

# 淡江大學 104 學年度碩士班招生考試試題 50

系別：資訊管理學系 B 組

科目：計算機概論

考試日期：3 月 8 日(星期日) 第 2 節

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- Regarding operating systems, explain the following terms : (18%)
  - time slice
  - dead lock
  - spooling
  - mutual exclusion
  - paging
  - garbage Collection
- Please give a recursive subroutine in pseudocode, java, C or C++ that calculates and returns  $a^b$ , where a and b are positive integers. (10%)
- Ten numbers are inserted into an initially empty binary search tree (BST) in the following order : 48, 40, 60, 80, 90, 56, 52, 54, 53, 70. (12%)
  - draw the final BST
  - draw the BST after deletion of 52 from the BST in (a)
  - draw the BST after deletion of 60 from the BST in (b)
- Convert the following decimal numbers to its equivalent 8-bit two's complement representations.
  - 81
  - 31
  - 92(12%)
- Discuss the result of the following operations. The integers are represented by the 8-bit two's complement notation. (12%)
  - $(-93) + (-42)$
  - $95 + (-121)$
  - $56 + 72$
- If overflow in the static hash table is handled by linear probing, (12%)
  - Describe the most efficient way to determine if the key to search is or is not in the table.
  - Discuss the drawback of linear probing.
- In general, there are three kinds of registers in CPU. Please list them and give the contents and purpose of each of them. (12%)
- Given the following graph, show **all** the orders in which the vertices are visited using (a) Breadth-First-Search and (b) Depth-First-Search starting from vertex A. (12%)

