**Statistics – Halfway Test** **Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Total: / 48**

 **%**

***Show all of your working for full marks.***

***Time limit: 45 minutes***

1. **The data shows the marks (%) for 14 maths students on their final exam. [16 marks]**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 85 | 66 | 64 | 70 | 49 | 47 | 53 |
| 81 | 70 | 45 | 81 | 70 | 69 | 57 |

1. Multiple Choice: The data is\_\_\_\_\_\_\_\_\_\_\_\_. [ 1 mark]
2. Numerical and ordinal b) Categorical and discrete

c) Numerical and discrete d) Categorical and continuous

1. Order the 14 marks from the lowest to the highest. [1 mark]
2. Find the median, lower and upper quartiles. [3 marks]
3. Find the mean, mode and range of this data set. Show your working for calculating the mean and the range. [5 marks]

*The teacher said: Sara’s mark is one of the quartiles and no one else got the same mark as Sara. The mark of Kimberly is higher than the median, but lower than 80. Also, no one in the class got the same mark as Kimberly.*

1. What was Sara’s mark and what was Kimberly’s mark? [2 marks]
2. Present the data using a stem-and-leaf plot. (Use the grid paper provided. Remember what you need to include for a plot.) [4 marks]



1. **The number of television sets owned by families is shown below:**

**[14 marks]**

*The number of television sets owned*

|  |  |  |
| --- | --- | --- |
| The number of television sets | Tally | Frequency |
| 0 | I |  |
| 1 | ~~IIII~~ |  |
| 2 | ~~IIII~~ |  |
| 3 | III |  |
| 4 | II |  |
| 5 | I |  |
| Total |  |

1. Is the data ordinal, nominal, continuous or discrete? (1 mark)
2. Finish the frequency table above (6 marks)
3. How many families were surveyed? (1 mark)
4. What percentage of families has more than 3 television sets? (show your working) [2 marks]
5. Present the data using a dot plot. [4 marks]
6. **Two classes of students were surveyed and the length of the longer side (in centimetres) of their smart phones is shown below. [14 marks]**

 *Side length of mobile phones (cm)*

|  |  |  |
| --- | --- | --- |
| Class 1 |  | Class 2 |
| Leaf  | Stem | Leaf  |
| 9 8 5 | 10 | 2 3 4 7 9 9 |
| 1 2 0 0 | 11 | 1 2 5 8 |
| 6 5 2 1 | 12 | 2 4 |
| 1 1 | 13 | 7 |

**10|1 means 10.1 cm**

1. Is the data continuous or discrete? [1 mark]
2. What is the plot called? (Be precise) [1 mark]
3. What is the longest side of the phone in class 1? [1 mark]
4. What is the shortest side of the phone in class 2? [1 mark]
5. What is the range of the data for class 2? [1 mark]
6. For which class, is the data bimodal and what are the two modes? [3 marks]
7. Comment on the shape of the data distribution for class 2. [1 mark]
8. For both classes, what percentage of students have the mobile phones with the size longer than 12.5 cm. [3 marks]
9. Suggest another way to present the data graphically and comment which method gives more information. [2 marks]
10. **The weekly income of students in a class is shown below: [4 marks]**

*Student wages per week ($)*

|  |  |
| --- | --- |
| Weekly income (Dollars) | The number of Students |
| 80- | 1 |
| 90- | 3 |
| 110- | 4 |
| 120- | 6 |
| 130- | 3 |
| 140- | 2 |
| 150- | 2 |

1. Construct a histogram. [4 marks]



The bonus question is on page 6. You are encouraged to have a try if you want more marks. ☺

**Bonus Question**

1. **The mean and median are the same for the ordered data below: [3 marks]** *Hint: There is more than one possible values for a, b and c. You only need to suggest one possible solution.*

*5, 7, 11, 13, a, 17, 19, b, c*

1. What is the value of a?
2. What is the value of b?
3. What is the value of c?