Introduction to Semiconductor Devices
(Purdue University EE 305)
Supplemental Homework Exercises

Tutorial question based on crystals using the crystal viewer program on http://nanoHUB.org.
Reference / course book: Semiconductor Device Fundamentals by Robert E. Pierret

Q1. Exercise 1.1 from the book.

Q2. What are the various Bravais lattices ?

Q3. How many atoms per unit cell are present in the following Bravais lattices :
      [a] Face Centered Cubic
      [b] Body Centered Orthorhombic.
      [c] Hexagonal

Q4. What are the crystal systems for the following materials:
      [1] Silicon
      [2] Gallium Arsenide (GaAs).

Q5. Exercise 1.2 from the book.

Q6. Draw the miller planes for the following miller indices and verify using the crystal viewer program:
      [a] 2 0 0 [b] 3 2 1 [c] 0 2 4 [d] 2 3 6

Q7. Exercise 1.4(b). Verify the result using crystal viewer program.