GEOL 106 Earthquake Country
Mid Term II Study Guide

Example Great Earthquakes: Subduction zone fault earthquakes generate what kinds of deformation during interseismic and coseismic periods? What other natural disasters that also occur during subduction zone earthquakes? Which are the example earthquakes, their magnitudes?

Geodesy: What is geodesy? What do geodesists measure? What are some of the geologic processes that geodesists measure? What are the parts of the earthquake cycle? What can GPS measurements tell us? What is an equipotential surface? What can we find using 2-dimensional profiles of GPS movement?

Coastal Paleoseismology: What stratigraphic evidence exists that supports the hypothesis that the crust deforms vertically during a subduction zone earthquake? How would one test the hypothesis that sediment stratigraphy found in Humboldt Bay was formed during an earthquake and tsunami? What else can we tell from the stratigraphy?

Paleoseismology and Crustal Earthquakes: How far into the past can we use Paleoseismology? What is a colluvial wedge? Why and what do colluvial wedges tell us about earthquakes? What can landforms tell us about earthquakes and where faults occur? How can we find the fault before we even dig a hole (what type of methods can we use)? What are two fundamental principles that we use to determine the number of earthquakes exposed in a trench (the principle of ____ and the principle of ____)? Can you use these principles to determine the number of earthquakes exposed in a fault trench?

Damage from Earthquakes: What is intensity and what is magnitude? Which one do people care about, which one do scientists care about, and why? What is MMI? What are some factors that control MMI? What are some examples of physical damage from earthquakes? What are some ways that these examples are controlled? What is one of the most destructive effects of an earthquake (that causes most damage; e.g. this happened following the 1906 San Francisco earthquake)?

Tsunami! What can cause a tsunami? What is the geological evidence for tsunami? What geological evidence is also found associated with tsunami deposits (e.g. along the Cascadia subduction zone)? What is the best way to avoid becoming a casualty during a tsunami (remember when I was talking about the mass of a cubic foot of water; how might this help you answer this question?)? What are some factors that control the size of a tsunami wave height? About how fast can a tsunami travel across the ocean (knots)? What plate boundaries might we associate with tsunami? What are some historic earthquakes that generated tsunami? Could you use the shallow water equation if you were given the equation and some data (solve for depth or velocity)?

Earthquake Recurrence: What are the four earthquake recurrence models (can you describe how they are different, especially the difference between time predictable and slip predictable)? Can you calculate the Recurrence Interval? What is the range in time for the Recurrence Interval for the different segments of the Cascadia subduction zone (the shortest one and the longest one)?