ESC 101: Fundamentals of Computing		**Minor Quiz 11**		Date: 12 – 04 - 2019		
Name						**A**
Roll No.		Dept.		Section		

Instructions:

1. This question paper contains a total of **1** page (**both sides** of paper).
2. Write your name, roll number, department, and section on this booklet
3. Write final answers neatly with a blue/black pen in the given boxes.
4. **Answers written outside the box will NOT be graded.**

Total **10 Marks**

Q. 1: Write the output of the following program in the appropriate box. Also Fill in the blanks for the selection sort algorithm. **6 + 2 Marks**

```
#include <stdio.h>
void binary_search(int * arr, int size, int key){
    int first, last, middle;
    first = 0;
    last = size-1;
    middle = (first+last)/2;

    while (first <= last) {
        printf("%d ", middle);
        if (arr[middle] < key)  first = middle + 1;
        else if (arr[middle] == key)  break;
        else  last = middle - 1;
        middle = (first + last)/2;
    }
}
void selection_sort(int* arr, int size){
        int position, swap;
        for(int i = 0; i < size-1; i++){
                position = i;
                for (int j = i + 1; j < size; j++){
                        if (_______________)
                                position = j;
                }
                if (_________){
                        swap = arr[i];
                        arr[i] = arr[position];
                        arr[position] = swap;
                }
        }
}
int main(){
        int array[10] = {3, 9, 1, 8, 4, 7, 2, 6, 5};
        selection_sort(array, 9);
        binary_search(array, 9, 8);
        return 0;
}
```

Output Line No.	Program Output
1	4 6 7

Output Line No.	Fill in the blanks
1	arr[position] > arr[j]
2	position != i

Q. 2: Mark True/False for the following statements. **2 Marks**

1) Binary search can be used only for arrays sorted in ascending order [FALSE]

2) O(n + log n) = O(n) [TRUE]