

Student Name (بالعربي):

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Q1. What will be printed by the following code?

```
#include <stdio.h>

void printArray(const int a[][3]){
    for(int i=0; i <=1; i++){
        for(int j=0; j<=2; j++){
            printf("%d ", a[i][j]);
        }
        printf("\n");
    }
}

void main(){
    int arr[2][3] = {1, 2, 3, 4, 5, 6};
    printArray(arr);
}
```

a.

1	2	3
4	5	6

b.

1	2	3
0	0	0

c.

1	2
3	4
5	6

d. Error

Q1. What will be printed by the following code?

```
#include <stdio.h>

void printArray(const int a[][2]){
    for(int i=0; i<=2; i++){
        for(int j=0; j<=1; j++){
            printf("%d", a[i][j]);
        }
        printf("\n");
    }
}

void main(){
    int arr[3][2] = {1, 2, 3, 4, 5, 6};
    printArray(arr);
}
```

a.

1	2	3
4	5	6

b.

1	2	3
0	0	0

c.

1	2
3	4
5	6

d. Error

Q2. What will be printed by the following code?

```
#include <stdio.h>

int f(int n, int a[n][n]){
    int s = 0;
    for(int i=0; i<n; i++) s += a[i][i];
    return s;
}

void main(){
    int arr[3][3] = {{1, 2, 3}, {4, 5, 6}, {0, 0, 0}};
    printf("%d", f(3, arr));
}
```

- a. 7 **b. 6** c. 15 d. 21

Q2. What will be printed by the following code?

```
#include <stdio.h>

int f(int n, int a[n][n]){
    int s = 0;
    for(int i=0; i<n; i++) s += a[i][i];
    return s;
}

void main(){
    int arr[3][3] = {{1, 2, 3}, {4, 5, 6}, {0, 0, 1}};
    printf("%d", f(3, arr));
}
```

- a. 7** b. 6 c. 15 d. 21

Q3. What will be printed by the following code?

```
#include <stdio.h>

void f(int rows, int cols, int t[][rows], const int x[][cols]){
    for(int i=0; i<rows; i++)
        for(int j=0; j<cols; j++) t[j][i] = x[i][j];
}

void main(){
    int X[2][3] = {{1, 2, 3}, {4, 5, 6}}, T[3][2];
    f(2, 3, T, X);
    printf("%d", T[1][1]);
}
```

- a. 2 **b. 5** c. 4 d. 3

Q3. What will be printed by the following code?

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

```

void f(int rows, int cols, int t[][rows], const int x[][cols]){
    for(int i=0; i<rows; i++)
        for(int j=0; j<cols; j++) t[j][i] = x[i][j];
}

void main(){
    int X[2][3] = {{4, 5, 6}, {1, 2, 3}}, T[3][2];
    f(2, 3, T, X);
    printf("%d", T[1][1]);
}

```

a. 2

b. 5

c. 4

d. 3

Q4. Which function(s) fill (only) the first and last columns of a square 2D array with 0?

- i.

```
void fill_zeros(int n, int a[n][n]){
    for (int i = 0; i < n; i++) a[i][0] = a[i][n-1] = 0;
}
```
- ii.

```
void fill_zeros(int n, int a[n][n]){
    for (int i = 0; i < n; i++) a[i][0] = a[i][n] = 0;
}
```
- iii.

```
void fill_zeros(int n, int a[n][n]){
    for (int i = 0; i < n; i++) a[i][0] = a[n-1][i] = 0;
}
```

a. i only

b. i and ii only

c. ii only

d. i and iii only

Q4. Which function(s) fill (only) the first and last columns of a square 2D array with 0?

- i.

```
void fill_zeros(int n, int a[n][n]){
    for (int i = 0; i < n; i++) a[i][0] = a[i][n] = 0;
}
```
- ii.

```
void fill_zeros(int n, int a[n][n]){
    for (int i = 0; i < n; i++) a[i][0] = a[i][n-1] = 0;
}
```
- iii.

```
void fill_zeros(int n, int a[n][n]){
    for (int i = 0; i < n; i++) a[i][0] = a[n-1][i] = 0;
}
```

a. i only

b. i and ii only

c. ii only

d. i and iii only

Q5. What will be printed by the following code?

```
#include <stdio.h>

void main() {
    int X[][3] = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
    printf("%d", X[2][2]);
}
```

- a. 6 b. 7 c. 8 d. 9

Q5. What will be printed by the following code?

```
#include <stdio.h>

void main() {
    int X[][3] = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
    printf("%d", X[1][1]);
}
```

- a. 5 b. 6 c. 7 d. 9