淡江大學96學年度進修學士班轉學生招生考試試題 121

系別：資訊工程學系三年級　　科目：資 訊 概 論

本試題共 7 頁

P.1

1. Print out the conversion of the following infix expression to postfix (10%)
   (a) 2 * (3 + 4) - 5
   (b) 2 + ((5 – 3) * 6) / 4

2. There are three kinds traversal to a binary tree. To these we assign the names inorder, preorder, and postorder. If a binary tree, it's inorder traversal is DBHEIAFCG, and preorder traversal is ABDEHICFG.
   (a) According to inorder and preorder to construct a binary tree. (Hint: T_LNT_R (inorder) N$T_L T_R$ (preorder)) (10%)
   (b) Print out the postorder traversal. (10%)

3. Using the following sequence number to construct a binary search tree (BST)
   40, 30, 65, 50, 25, 35, 26, 33, 10, 34 (10%)

4. Show the Depth-First Search (DFS) and Breadth-First Search (BFS) of the Figure 1 from vertex 1 to visit others. (10%)

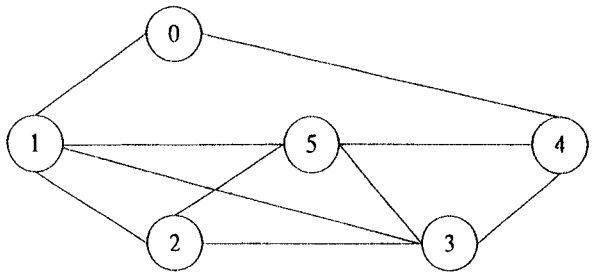

Figure 1

5. Show the ***average time complexity*** and ***worst-case time complexity***. (10%)
   (a) Quick Sort
   (b) Heap Sort
   (c) Binary Search
   (d) Binary Search Tree (search a key)
   (e) AVL Tree (search a key)

6. Print out the value when the following program is executed. (10%)

```
#include <iostream>
int RecursiveRoutine(int);
int main(void)
{
    cout<<RecursiveRoutine(6)<<endl;
    return 0;
}
```

```
int RecursiveRoutine(int x)
{
    if (x <=0) return 0;
    if (x % 2) return 0;
    return RecursiveRoutine(n-1) + n;
}
```

7. Print out the value of sum ? (10%)

(a)

```
int sum = 0;
int i;
for (i=1; i<=10; i++)
{
    if (i%2) break;
    sum = sum + i;
}
cout<<"sum = "<<sum<<endl;
```

(b)

```
int sum = 0;
int i;
for (i=1; i<=10; i++)
{
    if (i%2) continue;
    sum = sum + i;
}
cout<<"sum = "<<sum<<endl;
```

8. Choose the correct answer (20%)

本試題雙面印製

淡江大學96學年度進修學士班轉學生招生考試試題 12-2

系別：資訊工程學系三年級　　科目：資 訊 概 論

本試題共 2 頁

P.2

(a) What is the decimal number 151 in binary? (1) 10010110 (2) 10010111 (3) 10101011 (4) 10010011
(b) At which layer of the TCP/IP model are FTP and HTTP located? (1) application (2) transport (3) internet (4) network
(c) Which best describes a MAC address? (1) a 48 bit address consisting of 24 bits for OUI and 24 bits for vendor (2) a 32-bit address that consists of a network number, an optional subnetwork number, and a host number (3) a 48 bit address that is administered by InterNIC (4) a set of four numbers that use a hierarchical addressing scheme
(d) What private company created Ethernet? (1) Microsoft (2) IBM (3) Xerox (4) Cisco
(e) Which of the following is the approximate number of hosts supported in a Class B unsubnetted network? (1) 254 (2) 2024 (3) 65 thousand (4) 16 million
(f) How many bits are in an IP address? (1) 4 (2) 8 (3) 16 (4) 32
(g) Which protocol is used to dynamically assign IP addresses? (1) DHCP (2) ARP (3) proxy ARP (4) IGRP
(h) What type of server is used to translate a domain name into the associated IP address? (1) FTP (2) DNS (3) TFTP (4) DHCP
(i) What is the language used to create web pages? (1) HTTP (2) HTML (3) GIF (4) ASCII
(j) How many pins are on each of the ports of a patch panel? (1) 4 pins (2) 8 pins (3) 11 pins (4) 45 pins

注意：1、考試求公平及公正，請同學務必自律，維護學校與學生之榮譽。

2、考試時不得交談、攜卷出場、窺視、傳遞、代考、夾帶等違規行為，違者將受嚴重議處。