國立嘉義大學九十三學年度

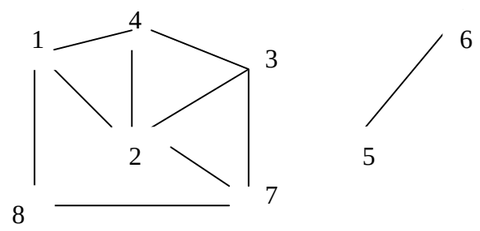
運輸與物流工程研究所碩士班招生考試（物流組）試題

科目：計算機概論

一、Please explain the following terms: (20%)

1. Inverted file.
2. Intelligent agent
3. CPU utilization
4. Branch target buffer
5. ‘Buddy system’ in memory storage management

二、Express the following undirected graph with adjacency lists? (10%)



三、Describe five types of addressing mode in MIPS. (10%)

四、The factorial function n! has value 1 when n≤1 and value n*(n-1)! when n>1. Write both a recursive and an iterative C function to calculate n!. (10%)

五、What are the results of the following procedure? (30%)

1. Set N_{max} = 8 and n = 1
2. Set a(n)=0, b(n)=0, x(n)=0, w(n)=0 and z(n)=0 for all n=1,2,…, N_{max}
3. Set a(n) = -64, b(n) = 64 and, z(n) = a(n) - 3
4. While (n < = N_{max}) do steps 5 – 8
5. Set x(n) = (b(n)+a(n))/ 2 and w(n) = x(n) – 3.
6. If w(n) = 0 or (b(n)-a(n))/2 < 0.01 then go to step 9.
7. Set n = n + 1.
8. If z(n-1)*w(n-1) > 0, then
   set a(n) = x(n-1) , b(n)=b(n-1) and z(n) = w(n-1),
   else
   set a(n)=a(n-1), b(n) = x(n-1) and z(n)=z(n-1)
   end if
9. Output a(5), b(5), z(5), x(5), w(5), a(7), b(7), z(7), x(8) and w(8).

六、Let $(S)_n$ denote a place-value notation. The number S is based on the subscript number n. For example, a binary number 101 is represented by $(101)_2$, a octal number 57 is represented by $(57)_8$, a decimal number 59 is represented by $(59)_{10}$, and a hexadecimal number 13 is represent by $(13)_{16}$. Please convert the values of the right hand side to the values of the left hand side.

1. Convert binary number $(10101010101)_2$ into decimal number ( )$_{10}$. (5%)
2. Convert binary number $(11111101111)_2$ into octal number ( )$_8$. (5%)
3. Convert hexadecimal number $(B9E1)_{16}$ into decimal number ( )$_{10}$. (5%)
4. Convert decimal number $(.367)_{10}$ to binary number ( )$_2$. (5%)