Lecture 2.1: Introduction (band bending in MOS capacitors)

1) If the energy bands of the semiconductor part of an MOS capacitor in equilibrium bend **down** at the surface, which of the follow is **not** true?
   a) The electrostatic potential at the surface is more positive than in the bulk.
   b) The electric field near the surface points from the surface to the bulk.
   c) The electron density near the surface is larger than in the bulk.
   d) The hole density near the surface is smaller than in the bulk.
   e) The Fermi level bends down near the surface.

2) Consider a MOS capacitor with an n-type semiconductor in **accumulation**. Which of the following is true? HINT: $B < 0$ for an n-type semiconductor.
   a) $s > 0$.
   b) $s = 0$.
   c) $s < 0$.
   d) $s < B$.
   e) $s < 2B$.

3) Consider an MOS capacitor with an n-type semiconductor in **inversion**. Which of the following is true? HINT: $B < 0$ for an n-type semiconductor.
   a) $s > 0$.
   b) $s = 0$.
   c) $s < 0$.
   d) $s < B$.
   e) $s < 2B$. 