Properties of Materials
Quiz 1 (Date: 10/01/2010)

1. Consider C type conventional cubic lattice with a = 2i, b = 2j, c = 2k. What would be the translation vectors for the primitive unit cell? What is the lattice structure of the primitive unit cell? Calculate the volume of the primitive unit cell. (20+20+10)

(Hint: C type have atoms at centre of (001) faces)

1. Show  and  planes on a cubic lattice. Also show [110] and  directions in the same diagram. (20+10)

(Hint: You should be able to figure out that [110] and  directions represent the intersection of the two planes  and )

1. Determine the Miller indices of a plane that makes an intercept of 3Å, 4Å and 5Å on the coordinate axes of a orthorhombic crystal with a:b:c = 1:2:5. (20)

(Hint: Orthorhombic ⇒ α = β = γ = 90ο and a ≠ b ≠ c)