**Tutorial and Assignment Sheet – ODD 2021**

**15B11CI311 – Data Structures**

**Week 3**

**Topics: STL, Stack and Queue using STL**

Q.1. Write a program using the stack STL to implement the following :

Input : push(1), push(2), push(4), push(5), pop, pop

**Q2)** Write a program using the Queue STL to find the sum of the all the integers for a given queue of integers.

Input : 3, 7, 4, 5, 1

Output : 20

Q.3. write a program using stack STL to swap the content of one stack with another stack of same type

Input : stack1 = {41, 33, 20, 11}

stack2 = {90, 75 ,58, 35}

Output : stack1 = 90, 75, 58, 35

stack2 = 41, 33, 20, 11

Q4) Predict the output of the following program.

| template <class T>  class Test  { private:  T val;  public:  static int count;  Test() { count++; }  };  template<class T>  int Test<T>::count = 0; | int main()  {  Test<int> a;  Test<int> b;  Test<double> c;  cout << Test<int>::count << endl;  cout << Test<double>::count << endl;  return 0;  } |
| --- | --- |

Q5) What will the given function fun() do?

| void fun(Queue \*Q)  {  Stack S; // Say it creates an empty stack S  // Run while Q is not empty  while (!isEmpty(Q))  {  // deQueue an item from Q and push the dequeued item to S  push(&S, deQueue(Q)); |
| --- |

| }  // Run while Stack S is not empty  while (!isEmpty(&S))  {  // Pop an item from S and enqueue the poppped item to Q  enQueue(Q, pop(&S));  }  } |
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Q.6. What will be the output of the following program

#include <iostream>

#include <queue>

using namespace std;

int main()

{

queue<int> myqueue;

queuem.push(34);

queuem.push(41);

queuem.push(15);

queuem.push(76);

cout << queuem.front();

cout <<queuem.back();

return 0;

}