

109年專門職業及技術人員高等考試建築師、32類科技師
(含第二次食品技師)、大地工程技師考試分階段考試
(第二階段考試)暨普通考試不動產經紀人、記帳士考試、
109年第二次專門職業及技術人員特種考試驗光人員考試試題

等 別：高等考試

類 科：資訊技師

科 目：程式設計

考試時間：2小時

座號：_____

※注意：(一)禁止使用電子計算器。

(二)不必抄題，作答時請將試題題號及答案依照順序寫在試卷上，於本試題上作答者，不予計分。

(三)本科目除專門名詞或數理公式外，應使用本國文字作答。

一、請依據下列 C++ 程式碼執行後，試問輸出結果為何？(25分)

```
#include <stdio.h>

int F(int x, int y) {
    int c = 7;
    int d = c%3;
    for (int i = 1; i <= y; i++) {
        d = c * (x - i + 1) / i;
    }
    return d;
}

int main() {
    int h=8;
    for (int a = h%5+2; a >3; a--) {
        for (int n = 0; n <= a; n++) {
            printf("%d", F(a, n));
        }
        printf("\n");
    }
    return 0;
}
```

二、請依據下列 C++程式碼執行後，若輸入如下所示，試問輸出結果為何？（25分）

1
3
5
7
2
4
6
8

```
#include <stdio.h>
void getMatrixElements(int matrix[][10], int row, int column) {
    int i,j;
    printf("\nEnter elements: \n");

    for (i = 0; i < row; ++i) {
        for (j = 0; j < column; ++j) {
            printf("Enter a%d%d: ", i + 1, j + 1);
            scanf("%d", &matrix[i][j]);
        }
    }
}

void calMatrices(int first[][10],
                 int second[][10],
                 int result[][10],
                 int r1, int c1, int r2, int c2) {
    int i,j,k;

    for (i = 0; i < r1; ++i) {
        for (j = 0; j < c2; ++j) {
            result[i][j] = 0;
        }
    }

    for (i = 0; i < r1; ++i) {
        for (j = 0; j < c2; ++j) {
            for (k = 0; k < c1; ++k) {
                result[i][j] += first[i][k] * second[k][j];
            }
        }
    }
}
```

```
void display(int result[][10], int row, int column) {
int i,j;
printf("\nOutput Matrix:\n");
for (i = 0; i < row; ++i) {
for (j = 0; j < column; ++j) {
printf("%d  ", result[i][j]);
if (j == column - 1)
printf("\n");
}
}
}
```

```
int main() {
int first[5][5], second[5][5], result[5][5], r1=2, c1=2, r2=2, c2=2;

getMatrixElements(first, r1, c1);
getMatrixElements(second, r2, c2);
calMatrices(first, second, result, r1, c1, r2, c2);
display(result, r1, c2);

return 0;
}
```

三、請依據下列 C++ 程式碼執行後，回答輸出結果為何？（25分）

```
#include <stdio.h>
struct EmpAddress
{
char *ename;
char sname[20];
int pincode;
}employee1={"John Alter","Court Street",654134},*pt1=&employee1;

int main()
{
struct EmpAddress employee2 = {"Bob Hard","First Street",462524},
employee3 = {"Draven Green","Darkest Street",883126};
struct EmpAddress *pt2, *pt3;

pt2=&employee2;
pt3=&employee3;

pt2->ename = pt1->ename;
pt2->pincode =315948;
pt1 = pt2;
strcpy(pt3->sname,"Love Street");
pt1->ename = pt3->ename;

printf(" %s from %s, pincode:%d \n\n", pt1->ename,(*pt1).sname,
pt1->pincode);
printf(" %s from %s, pincode:%d \n\n", pt2->ename,(*pt2).sname,
pt2->pincode);
printf(" %s from %s, pincode:%d \n\n", pt3->ename,(*pt3).sname,
pt3->pincode);

return 0;
}
```

四、請依據下列 C++ 程式碼執行後，若輸入如下所示，試問輸出結果為何？（25分）

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```
#include <stdio.h>
int main() {
    int n, rN = 0, remainder, originalN, flag = 0, num=0, i;
    printf("Enter an integer: ");
    scanf("%d", &n);
    originalN = n;
    while (n != 0) {
        remainder = n % 10;
        rN = rN * 10 + remainder;
        n /= 10;
        num++;
    }
    if (originalN == rN){
        printf("True\n");
        flag = 1;
    }
    else{
        printf("False\n");
        flag = 0;
    }
    n = originalN;
    rN = 0;
    num = num * 2;
    if(flag == 1 ){
        while(n!=0){
            remainder = n % 10;
            rN = rN + remainder;
            printf("%d\n",rN);
            n/=10;
        }
    }
    else
        printf("%d\n",rN);
    return 0;
}
```