Name (and preferred name if any):

Major (and minor if any):

Year:

Graduate or undergraduate:

If an undegraduate student, are you a transfer student?

Anything you would like to share to help the instructor help you be successful (examples: academic load, work, family responsibilities, community responsibilities, learning styles or needs)?

What is one of the most interesting things you remember from a prior CS course?

What is one of the most interesting things you remember from a course outside CS?

Name: _____

Quiz instructions: try to answer the question as best as you can, but if you can't give an answer you are reasonably confident in, describe your familiarity with the concept in bold. For example, you could write
1. never heard of it
2. sounds familiar, but never quite got it
3. knew this at some point and just need a quick refresher

1. Prove by **induction** that
$$\sum_{i=1}^{n} i^2 = \frac{n(n+1)}{2}$$

2. Give a high-level description of the **mergesort** algorithm.

3. What is the probability that tossing two die result in the same numbers, given that the sum is even? (**conditional probability**)

4. Express the **runtime** of the following procedure **using O-notation**:

```
sum = 0
for i from 1 to n:
  for j from i to n:
    sum += 1
return sum
```

5. What is the benefit of using a **linked list** over an **array** for storing data?

6. What is the output sequence from the following sequence of operations onto a **stack**?

    push 1, push 2, pop, push 3, push 4, pop, push 5, pop, pop

7. How many leaves does a **full binary tree** with n nodes have?

8. In what order are the nodes of the following tree visited during an **in-order traversal**?