KEY

Directions: Complete the following problems by hand. Calculators and computers are not allowed.

1. (6 pts) Consider two data objects with attribute values listed in the table below. Compute the similarity/distance between P and Q using the measures listed in the table below.

P	1	0	1	0	0
Q	0	0	1	0	1

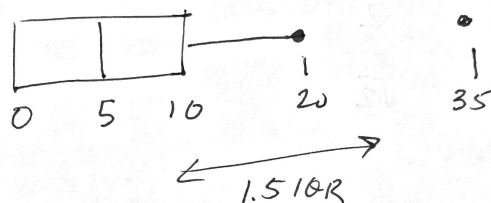| measure	value
City Block Distance	2
Euclidean Distance	$\sqrt{2}$
Supremum Distance	1
Cosine Similarity	$\frac{1}{2} = 0.5$
Simple Matching Coefficient	$\frac{3}{5} = 0.6$
Jaccard Coefficient	$\frac{1}{3} = 0.\overline{3}$

2. (12 pts) Compute the indicated statistics (if possible) of each attribute in the table below.

age	fitness	handedness	birthday
20	excellent	right	June 7
20	good	right	June 3
10	excellent	right	June 5
30	fair	left	June 5
20	good	right	June 10

statistic	age	fitness	handedness	birthday
median	20	good	✗	June 5
mean	20	✗	✗	June 6
mode	20	good excellent	right	June 5

3. (2 pts) The tips (in dollars) a waiter received one evening are listed below. Construct a box plot for this data set. In order to receive full credit, you must properly label your box plot and you must also show how you obtained your answer.

$$0, \ 0, \ 0, \ 0, \ 5, \ | \ 5, \ 10, \ 10, \ 20, \ 35$$

$IQR = 10$

$1.5 \ IQR = 15$

$Q_1 = 0$
$Q_2 = 5$
$Q_3 = 10$

$Q_3 + 1.5 \ IQR = \quad 10 + 15 = 25$