國立雲林科技大學 108 學年度 碩士班招生考試試題

系所：電子系

科目：半導體元件

1. Describe the energy band gap differences in the insulator, semiconductor, and metal materials. (15%)

2. Describe briefly the formation of the build-in potential in a p-n junction diode. (15%)

3. Describe the crystal structure of the poly-crystalline silicon. (20%)

4. Explain
   (a) Low injection for pn junction (5%)
   (b) Zener breakdown (5%)
   (c) One-sided pn junction (5%)
   (d) Diffusion length (5%)

5. Explain the reasons of the dominant current component are electron or hole current of p^+n, n^+p, Np and Pn junction, where + and N (or P) mean high doping concentration and wilder band gap material, respectively. (15%)

6. How to make metal/n-type (or p-type) semiconductor to be a Schottky Diode? (15%)