NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA
THEORY EXAMINATION

1ˢᵗ Sessional

B.Tech (Information Technology)

II Semester

Data Structures (ITPC-12)

Time Duration: - 50 Minutes

Max. Marks- 15

Ques 1. (a) What is the problem with following code?

```c
#include<stdio.h>
int main ()
{
    int *p = (int *) malloc(sizeof(int));
    p = NULL;
    free(p);
}
```

1

Ques 1. (b) Write down difference between malloc () and calloc (), explain with syntax.

2

Ques 2. Write down the comparison between Bubble sort, selection sort, and insertion sort with example.

3

Ques 3. Write pseudo code for binary search after applying merge sort with explanation.

3

Ques 4. Describe the meaning of the below declarations?
  1. const int a;
  2. int const a;
  3. const int *a;
  4. int * const a;

2

Ques 5. Write pseudo code for printing kth largest elements in an array. Elements in an array can be in any order. For example, if the given array is [23, 12, 9, 30, 2, 50] and you are asked for the largest 3 elements i.e., k = 3 then your code should print 23.

4

OR

Ques 5. Apply quick sort on the following array of integer
  {50, 23, 9, 18, 61, 32}

4