

大同大學 九十一 學年度研究所碩士班入學考試試題

考試科目:計算機概論

所別:電機工程研究所

第 全 頁

註:本次考試 不可以參考自己的書籍及筆記; 不可以使用字典; ㊟可以使用計算器。

1. Will deadlocks occur among threads without I/O in a multiprogramming OS using RR CPU scheduling? (5%)
Why or Why not? (5%) Please also describe the required conditions for a deadlock to occur in such environment. (5%)
2. Given a Function G , $G(0) = 0$, $G(1) = 1$, $G(n) = G(n-1) + G(n-2)$ for $n \geq 2$, n is a integer. Write a pseudo code using recursion to find $G(n)$, (5%) calculate the time complexity (5%) and space complexity (5%) of your code, and describe their asymptotic behavior. (5%)
3. The format for IEEE single precision floating-point numbers uses 32 bits divided in the following way: sign (s) using 1 bit; exponent (e) using 8 bits (bias=127); fraction (f) using 23 bits. The format for IEEE double precision floating-point numbers uses 64 bits divided in the following way: sign (s) using 1 bit; exponent (e) using 11 bits (bias=1023); fraction (f) using 52 bits. The value of an IEEE floating-point number is $(-1)^s \cdot (1.f) \cdot 2^{(e - \text{bias})}$. Use the hexadecimal representation to represent a real number 30.125 using IEEE single precision floating-point format. (5%) Use the hexadecimal representation to represent a real number 30.125 using IEEE double precision floating-point format. (5%)
4. Describe the relationship between WWW and Internet, (5%) and TCP/IP and HTTP, (5%).
5. What are the major differences between a Compiler and an Interpreter, (5%) and RISC and CISC? (5%)
6. UML uses 4 + 1 views to model a system, what are these views (5%) and their functions? (5%)
7. Briefly describe the Client/Server architecture. (5%)
8. In an IBM PC using an Intel x86 CPU under the Real mode, what will happen immediately after a valid "CALL" instruction executed? (5%)
9. Briefly describe the software development process. (5%)
10. What is the C++ Standard Template Library (STL)? (5%) What are the differences between a C++ template class and a C++ class? (5%)