Instructions: The exam consists of four questions with 2 to 4 parts. The total points for each questions is listed with the questions. The maximum number of possible points is 25. All the paper you should need is provided in the exam. If you need additional paper, raise your hand.

Here is a list of conditions that apply for each questions.

1. Every data set is a sample data set.

2. Show all work.

You can use the full class period to work on the exam.

1. (6 points) The following problem uses data from the 1990 US Census for Houston. Houston is made up of 300 communities known as census tracts (a tract may contain one or more neighborhoods). The values below describe the distribution of newer homes within these communities. The value represents the percent of homes in a community that were built after 1985. For example, there exists one community where 43.64 % of the structures were built after 1985-this percent is the maxmimum percent value for this distribution of data.

Max	43.64 %
Q3	11.25 %
Q2	4.27 %
Q1	1.71 %
Min	0.00 %

   (a) What is the median value?

   (b) What is the IQR value?

   (c) Determine if the data contains any outliers (either suspected or extreme). If outliers exists, provide a numeric example using the information from the table.

2. (6 points) This data is also from the 1990 US Census for the total Houston metropolitan area. The unit of analysis is the median year that homes were built in a given community. For example, the typical homes in 20 communities were built in 1944 or earlier. Below is the distribution for the 925 communities in the metropolitan area. Fill in the remaining parts of the relative frequency table below.

Category	Frequency	Relative Frequency	Cummulative Relative Frequency
1944 or earlier	20		
1945-1949	69		
1950-1954	47		
1955-1959	99		
1960-1964	109		
1965-1969	99		
1970-1974	136		
1975-1979	203		
1980-1984	134		
1985-1990	9		
Total	925		

(a) Give the value for the data's measure of center.

(b) What proportion of communities have homes built between 1965 to 1969?

(c) What proportion of communities have homes built 1969 or earlier?

d   3

3. (5 points) Construct a stem and leaf plot for these 15 measurements:

53   60   27   21   23
75   24   17   24   71
41   30   71   77   15

(a) Describe the shape of the graph

(b) What is the smallest value?

(c) what are the fourth and fifth largest values?

4. (8 points) Here are ten numbers.

4684	1520	9463	5576	210
379	1370	7186	7755	7810

   (a) Compute their mean value.

   (b) Compute their variance and standard deviation **Show your work.**

   (c) Assume that the distribution is symmetrical and unimodal in the center. Find the lower and upper bounds that make up 95% of the distribution.

   (d) Compute the z score for the value 9463.

d   5