Review Questions

1. What is a flatband diagram?
2. Define the barrier height of a metal-semiconductor junction. Can the barrier height be negative? Explain.
3. Define the built-in potential. Also provide an equation and state the implicit assumption(s).
4. Name three possible reasons why a measured barrier height can differ from the value calculated using equations (3.2.1) or (3.2.2).
5. How does the energy band diagram of a metal-semiconductor junction change under forward and reverse bias? How does the depletion layer width change with bias?
6. What is the full depletion approximation? Why do we need the full depletion approximation?
7. What mechanism(s) cause(s) current in a metal-semiconductor junction?