

科目：計算理論 B

日期：109 年 7 月 14 日 第 1 頁 共 1 頁

請 “✓” 明 ✓不可看書 可看書

* 請將答案依題號順序寫入答案卷

答題時字跡需工整，否則不予計分。Write your answers legibly; otherwise you will get zero score.

1. (10%) Prove or disprove that $A \cap B$ is a regular language if A and B are both regular.
2. (10%) Prove or disprove that $A \cup B$ is not a regular language if A and B are both nonregular.
3. (10%) Prove or disprove that $A \cap B$ is a context-free language if A and B are both context-free.
4. (10%) Prove or disprove that $L_4 = \{ a^i b^j c^k \mid i=j \text{ or } j=k \}$ is a context-free language.
5. (10%) Prove or disprove that the complement of $L_5 = \{ 0^n 1^n \mid n \geq 0 \}$ is a context-free language.

◎請用深黑色鋼筆或原子筆出題

命題老師簽名：