

國立成功大學
110學年度碩士班招生考試試題

編 號： 168

系 所： 電機工程學系

科 目： 電子材料概論

日 期： 0202

節 次： 第 2 節

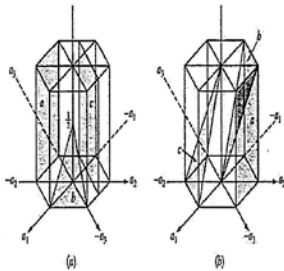
備 註： 不可使用計算機

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Briefly explain the following items (45%)

- (a) Dislocation
- (b) Bragg's law for x-ray diffraction
- (c) grain boundary
- (d) solid solution
- (e) stacking fault
- (f) ionic bonding
- (g) ferroelectric
- (h) ferromagnetic
- (i) yield strength

2. (a) Plot face-centered cubic structure (b) Calculate volume density of a body-centered cubic (c) Determine the Miller-Bravais indices (a-c) of the following hexagonal crystal planes. (d) What is amorphous materials? (e) Compare the closest packed planes in hcp and fcc structures. (25%)



3. What is the domain and domain walls of a magnetic material? (10 %)

4. Plot the band diagram of the ohmic contact and Schottky contact of a metal and p-type semiconductor interface. (10%)

5. For a MOS diode, describe the effects of the interfacial trapped charge, fixed oxide charge, oxide-trapped charge and mobile ionic charge on the flat-band voltage. (10%)