National University of Computer & Emerging Sciences FAST-Karachi Campus CS218- Data Structures (Fall 2019)

Quiz#1

Dated: September 16, 2019		Marks: 25
Time: 20 min.	Std-ID:	

Question No. 1 Appropriately match the columns. [10]

Column A	Column B	
Pure Virtual Functions	a. Hiding complexity (9)	
2. Class	b. Polymorphic mapping (7)	
3. Operators precedence + association	c. New operations for types (6)	
4. const pointer	d. Abstract Base Class (1)	
5. typeID()	e. Data Type (2)	
6. Operator overloading	f. Function Overloading (10)	
7. dynamic_cast()	g. Expression (3)	
8. Virtual functions	h. Run time polymorphism (8)	
9. Encapsulation	i. RTTI (<mark>5</mark>)	
10. Compile Time Polymorphism	j. reference (4)	

Question No. 2 Indicate TRUE or FALSE. [5]

- 1. A derived class pointer can hold a base class object. FALSE
- 2. A virtual or pure virtual function can be private. TRUE
- 3. A destructor can be virtual. FALSE
- 4. An abstract class object contains VPtr. TRUE
- 5. A single virtual table is maintained per class. TRUE

Question No. 3 Perform in each question as directed. [10]

1. There are int a and int b, you need to produce there sum witho	
	operator. Hint: a single c/c++ instruction (expression) required.

```
Sum = -(-a-b);
```

- 2. If int x=2 and int y=4, provide the operation order and evaluated value for the expression (x==2+y & y>x)
 - Addition first (+) => 2 == 6 && 4 > 2
 - Now > will be evaluated => 2==6 && TRUE
 - Now == is executed => FALSE && TRUE
 - Last && operator is used => FALSE
- 3. If int *PtrX=0; int **dPtrX=0; int x=1; int y=0; what will be the errors in the following code:

```
PtrX=x; // Error: PtrX is an address but x is not an address
*PtrX=&x; // Error: *PtrX is a value pointed by PtrX and &x is an address
dPtrX=&PtrX; // No Error
```

4. What will be the order of destructors if the following derivation is used for a class:

```
class A: public class C, public class F, public class B{}
Destructor B, Destructor F, Destructor C and Destructor A;
```

5. Define a function pointer for the function below: int& Fun(int &a, double d, int c=10)

```
int& (*fun ptr)(int &, double, int);
```