Structural Geology Joints and Veins

This homework is for the lecture marked “Chapter 7 Joints” in topic folder 7.

1. Joints form
   1. parallel to the weakest normal stress 3
   2. perpendicular to the weakest normal stress 3.
2. A Joint is a fracture
   1. without measurable shear displacement
   2. with measureable shear displacement
3. Joints may have plumose surfaces because
   1. of imperfections in rocks that distort the local stress.
   2. rocks are nearly uniform.
4. For the same rock type and area, joints are
   1. closely spaced in thin bedded rocks.
   2. more widely spaced in thin bedded rocks
5. The greater the length of a joint
   1. the wider the stress shadow,
   2. the narrower the stress shadow.
6. In Hookes Law for elastic deformation,

the Elastic modulus *E*, aka Youngs’ modulus, is a measure of

1. stiffness
2. flexibility
3. Beds with large *E*
   1. develop a greater stress and fracture first.
   2. develop a smaller stress and fracture last.
4. Rocks with low tensile strength T0
   1. develop more closely spaced joints.
   2. develop more widely spaced joints
5. More strain (stretching) yields
   1. more joints
   2. fewer joints
6. When a stiff layer of rock is folded into an anticline, tensile cracks develop on the
   1. upper side
   2. lower side
7. In the mechanical weathering process know as exfoliation or unloading, the weakest stress 3 is
   1. vertical.
   2. horizontal
8. Compressive stresses can increase pore pressure and force cracks open.
   1. True
   2. False
9. In a rift valley, the weakest stress 3 is the horizontal tensile stress.
   1. True
   2. False

14. Joints are studied in petroleum exploration.

1. True
2. False.