

**Set Theory**  
**Quiz 8 10**

Name: \_\_\_\_\_

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. State the Axiom of Choice.

Every set of nonempty sets has a choice function.

2. State the Well-Ordering ~~Principle~~ Theorem! I asked the wrong question! .

Well-Ordering Principle:  $\langle \omega; \in \rangle$  is a well-order.

Well-Ordering Theorem: Every set can be well-ordered.

3. State Zorn's Lemma.

Every nonempty inductively ordered poset has a maximal element.