電概期末考試題　教師: 蔡志宏 考試日期: 1997 Jan. 15.

1. Consider the following type student_t.(18%)

```
typedef struct{
        char name[20];
        char initial;
        int score;
        } student_t;
        ..........
        ..........
        student_t stu1,stu2,stu[50];
        ......
```

Determine the statements that are valid; if it is definitely invalid, please explain.

(a) stu2.score=stu1.score;

(b)
```
if(stu2==stu1)
    print("Equal");
```

(c) stu2->score =stu1->score;

(d) stu2.name=stu1.name;

(e) scan_student(&stu1);

(f) student_t name[0]=student_t.name[1];

2. Explain the differences between (6%)

```
&*plap.diameter
```

and

```
&(*plap).diameter
```

3. Write a C function to find the size of each string in name[] and store their sizes in size[], you must use arrays of pointers as the arguments. (18%)

```
char name[20][20];
int size[20];
```

That is, the funcion must be executed as

```
find_size(&name, &size,....);
```

(Hint: you may use the function in string library, strlen(a_string).)

4. Write a C funcion with type int argument n and type double argument x that return the value of

$$X + \frac{X^2}{2} + ...+ \frac{X^n}{n}$$ (16%)

5. Consider this enumerated type definition

```
typedef enum
    {jan, feb, mar, apr, may, jun, jul,
     aug, sep, oct, nov, dec}
month_t;
```

Write a function next_month that takes a month_t parameter and returns the type month_t abbreviation that follows. Let jan follow dec. (12%)

6. Consider these declarations,

```
char socsec[12]= "123-45-6789";
char ssnshort[7], ssn1[4],ssn2[3],ssn3[5];
```

write statements to accomplish the following

(a) store in ssnshort as much of socsec as will fit.

(b) store in ssn1 the first 3 characters of socsec.

(c) store in ssn2 the middle 2 digits of socsec. (12%)

7. What is the value of t1 after execution of the following statements (6%)

```
char t1[20],t2[20];
t2="Merry Christmas";
strncpy(t1,&t2[3],5);
t1[4]='\0';
```

8. Write the statements to convert a string of characters so that the first character of each word in the string becomes in Capital.

For example,

if t1="This is a book"

then after execution,

the final value of t1 is "This Is A Book". (12%)