EAS 421 Structural Geology and tectonics

Mid-term test format example and sample questions
Answer all the questions.
Time allowed: 45 minutes

1 The table shows tabulated eigenvalues and eigenvectors for a distribution of orientations of poles to planes. Neatly sketch an equal-area projection, with contours, to show a possible form for the distribution of data. (You are not expected to construct an accurate prijection)

	E1	E2	E3
Principal direction	30-173	07-079	59-338
Eigenvalue	0.15	5.82	28.02

2 Briefly explain one geological process that might produce a distribution of poles to planes like the above example.

3 You are provided with a vector diagram (Fig. 1) and a map (Fig.2) for a triple junction between three plates A,B, C. For each plate boundary, explain what is the type of boundary and what is the direction of relative plate motion.

4 a) What are strain axes?

b) On the diagram of deformed fossils (Fig. 3), ***estimate*** the approximate orientation of the strain axes and mark their orientations with appropriate symbols.

5 Explain the difference between:
a) Stress and strain
b) Normal stress and shear stress
c) Mean stress and deviatoric stress