

國立臺北科技大學 106 學年度碩士班招生考試

系所組別：1504 自動化科技研究所

第二節 程式設計 試題 (選考)

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注意事項：

1. 本試題共 9 題，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。

1. Will the program output "TaipeiTech"? Why, or Why not, please state your reasons. (10%)

```
#include<stdio.h>
#include<string.h>

int main()
{
    char str1[] = "TaipeiTech";
    char str2[20];
    strncpy(str2, str1, 8);
    printf("%s", str2);
    return 0;
}
```

2. Assuming, an integer occupies 2 bytes in memory, what will be the output of the program? (10%)

```
#include<stdio.h>

int main()
{
    printf("%x\n", -2<<2);
    return 0;
}
```

3. What will be the outputs of the program shown below? (10%)

```
#include<stdio.h>
int fun(int);
int main()
{
    float k=3;
    fun(k=fun(fun(k)));
    printf("%f\n", k);
    return 0;
}
int fun(int i)
{
    i++;
    return i;
}
```

4. Point out the warning in the following program if it is compiled by an ANSI C compiler. How do you resolve the warning? (20%)

```
#include<stdio.h>
int main()
{
    display();
    return 0;
}
void display()
{
    printf("TaipeiTech");
}
```

5. What is the value of variable 'count' after the following code segment is executed? (10%)

```
count = 0;
for(i=5; i<=10; i=i+1)
    for(j=1; j<=i; j=j+1)
        for(k=1; k<=j; k=k+1)
            if (i == j)
                count = count + 1;
```

6. Fix the following program so the output of the program is "TaipeiTech". (10%)

```
#include<stdio.h>

int main()
{
    char str = "TaipeiTech";
    printf("%s\n", str);
    return 0;
}
```

7. How many times will the 'printf()'function be executed? (10%)

```
for(i=0; i<7; i++)
    for(j=0; j<i; j++)
        printf("%d, %d",i,j);
```

8. Can a 'switch' statement in C or C++ program be used to switch on strings? Please express your reason. (10%)
9. Is it true that too many recursive calls may result into stack overflow? Please express your reason. (10%)