

## The King Hussein School for Computing Sciences Department of Computer Science Structured Programming - Spring 2023

## **First Exam**

Full Name: Student ID:

Question	Points	Score
1	5	
2	4	
	PART 1: 4	
3	PART 2: 4	
3	PART 3: 4	
	PART 4: 4	
Total	25	

## Circle your section:

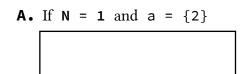
O Dr. Ammar Alrashdan	(section 1)
o Dr. Osama Alhaj Hasan	(section 2)
o Dr. Rawan Ghnemat	(section 3)
O Dr. Ammar Alrashdan	(section 4)
O Dr. Rawan Ghnemat	(section 5)
O Dr. Mohammad Al Nabhan	(section 6)
O Dr. Mohammad Al Nabhan	(section 7)
<ul> <li>Manaf Gharaibeh</li> </ul>	(section 8)
o Dr. Mohammad Abu Snober	(section 9)
o Dr. Mohammad Abu Snober	(section 10)
o Mr. Yousef Yaseen	(section 11)
o Mr. Alaa Altarazi	(section 12)
o Mr. Alaa Altarazi	(section 13)
○ Mr. Alaa Altarazi	(section 14)

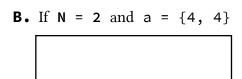
Fill the **Output** column in the table below with the output of the code provided in the **Code** column. If the code does not compile, write "**compilation error**" instead of the output.

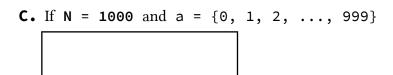
Assume x and a[] are defined as follows: int x = 5; int a[10] = {1, 2, 3, 4}; Assume also that each row is independent (does not depend on the rows before).

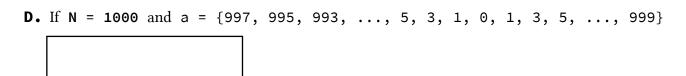
	Code	Output
1.	printf("%d", 3 + 1 / 2 * 2 - 2);	
2.	<pre>x == 1 ? printf("1") : printf("0");</pre>	
3.	printf("%d", a[5]);	
4.	printf("%0.3f", x + 0.5);	
5.	printf("%d", 'b' - 'a');	
6.	<pre>if (rand() % x == 5) printf("5"); else</pre>	
7.	<b>while</b> (x > 1) printf("%d",x);	
8.	<pre>#define Y = 5; int main() { printf("%d", Y+1);</pre>	
9.	<pre>if (x = 1) printf("equal 1"); else printf("not equal 1");</pre>	
10.	<pre>int y = 0; void f(int y) {    printf("%d ", y); } int main() {</pre>	
	<pre>f(6);     printf("%d ", y);     return 0; }</pre>	

What is the output of the following piece of code in each of the cases given below? Assume that N was defined using #define.









**PART 1.** Write a **void** function named **checkFermat** that receives four integers: a, b, c, and n. The function prints:

• "Fermat is wrong" if  $a^n + b^n = c^n$ 

• "Fermat might be correct" otherwise.

You are **not** allowed to use any function from math.h.

**PART 2.** Implement a **void** function named **hangman**, which receives a word as a character array and a letter chr. The function prints the word hiding the letters that are not equal to chr (using '\_').

chr = "z"

Examples.

**PART 3.** Implement a function named **is\_triplets**, which receives an array of integers and its size. The function returns 1 if the array is made of triplets of equal numbers (see the examples) and 0 otherwise.

## Examples.

- [5, 5, 5, 2, 2, 2, 1, 1, 1] return 1
- [1, 1, 1, 1, 1, 1, 1, 1, 1, 1] return 1
- [5, 5, 5, 2, 2, 2, 1, 1] return 0
- [1, 2, 3, 1, 2, 3, 1, 2, 3] return 0

**PART 4.** Implement a function named **majority\_odd**, which receives three integers and returns 1 if the majority of these integers are odd and 0 otherwise. (3.5 points)

Examples: 1, 2, 3: Return 1 because two of the numbers are odd.

2, 4, 5: Return 0 because only one of the numbers is odd.

**Note.** You are not allowed to define any variable in your implementation. If you do, you will receive at most 2/3.5 points.

PART	4.5	Implement function <b>majority_odd</b> using only one line, containing one statement. (0.5 points)