

國立臺北科技大學九十七學年度碩士班招生考試

系所組別：1522 自動化科技研究所乙組

第二節 計算機概論 (選考) 試題

填 准 考 證 號 碼

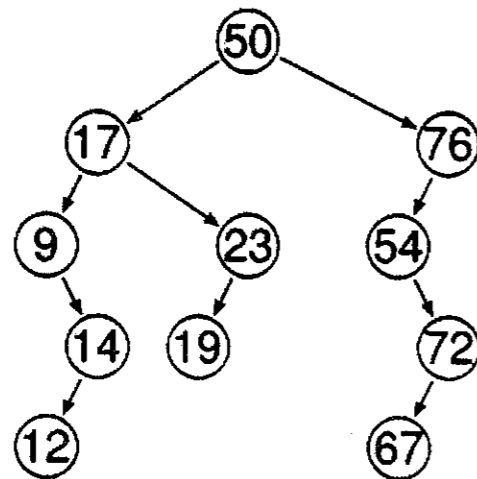
--	--	--	--	--	--	--	--	--	--

第一頁 共一頁

注意事項：

1. 本試題共四題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Please explain the following terms: (5% each, total 25%)
 - (1) IEEE 754 Standard
 - (2) Harvard architecture
 - (3) von Neumann architecture
 - (4) RISC
 - (5) CISC
2. Please answer the follow questions:(25%)
 - (1) Please identify three differences between binary-tree and AVL-tree. (15%)
 - (2) Convert the following non AVL tree to a height-balanced AVL tree. Explain in detail how the conversion is done. (10%)



3. What are the necessary conditions for a deadlock to occur in a multi-processing system? (20%) How is a deadlock detected when it occurred? (5%)
4. Consider the description of the reproduction of a population of idealized bees, according to the following rules:
 - If an egg is laid by an unmated female, it hatches a male.
 - If, however, an egg was fertilized by a male, it hatches a female.Thus, a male bee will always have one parent, and a female bee will have two.

If one traces the ancestry of any male bee (1 bee), he has 1 female parent (1 bee). This female had 2 parents, a male and a female (2 bees). The female had two parents, a male and a female, and the male had one female (3 bees). Those two females each had two parents, and the male had one (5 bees). This sequence of numbers of parents is the Fibonacci sequence. Write a function that calculates the Fibonacci number of any given number using recursive technique in C language based on ANSI C function prototype and parameter declarations. (25%)