109AT05

國立臺北科技大學 109 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）

注意事項：

1. 本試題共 10 題，每題 10 分，共 100 分。
2. 不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

NOTE: State the reasons how and why your reach the answer. ZERO point if you simply give the answer.

1. Consider the code shown below, what are the outputs of the code? (10%)

```
#include <stdio.h>
void fun(int *p)
{
  int q = 10;
  p = &q;
}
int main()
{
  int r = 20;
  int *p = &r;
  fun(p);
  printf("%d", *p);
  return 0;
}
```

2. Consider the following declaration of a ‘two-dimensional array in C:

```
char a[100][100];
```

Assuming that the main memory is byte-addressable and that the array is stored starting from memory address 0, what is the address of a[30][40]? (10%)

3. Consider the code shown below, what are the outputs of the code? (10%)

```
#include<stdio.h>
int main()
{
        char i = 0;
        for(;i++;printf("%d", i)) ;
        printf("%d",i);
        return 0;
}
```

4. Consider the code shown below, what are the outputs of the code? (10%)

```
#include <stdio.h>
int main()
{
        struct node
        {
        int a, b, c;
        };
        struct node num = {3, 5, 6};
        struct node *ptr = & num;
        printf("%d\n", *((int*)ptr + 1 + (3-2)));
        return 0;
}
```

5. Consider the code shown below, what are the outputs of the code? (10%)

```
#include <stdio.h>
int XX(int n) {
   if(n == 0){
      return 1;
   } else if(n == 1) {
      return 3;
   } else {
      return (XX(n-1) + XX(n-2));
   }
}
int main() {
   int n = 5;
   int i;
           printf("%d ",XX(7));
}
```

注意：背面尚有試題

6. Consider the code shown below, what are the outputs of the code? (10%)

```
#include<stdio.h>
int main()
{
        int *ptr = fun();
        printf("%d", *ptr);
        return 0;
}
int fun()
{
        int num = 10;
        return num;
}
```

7. Consider the code shown below, what are the outputs of the code? (10%)

```
#include <stdio.h>
struct employee{
    int empId;
    char *name;
    int age;
};
int main()
{
    struct employee emp []={ {1,"John",24}, {2,"Mary",21}, {3,"Tom",25}, {4,"David",30} };

    printf("Id : %d, Age : %d, Name : %s", emp[2].empId,3[emp].age,(*(emp+1)).name);
    return 0;
}
```

8. Consider the code shown below, what are the outputs of the code? (10%)

```
#include <stdio.h>
int main()
{
    char   *str    []={"WWWWW","TTTTT","XXXXX","YYYYY"};
    char   **sptr  []={str+3,str+2,str+1,str};
    char   ***pp;

    pp=sptr;
    ++pp;
    printf("%s",**++pp+2);
    return 0;
}
```

9. Consider the code shown below, what are the outputs of the code? (10%)

```
#include <stdio.h>
int main(){
int n=6;
int i, j, k = 0;
   for (i = 1; i <= n; i++){
      for (j = i; j < n; j++) {
         printf(" ");
      }
      while (k != (2 * i - 1)) {
         if (k == 0 || k == 2 * i - 2)
            printf("*");
         else
            printf(" ");
         k++;
      }
      k = 0;
      printf("\n"); // print next row
   }
   for (i = 0; i < 2 * n - 1; i++) {
      if (i%2 ==0)
         printf("*");
      else
         printf(" ");
   }
}
```

10. Consider the code shown below, what is the purpose of the code or what will you describe XXX? (10%)

```
#include<stdio.h>
#include<conio.h>
int main() {
   int n,r,sum=0,temp;
   printf("enter the number=");
   scanf("%d",&n);
      temp=n;
   while(n>0){
      r=n%10;
      sum=(sum*10)+r;
      n=n/10;
   }
   if(temp==sum)
      printf("This number is XXX");
   else
      printf("This number is NOT XXX");
}
```