QUIZ on Lecture P1_Wk5_L4

1. When scanning a feature having a smoothly varying height profile using contact mode AFM,

    a) the error in the measured topography will be zero everywhere
    b) the error in the measured topography will be zero at one point along the feature
    c) the error in the measured topography will be independent of the scan speed
    d) the error in the measured topography will occur when the tip is far from the edges of the feature

2. When imaging a trench-like feature using contact mode AFM, it is likely that

    a) the measured depth of the trench is always accurate
    b) the measured width of the trench is always accurate
    c) the measured width of the trench could be greater than its actual dimension
    d) the measured depth of the trench could be less than its actual dimension

3. When imaging a trench-like feature etched into a substrate to obtain reliable geometric dimensions

    a) it's best to scan over the trench feature as quickly as possible
    b) it's best to use a soft tip with a large radius to maximize the van der Waal's forces
    c) it's best to use a hard tip with a small radius to obtain the most accurate dimensions possible
    d) it's best to scan with a large set point force to maximize the indentation of the tip into the substrate

4. A step-like feature can appear as a depression in a contact mode AFT scan if

    a) the material of the step-like feature has a much lower modulus of elasticity than the surrounding substrate
    b) the material of the step-like feature has a much higher modulus of elasticity than the surrounding substrate
    c) the material of the step-like feature has the same modulus of elasticity as the surrounding substrate
    d) the modulus of elasticity of the tip is much smaller than the substrate