

## 國立臺灣科技大學

## 九十三學年度碩士在職專班招生考試試題

系所組別：材料科技研究所

科目：材料科技實務

總分 100 分

1. In the crystal structures and crystal geometry, what are the 14 Bravais unit cells? (15 pts)
2. What are the three most common metal crystal structures? List two metals which have each of these crystal structures. (15 pts)
3. What is the coordination number for the atoms in the FCC crystal structure? (10 pts)
4. In the solidification of a metal what is the difference between an embryo and a nucleus? What is the critical radius of a solidifying particle? (15 pts)
5. Write the equation for Fick's first law of diffusion in solids and define each of the terms in SI units. (15 pts)
6. In the semiconductor applications describe how a pn junction diode can function as a current rectifier. (15 pts)
7. In phase equilibrium what are eutectic, eutectoid, peritectic, and peritectoid reactions? (15 pts)