TIC1002 MIDTERM ANSWER SHEET

ANSWER
Do Not Print!

AY2019/20 Semester 2

NAME:

STUDENT NO.: | A | 0 | | | | | | | |

/ 40

Write your particulars above legibly using a **PEN**. You may use pencil for your answers below.

1a

f(123, 51)	f(15, 321)	f(777, 777)
1	-1	0

b

```
return c == 1;
```

c

c counts the number of direction change in the numbers.

2a

```
Square board[8][8];
```

b

```
void initReversi(  Square board[8][8]              )
{   // You can write in two column format if the code is too long
    int i, j;
    for (i = 0; i < 8; i++){
         for (j = 0; j < 8; j++){
              board[i][j].isEmpty = true;
         }
     }
}
```

c

```
void flipRightUp(Square board[8][8], int row, int col, int
newColor )
{    // You can write in two column format if the code is too long
    int curR = row, curC = col;

    while( isValid(curR, curC) &&
           !board[curR][curC].isEmpty &&
          board[curR][curC].color != newColor) {
        board[curR][curC].color = newColor;
        curR--;  //up
        curC++;  //right
    }
}
```

2d	Complexity is **O(min(R, C)) [O(R) or O(C) acceptable]**

3

```
bool isEven(int num )
{    // You can write in two column format if the code is too long
    if (num == 0)
        return true;
    if (num == 1)
        return false;

    return isEven(num-2);

}
```

4 [2]

	Solution	Works?	Explain **ONLY if fails**
a	One	No	Order is wrong (final list is sorted by student id). [Instability **does not** matter in this case].
	Two	Yes	Only for learning: Unstable sort on unique key (student id) doesn't matter.
b	One	No	Binary search need the target / List is not sorted.
	Two	No	Counting sort need to know the range of value. Salary is not bounded.
c	One	No	Works but Worst Case Complexity is $O(N^2)$.
	Two	Yes	Only for learning: Complexity is just O(N).