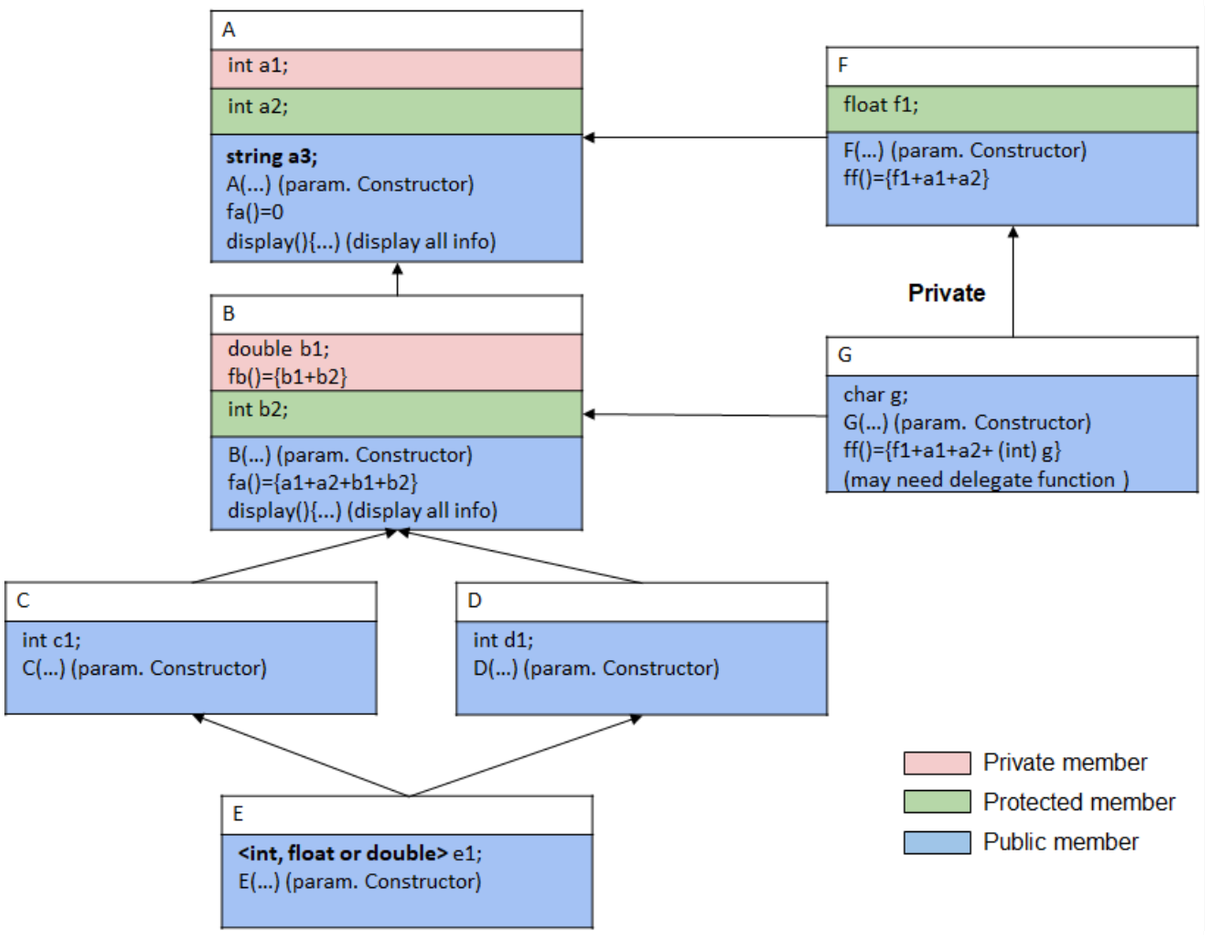
MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY
Department of Computer Science and Engineering (CSE)

CSE 206: Object-Oriented Programming Language Sessional I

Online 2

Time: 1 Hr 30 min (End time: 0235 PM)	**Full marks: 35**

Create a file yourID_online2_CSE206.cpp. **Submit only the .cpp file in the classroom.**
Here's the template. Code on top of it.



Take a look at the inheritance scenario given above. Note that all inheritances are public inheritance unless stated otherwise.

Now, answer the following questions:

1	Implement the scenario depicted above in C++. Remember to write a parameterized constructor and destructor for each base and derived class. The constructor sets values for ALL the member variables.	10
2	Identify **pure virtual functions, abstract class, and diamond problem** in the above scenario. Address them accordingly when you implement the classes.	8
3	Use **templates** as necessary, judging by the data type of member variables of the class(es).	4
4	Write a delegate function as necessary to do the job of **function ff()** in class **G**.	3
5	Assign an object of class B to a pointer of class A. Then call display() function using that pointer. Ensure that the appropriate display() function is called. **(Bonus) - This question is optional.**	3

6	Now, **overload** the following **operators** based on the details in the table given below. **Note that, A1, B1, C1 ….. E1 are objects of classes A, B, C ….. E respectively.** **Operator** | **Sample Operation** | **Description** **/** | float a = B1 / B2; | Computes b1 / b1 (vars of class B1 and B2 respectively). Returns a float number. **^** | double d = 3 ^ B1; | Computes pow(3, b1). Returns a double. **++** | C1++; | Increments the value of c1 **by 5;** **[ ]** | cout<<A1[2] or A1[2] = 'C' | Returns the char in index 2 of string a3 of class A or assigns "C" to index 2 of a3. **=** | double d1 = B1; | Assigns a1+a2+b1+b2 of class B to a double variable. **(type conversion)**	10
7	While overloading the " / " operator in question 6, don't let divide by 0 happen. Throw an error named "Divide by 0" and terminate the program. **(exception handling)**. **(Bonus) - This question is optional.**	5