

ES734/834: EXAM III, 2002

DO #1, 2, 3 PLUS TWO MORE

1. Describe and explain resistivity profiling and resistivity sounding. Include purpose, field work and typical display of data. You do not need to explain interpretation or inversion of the data.
2. What do we mean by "equivalence" of models or sounding curves? Explain the criteria for equivalence for "H" curves OR "K" curves.
3. Explain, compare and contrast TWO of these ways to invert sounding data: least-squares, Monte Carlo, genetic algorithm. Explain how the inversion is done, what its goals are and the pros and cons of the method.
4. Compare and contrast resistivity sounding and seismic refraction as methods to determine water table depth in sediments.
5. Explain conduction of electricity in metals, electronic semi-conductors and solid electrolytes. Give a geological example of each category.
6. Explain how a (two-dimensional) pseudosection is produced. Explain the necessary field work and how the data are plotted to make a pseudosection. What is the purpose of such plots?
7. Write a brief thesis proposal for a project in which resistivity plays a large role. Include purpose, geology of area, field work, data interpretation and expected results.