**Advanced Operating Systems Design – Spring 2022**

**Quiz 4 (03/08/2022)**

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (First Last)

Student R#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Total: 3%)

**Question 1:** (1%) Noria

What is Noria? How can it improve the performance of ready-heavy web applications?

**Question 2:** (2%) Cluster Computing

In a cluster center, we have 2 computing nodes. A user submits 4 identical jobs of 50% I/O percentage. The scheduler decides how to split the jobs on 2 computing nodes.

Please answer the following questions:

1. How many different ways that the scheduler can split these four jobs?
2. What is the best way to split these four jobs on two computing nodes to maximize the CPU utilization? Please explain your answer.