QUIZ on Lecture P1_Wk3_L5

1. In general, contact mode images acquired using an AFM instrument

i. are taken under constant force conditions
ii. exert non-negligible lateral forces between the tip and substrate
iii. can indent softer samples, sometimes causing permanent damage
iv. could be influenced by capillary force between the tip and substrate

a) Only statement i) is true
b) Only statement ii) is true
c) Only statement iii) is true
d) Only statement iv) is true
e) Only statements i) and iii) are true
f) All statements are true

2. An essential key to success in any AFM experiment is

a) a thoughtful selection of a cantilever
b) a careful alignment of the laser beam on a cantilever
c) good sample preparation techniques
d) all of the above

3. Feedback loops in AFM

a) require no tuning on your part, the optimal parameters are set once and for all time at the factory
b) usually require adjustment of a proportional, a differential and an integral controller
c) if improperly set, can cause the tip to oscillate as the tip scans over different features
d) are easy to use because they always respond without time delay as the tip scans over different features

4. Which of the following is **not** routinely attempted when performing a contact mode AFM scan?

a) positioning of the laser on the microcantilever
b) careful adjustment of feedback parameters
c) coarse approach of the tip to the substrate
d) selection of X and Y scan ranges
e) sharpening the tip at the end of the microcantilever
f) wait for AFM system to thermally stabilize