

ESC 101: Fundamentals of Computing				Minor Quiz 11		Date: 12 – 04 - 2019	
Name						B	
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 = size-1; i > 0; i--){
        position = i;
        for (int j = i - 1; j >= 0; 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, 3);
    return 0;
}
```

Output Line No.	Program Output
1	4 1 2

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 cannot be used for unsorted arrays

[TRUE]

2) $O(n + \log n^2) = O(n)$

[TRUE]