

QUIZ on Lecture P1_Wk3_L3

1. The primary reason microcantilevers are widely used in the practice of AFM is

- a) They are left over by-products from the fabrication of integrated circuits
- b) They are small and lightweight
- c) They serve as a convenient force transducer that converts an interaction force between a tip and a substrate into a measureable displacement
- d) They are simple to make

2. Microcantilevers have the useful property that

- a) the angular deflection of the cantilever is proportional to the magnitude of a point force applied to the end of the cantilever
- b) the deflection at the end of the cantilever is proportional to the magnitude of point force applied to the end of the cantilever
- c) they can be fabricated with spring constants that range between 1 N/m and 100N/m
- d) none of the above

3. In AFM, one use of a feedback circuit is to

- a) maintain a constant microcantilever deflection
- b) provide a digital timing signal to the computer
- c) adjust the X-Y scanning rate
- d) provide a digital time stamp for data files

4. Special care should be exercised to design an AFM instrument that

- a) works in a dark room
- b) maximizes thermal drift and isolates the microcantilever from floor vibrations
- c) minimizes thermal drift and isolates the microcantilever from floor vibrations
- d) works best at temperatures below 0°C