

# 淡江大學八十七學年度碩士班入學考試試題

系別：機械工程學系

科目：機械製造

本試題共 1 頁

Please write down your answers in Chinese or in English clearly.

- (1) Explain the following terms clearly and briefly. (25%)
  - (a) Microhardness
  - (b) Shape-memory alloys
  - (c) Single-crystal growing
  - (d) Solid-state bonding
  - (e) Diamond coating
- (2) Why is injection molding capable of producing parts with complex shapes and fine detail? (15%)
- (3) What are the capabilities of electrical discharge wire cutting? Could this process be used to make tapered pieces? Explain. (20%)
- (4) Why is silicon the semiconductor most used in IC technology? (15%)
- (5) How do you make a microscopic gear shown in the following figure? Please try to list a set of the possible manufacturing processes in your own mind. (Hint : material selection, machine selection, manufacturing processes, final treatment, cost evaluation, ....) (25%)

Human hair

