

QUIZ on Lecture P1_Wk4_L5

1. An adhesion map of a nominally uniform substrate
 - a) allows for a statistically meaningful measurement of the lift-off force of the tip from the substrate
 - b) can be correlated with topographic features on the substrate
 - c) requires a greater amount of time to complete than a topographic image
 - d) all of the above

2. An accurate map of the elastic modulus of a substrate as a function of position requires
 - a) knowledge of the cantilever spring constant
 - b) knowledge of the tip radius
 - c) a calibration of the optical sensitivity of the position sensitive detector
 - d) all of the above

3. Simultaneous measurements of adhesion and topography of a substrate might be referred to as a dual-probe AFM experiment because
 - a) such an experiment requires two separate cantilevers
 - b) such an experiment uses the same cantilever to achieve two different maps
 - c) such an experiment requires the tip to scan in both the +x and -x directions
 - d) such an experiment requires the tip to scan in both the +y and -y directions

4. Extracting the deformation of a hard substrate from a single force vs. displacement curve is inherently noisy because
 - a) to avoid drift, the data is acquired quickly, with little or no averaging
 - b) the z-positioner could be non-linear with displacement
 - c) the deformation is found by subtracting two numbers that usually have about the same value
 - d) all of the above