MATH 140 FALL 2011 WORKSHEET I ¼ NAME:_____
(please print legibly)

Let $U = S = \mathbb{Z}$ (the sample space is the integers).

Let the data be described as as X_1, X_2, X_3, X_4, X_5 (as in problem 1) etc.

1. Let the data set be $D_1 = \{1, 2, 2, 3, 4\}$
Find:
A. the mode of the sample B. The median of the sample C. the arithmetic mean (sample mean) of the sample.
D. the variance of the sample E. The standard deviation of the sample F. the MAD of the sample.
G. find the range H. the interquartile range (IRQ)

2. Let the data set be $D_2 = \{1, 2, 3, 3, 3, 4, 5, 5, 5\}$
A. the mode of the sample B. The median of the sample C. the arithmetic mean (sample mean) of the sample.
D. the variance of the sample E. The standard deviation of the sample F. the MAD of the sample.
G. find the range

3. Let the data set be $D_3 = \{1, 1, 1, 2, 2, 3, 7, 7, 8, 8\}$
A. the mode of the sample B. The median of the sample C. the arithmetic mean (sample mean) of the sample.
D. find the range E. Draw the histogramme of the data (units of one) and identify the arithmetic mean of the sample as a vertical line on the histogramme.

4. Let the data set be $D_4 = \{1, 2, 3, 4\}$
Find:
A. the mode of the sample B. The median of the sample C. Find $\overline{X}$
D. the variance of the sample (S^2) E. The standard deviation of the sample (S)
E. Draw the histogramme of the data (units of one) and identify the arithmetic mean of the sample as a vertical line on the histogramme and show one standard deviation in the negative and one standard deviation in the positive direction on the histogramme as vertical lines (approximate to 2 decimal place accuracy). .

5. Suppose a medial study is designed and the independent variables are hospital companies so that we define the hospital by the company that runs the hospital .
So,
Lehigh Valley (Cedar Crest) is "1," St. Joseph's is "2," Reading is "3," St. Luke's is "4," Lehigh Valley (Muhlenberg) is "1," Sacred Heart is "2," and Lehigh Valley (17th Street) is "1." So, we have the data set $D = \{1, 2, 3, 4, 1, 2, 1\}$.
What kind of variable(s) are we defining in this?

Suppose someone asks you to find:
A. the mode of the sample B. The median of the sample C. the arithmetic mean (sample mean) of the sample.

Which of these quantities (mode, median, or mean) is (are) meaningful (meaning is a proper or correct use of statistics) and which are not? Why?