國立臺北科技大學 101 學年度碩士班招生考試

系所組別：3160 土木與防災研究所已組

第一節　計算機概論　試題

> **注意事項：**
> 1. 本試題共七題（單選題四題，程式撰寫三題），配分共 100 分。
> 2. 請標明大題、子題編號作答，不必抄題。
> 3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

一. 單選題 (共 4 題，每題 10 分，共 40 分)　(答案為 A, B, C, 或 D。不得回答數字。)

1. What is the **n** after running the following C/C++ statements? (10 分)

```
int ii, jj, n = 0;
for (ii = 0 ; ii < 3; ii++)
    for (jj = 0 ; jj < 3; jj++)
        n = n + 1;
```

(A) 2　　(B) 3　　(C) 8　　(D) 9

2. What is the **m** after running the following C/C++ statements? (10 分)

```
int ii = 0, jj = 0, m = 0;
for (ii = 0 ; ii < 5; ii++) {
    for (jj = 0 ; jj < ii; jj++)
        m = m + 1;
    m = m + 1;
}
m = m + 1;
```

(A) 5　　(B) 16　　(C) 20　　(D) 27

3. What is the **invp[3]** after running the following C/C++ statements? (10 分)

```
int perm[6] = { 1, 5, 0, 3, 2, 4 }, invp[6], ii;
int dat1[6] = { 8, 4, 9, 6, 7, 5 }, dat2[6];
for (ii = 0 ; ii < 6; ii++)
    invp[perm[ii]] = ii;
for (ii = 0 ; ii < 6; ii++)
    dat2[ii] = dat1[invp[ii]];
```

(A) 0　　(B) 3　　(C) 4　　(D) 5

4. Refer to the above question. What is the **dat2[3]** ? (10 分)

(A) 4　　(B) 5　　(C) 6　　(D) 7

二. 程式撰寫 (共 3 題，每題 20 分，共 60 分)　(以整齊字體書寫程式碼，並給予適當縮排。只需寫程式碼。不需寫執行結果。)

Write a program for each of the following question. You can use BASIC, C, C++, C#, FORTRAN, Java, MATLAB, Objective-C, Pascal, Perl, Python, or Tcl.

1. Write a program which calculates

$$\sum_{K=1}^{1000} \left(\frac{1.0}{1.0 + \left(\dfrac{K}{1000.0}\right)^2} \right)$$

and prints the result.　(20 分)

2. Write a program which asks the user to input an integer N from the keyboard, and prints an upside-down isosceles triangle by outputting N lines of asterisks and blanks. For example, if the user inputs 5, your program prints:　(20 分)

```
*********
 *******
  *****
   ***
    *
```

3. The ideal gas law is written as

$$PV = NRT$$

where P, V, N, R, and T are the pressure, volume, number of moles, a constant, and absolute temperature, respectively. Write a program that asks the user to input V, N, and T from the keyboard. Your program then calculates the pressure P, and prints it. Assume the constant R is 0.08206.　(20 分)

-------------------------------- 此線之後無試題 --------------------------------

英文單字之參考中譯：

upside-down (a.)　上下顛倒的
isosceles (a)　　等腰的；二等邊的
asterisk (a)　　星號
ideal gas law (n.)　理想氣體定律
mole　　[化學]摩爾