

科目 計算機概論 類組別 A-4 共 4 頁第 4 頁 *請在試卷答案卷(卡)內作答

24. (6%) Given that the base address of a 3-dim array $A[0:m, 0:n, 0:p]$ is 1000 (decimal), please calculate the address of $A[i, j, k]$ (in decimal) using column-major memory allocations. Each element of the array takes 2 byte.
25. (6%) Please write a C program that exhibits the problem of memory leakage. Please write another C program that exhibits the problem of a dangling pointer.
26. (6%) Tom bought a hard disk, which claimed to be a capacity of 200 million bytes. But Microsoft Windows said it has only 190.7 MB. Tom called the disk manufacturer to complain about the missing 9 million bytes, but it insisted its claim of 200 million bytes was true. Can you explain why?
27. (6%) A number 100 is stored in an integer variable K. A text string "100" is stored in a string variable S. Are variables K and S stored differently in the memory? How are they most likely stored in the memory?
28. (6%) Give an advantage that a sequential file has over an indexed file.
29. (6%) Please explain the difference between physical address and virtual address and how a virtual address is translated to a physical address.
30. (6%) What is the difference between the two terms in each of the following questions?
 - (a) an open network and a closed network
 - (b) a worm and a virus