

Name: SSN: Row: L R

Instructions: Use only the notation used in class and in the textbook.

NOTE: *If you do not follow the instructions above, you may lose some points.*

Question 1: (6 points) Let G be a simple graph with n vertices and α edges, how many edges does $\overline{G}$ have?

Solution: $\frac{n(n-1)}{2} - \alpha$.

Question 2: (6 points) Let n be a natural number greater than or equal to 2. What is the degree sequence of K_n ?

Solution: $\underbrace{n-1, n-1, \dots, n-1}_{n\text{-times}}$.

Question 3: (6 points) Let m and n be natural numbers greater than or equal to 2. For what values of m and n does $K_{m,n}$ have an Euler cycle (if any)?

Solution: Notice that since m and n are both greater than or equal to 2, then $K_{m,n}$ is connected. Since, the vertices have to have even degrees, then we need m and n to be even.

Question 4: (2 points) If a graph G has a degree sequence of 3,2,1,1,1,0,0. How many vertices does G have and how many edges does G have?

Solution:

The number of vertices of G is: 7.

The number of edges of G is: 4.