



Dep.: Computer Science

Class: Level 2

Year: 1428-1429

Date: 19/04/1429

Course: Computer Programming 1 (CS201)

Dr. Miled Tezeghdanti, Dr. Mohamed Aoun-Allah,
and Dr. Zouhir Zemirli

Second Semester

Allowed time: 1h30

Midterm Exam 1 (7 pages, 5 Exercises)

(Marks: 20 Points)

| | |
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| | الاسم |
| | الرقم الجامعي |
| | الشعبة |
| | التوقيع |

- No books, no notes, no calculators.
- Write in the spaces provided.
- Be neat.

| | Mark | Out of |
|-------------------|------|-----------|
| Exercise 1 | | 2 |
| Exercise 2 | | 3 |
| Exercise 3 | | 5 |
| Exercise 4 | | 6 |
| Exercise 5 | | 4 |
| Total | | 20 |

Exercise 1 (points)

What is the output of the following codes?

- 1)

```
for (int counter = 0; counter < 10; counter++);  
    cout << counter << " ";
```

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- 2)

```
int a = 5;  
int A;  
cout << " Enter a number between 0 and 5: ";  
cin >> A; // We suppose the user enters the number 2  
switch (a) {  
    case 1:  
        cout <<"A + 1 = " << A + 1 << "\n";  
        break;  
    case 2:  
        cout <<"A + 2 = " << A + 2 << "\n";  
    case 3:  
        cout <<"A + 3 = " << A + 3 << "\n";  
        break;  
    default:  
        cout <<"A = " << A << "\n";  
}
```

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Exercise 2 (3 points)

What are the syntax and/or logic errors in the following codes?

- 1)

```
int counter = 0;
while(counter < 10) {
    cout << "counter: " << counter;
}
```

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- 2)

```
int counter = 100;
while(counter < 10) {
    cout << "counter now: " << counter;
    counter--;
}
```

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- 3)

```
#include <iostream>
using namespace std;

void myFunc(int x);
int main() {
    int x, y;
    y = myFunc(int);
    cout << "x: " << x << " y: " << y << "\n ";
    return 0;
}

void myFunc(int x) {
    return (4*x);
}
```

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Exercise 4 (6 points)

Write a program that outputs a empty diamond on the screen. The side of the diamond is equal to n which is read from the user.

```
n = 2
 *
* *
 *
```

```
n = 3
 *
 * *
*   *
 * *
 *
```

```
n = 4
 *
 * *
 *   *
*     *
 *   *
 * *
 *
```

```
n = 5
 *
 * *
 *   *
*     *
*     *
 *   *
 * *
 *
```

```
#include <iostream>
using namespace std ;
```

```
int main() {
```

.....

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Exercise 5 (4 points)

Write one function that receives the length L and the width W of a rectangle and returns back the perimeter and the area of the rectangle. (Do not use cout inside the function).

- perimeter = (length + width) * 2
- area = length * width

You have to determine the adequate prototype of the function.

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