**Data Structures and Algorithms (Quiz 1) (Time: 20 mins)**

**Marks = 20**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Q1. Find the RUNNING Time of the following algorithm: (05)**

**int sum = 0;**

**int product = 1;**

**for(int s = 0; s < N; s+2)**

**{**

**for(int t = 0, t <= s; t++)**

**{**

**sum += s+t;**

**}**

**product \*= s\*t;**

**}**

**Q2.what is stack overflow and underflow? (05)**

**Q3. Complete the statements: (05)**

1. **A pointer variable stores \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
2. **double num = 123.09;**

**\_\_\_\_\_\_ \*pnum = \_\_\_num;**

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ operator is used to access the contents of memory location stored by a pointer.**
2. **LIFO means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
3. **In static implementation stacks have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ size and in dynamic implementation stacks \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ size.**

**Q4. POP all the four elements from the stack in Figure 1 using pop function below. Write down the value of top for each element and also write down the popped element: (05)**

**void IntStack::pop()**

**{**

**if(top == -1)**

**cout<<"Stack Underflow"<<endl;**

**else**

**{**

**cout<<"Number Deleted From the stack=";**

**cout<<stackArray[top];**

**top--;**

**}**

**}**

200

600

300

100

top

3

2

1

0

bottom

**Figure 1**