**MST 1102- Introduction to Statistics WkSheet 7**

**(Last Name, First Name): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Measures of: Central Tendency and Dispersion II**

1. On examining the scores in a test, it was found that there is a higher frequency of low scores and a lower frequency of high scores.
2. If a histogram is to be constructed for these scores, will it be positively skewed or negatively skewed? **[1 mark]**

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1. Explain where you expect to find the three measures of central tendency. **[3 marks]**

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1. The histogram displays the age of people watching a comedy movie at a cinema.
2. What is the shape of the distribution? **[1 mark]**

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1. What is the relationship between the three measures of central tendency (mean, mode, median)? **[1 mark]**

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1. Describe the distribution in terms of the frequency of ages.**[2 marks]**

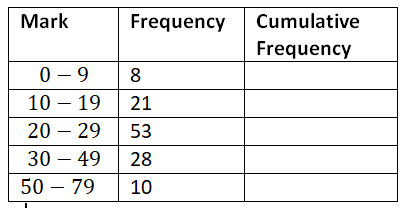
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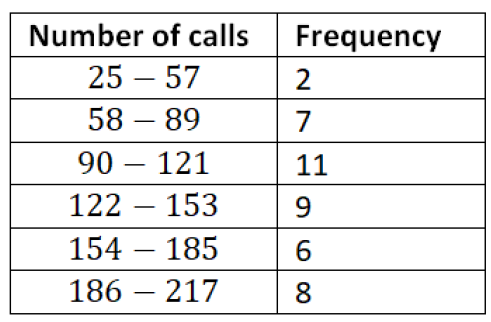
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1. A researcher is comparing two multiple-choice tests with different conditions. In the first test, a typical multiple-choice test is administered. In the second test, alternative choices (i.e. incorrect answers) are randomly assigned to test takers. The results from the two tests are:

Calculate the coefficient of variation for both conditions and interpret the results. **[3 marks]**

1. The grouped frequency distribution below shows the examination marks for a group of 120 second year statistics students.
2. State one disadvantage of presenting the data using a grouped frequency distribution. **[1 mark]** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Complete column 3 of the table. **[1 mark]**
4. Identify the median class. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
5. Given that is the lower class boundary of the median class, state the value of . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
6. Given that is the cumulative frequency of the class before the median class, state . \_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
7. Given that is the frequency of the median class, state \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
8. Given that is the width of the median class, state . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
9. Hence, use the formula below to calculate the estimated median and interpret this value. **[3 marks]**

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1. Find an estimate of the standard deviation for the data in the grouped frequency table above. **[4 marks]**
2. The number of calls from motorists per day for roadside service was recorded for the month of December 2003. The results were placed in a grouped frequency table as seen below.
3. Identify the modal class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
4. Identify the median class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
5. Given that represents the lower class boundary of the modal class, state : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
6. Given that represents the frequency of the modal class, state : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
7. Given that represents the frequency of the class preceding the modal class, state : \_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
8. Given that represents the frequency of the class succeeding the modal class, state : \_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
9. Given that 𝑤𝑚 represents the width of the modal class, calculate : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **[1 mark]**
10. Hence, use the formula to calculate the estimated mode and interpret this value: **[3 marks]**

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**Total: 35 marks**