

QUIZ on Lecture P1_Wk5_L3

1. If a contact mode scan uses a cantilever with a spring constant of 0.05 N/m and if the set point deflection for the cantilever is set at 2.5 nm, the applied force the tip will exert on the substrate is
 - a) 0.05 nN
 - b) 2.5 nN
 - c) 50 nN
 - d) 0.13 nN
2. If a contact mode scan is acquired at a scan frequency of 1 Hz, how long will it require for the tip to complete one forward line scan in the image?
 - a) 10 s
 - b) 2 s
 - c) 0.5 s
 - d) 0.25 s
3. If a tip scans over a sharp step-like feature with a setpoint force of 1nN, the largest mean force exerted by the tip against the substrate is likely to occur
 - a) before the tip encounters the step-like feature
 - b) when the tip encounters the step-like feature
 - c) after the tip encounters the step-like feature
 - d) at any time during the scan
4. Using VEDA to simulate a contact mode scan of a tip scanning across a substrate, which of the following can NOT be easily simulated?
 - a) the influence of the finite tip radius on the sample topography
 - b) the influence of feedback gain control parameters on the substrate topography
 - c) the scan speed of the tip
 - d) any possible asymmetry in the shape of the tip apex