

淡江大學九十一學年度碩士班招生考試試題

系別：化學工程學系

科目：材料科學

准帶項目請打「○」否則打「x」	
計算機	字典
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本試題共 1 頁

1. Is it possible that a ceramic or ionic solid might be a reasonable conductor of electricity? What needs to occur? [20 pts]

2. Consider the ionic compound Li_2O .
 - (a) Describe what a Schottky defect would look like in this compound. [10 pts]
 - (b) Describe what a Frenkel defect would look like in this compound. [10 pts]

3. You suspect a material contains both crystalline and noncrystalline regions. How might you test your hypothesis? [15 pts]

4. Suppose you have a sample of a material. You suspect there are numerous large voids in the material, randomly spaced. How can you test your hypothesis? [15 pts]

5. Does the strength of a metal increase or decrease as its grain size decreases? Explain your answer. [15 pts]

6. When a transparent PET film is stretched slowly at room temperature, it often remains transparent; however, when it is stretched at $130\text{ }^\circ\text{C}$, it may become opaque. Why? [15 pts]