八十七學年度 ___工業工程___ 系 (所) ___工工甲___ 組碩士班研究生入學考試

科目 ___計算機概論___ 科號 3303 共 3 頁第 _1_ 頁 *請在試卷【答案卷】內作答

(10%) 1. 請解釋下列各名詞：

    (1) VOD   (2) CD-R/W   (3) DVD   (4) Metaphor   (5) DDE

    (6) Distance Learning   (7) CD-I   (8) FTP   (9) JavaScript

    (10) HTML.

(4%)   2. 在一個主從(Client-Servers)架構之網路系統中，請問：

    Client 與 Servers 所指為何？

(6%)   3. 請問軟體測試的目標為何？一個好的軟體測試程式應具備那些條件？

(5%)   4. 何謂 Internet, Intranet, 以及 Extranet？簡單解釋三者間的差異。

(5%)   5. 解釋並比較下列幾種語言的優缺點：machine languages, assembler languages, high-level languages, Fourth-generation languages.

(10%) 6. 下列程式執行結束後會有什麼結果？

```
Main ()
  {
      static int numbers[10] = {1,1,0,0,0,0,0,0,0,0};
      int i, j;

      for ( j = 0; j < 10; ++j)
        for ( i = 0; i < j; ++i)
            numbers[j] = numbers[j] + numbers[i];
      for ( j = 0; j < 10; ++j)
          printf ("%d\n", numbers[j]);
  }
```

(5%)   7. 請指出下列程式的錯誤：

```
main()
{
  int two = 2;
  typing(two);
}

typing(num)
float num;
{
  printf("%f", num);
}
```

(5%) 8. 若有下列宣告

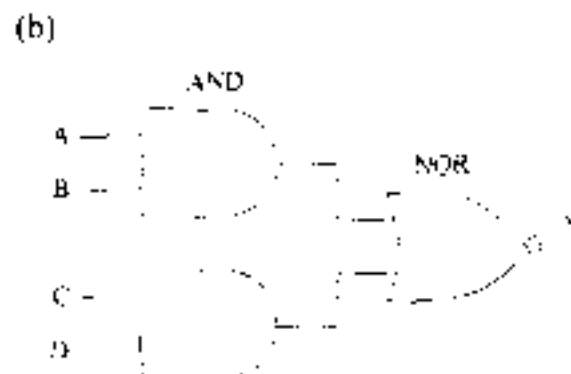　　　static char s7[] = "Titanic was called the ship of dreams";

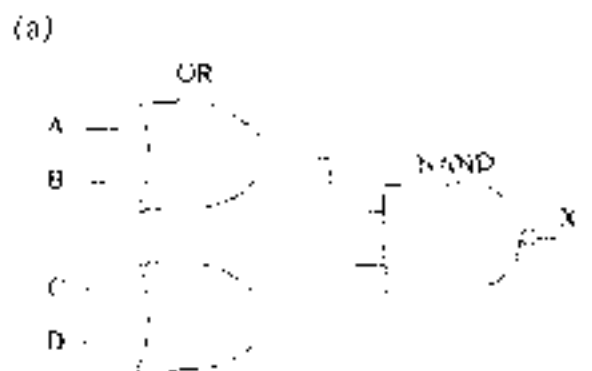　　則下列敘述將會印出什麼結果？
　　(a) printf("%s\n", s7);
　　(b) printf("%s\n", &s7[0]);
　　(c) printf("%s\n", s7+12);

(5%) 9. 假設某一 Function INT() 之功能是傳回小於某一負數之最大負整數，例如 INT(-4.5) = -5，試利用此一 Function 撰寫一計算郵件郵資之函數 Postage(Weight)，此函數讀進郵件重量 Weight 後，根據下列原則計算郵資：前 10 公克 15 元，超過 10 公克則每增加 10 公克加 13 元，增加之重量不足 10 公克時，以 10 公克計之。

(5%) 10. Explain the various addressing modes for a typical microprocessor.

(10%) 11. Draw the truth table and write the boolean expressions for X and Y in the following logic circuits:

(a)

(b)

(10%) 12. Convert the following numbers according to the requirements:
　　• $(A23)_{H}$ (Hexadecimal) to BCD
　　• $(1001\ \ 0100\ \ 0101)_{BCD}$ to hexadecimal
　　• 321_{8} (8-based) to Hexadecimal
　　• 243_{10} (10-based) to octal (8-based)

(10%) 13 As an Industrial Engineer you must develop a program to accept or reject a rod-shaped machine part according to the following criteria: Its length must be not less than 77.5 mm(7.75 cm) nor great than 78.5 mm (7.85 cm); it diameter must be not less than 3.35 mm(0.335 cm) nor great than 3.46 mm(0.346 cm).　In addition, under no circumstances may its mass exceed 5.6 g. Note that the mass is equal to the volume (cross-sectional area times length) multiplied by the rod's density (7.8 g/cm³).　Write a FORTRAN Program to input the length and diameter of a rod and print out whether it is accepted or rejected. If it is rejected, print out the reason (or reasons) for rejection.

(10%) 14. Treasure hunt.

A secret code is buried in a binary tree whose nodes are in the form:

```
struct node {
    int code;
    struct node *parent;
    struct node *left;
    struct node *right;
};
```

Also:

```
struct node *start,   /* contains the root address of the binary tree structures */
            *found;
```

Assuming that there is only one structure containing the integer 2222, using depth-first approach write a program to recursively search for the address of the structure which contains the secret code, 2222. Place the found address in the pointer "found".