**Week 1**

1. True or False: Most genes in DeRisi's 6400-gene dataset are likely not involved in the diauxic shift.

**True**

False

1. True or False: The fact that only 13% of genes in S. cerevisiae are duplicated does not rule out the possibility of a whole-genome duplication.

**True**

False

1. True or False: In practice, the number of clusters of biological data is typically known in advance.

True

**False**

1. True or False: Center placement in the k-Centers Clustering Problem is generally more sensitive to outliers than center placement in the k-Means Clustering Problem.

**True**

False

1. How many ways are there to cluster 5 points into two clusters?

**15**

1. True or False: How we choose initial centers for the Lloyd algorithm can make a difference.

**True**

False

1. Compute MaxDistance(Data, Centers) for the following Data and Centers:

Data: (2, 8), (2, 5), (6, 9), (7, 5), (5, 2) Centers: (3, 5), (5, 4)

**5**

1. Compute *Distortion*(*Data*, *Centers*) for the following *Data* and *Centers*:

Data: (2, 8), (2, 5), (6, 9), (7, 5), (5, 2) Centers: (3, 5), (5, 4)

**9**

1. Give the center of gravity of the following (three-dimensional) data points. Enter your answer in the form (*x*, *y*, *z*). (Please note the space between the coordinates.)

(17, 0, -4), (3, 14, 23), (9, 7, 16), (7, 3, 5)

**(9, 6, 10)**

**Week 2**

1. A