-18 | 3F | 2 | Probability | P3 | 2 | **39** | 0.78 | 1.49 | 1.22 | 0.83 | 0.38 | 0.1 | 0.02 |
| 4a | 12a | Mock Set 4 | 3F | 1 | − | − | − | **−** | − | − | − | − | − | − | − |
| 4b | 12b | Mock Set 4 | 3F | 2 | − | − | − | **−** | − | − | − | − | − | − | − |
| 5a | 8a | Mock Set 1 | 1F | 1 | − | − | − | **−** | − | − | − | − | − | − | − |
| 5b | 8b | Mock Set 1 | 1F | 2 | − | − | − | **−** | − | − | − | − | − | − | − |
| 6 | 16 | Mock Set 3 | 1F | 2 | − | − | − | **−** | − | − | − | − | − | − | − |
|  |  |  |  | **18** |  |  |  |  | **3.99** | **5.71** | **5.12** | **4.24** | **2.84** | **1.24** | **0.25** |