

所別： 材料工程研究所 組別： _____ 科目： 材料導論

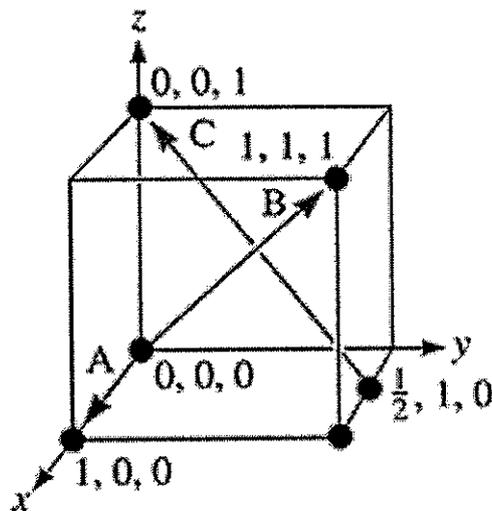
注意： 不准 一般計算器 工程用計算器，考試時間總計：100 分鐘。試題共 1 頁，第 1 頁

1. For the HCP crystal structure, show that the ideal c/a ratio of lattice constant is 1.633. (20%)

2. What is the coordination number of the FCC crystal structure?

Please draw a picture to explain your answer. (10%)

3. Determine the indices for the directions shown in the below cubic unit cell. (15%)



4. Please explain the edge、screw and mixed dislocation. (30%)

5. Consider a single crystal of BCC iron oriented such that a tensile stress is applied along a $[010]$ direction. Compute the resolved shear stress along a (110) plane and in a $[\bar{1}11]$ direction when a tensile stress of 52 MPa is applied. (25%)