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University of Sargodha

BS 2nd Term Examination 2018

Subject: Computer Science

Paper: Object Oriented Programming (CMP-2124)

Time Allowed: 2:30 Hours

Maximum Marks: 60

Note: Objective part is compulsory. Attempt any three questions from subjective part.

Objective Part (Compulsory)

- Q.1.** Write short answers of the following in 2-3 lines each on your answer sheet. (12*2)
- What is default constructor? How many parameters are used in default constructor?
 - What is difference b/w private and protected Access specifier? Which one is default access specifier in C++?
 - Write the syntax of a pure virtual function having name as `getData ()` and return type is `int`.
 - Write the names of two types of inheritance supported by C++.
 - What is difference b/w **try** block & **Catch** block?
 - What do you know about abstract class and concrete class?
 - Write two differences between function overloading and function overriding?
 - Write the names of two unary operators used in context of pointers?
 - Which operator is used in order to access a member function of a class when dynamic object is created?
 - What are the two necessary conditions for polymorphism?
 - How static data member is different from non-static data member? Give example in each case.
 - What is function of copy constructor? Write a statement that uses copy constructor.

Subjective Part (3*12)

- Q.2.** Create a **Distance** class having data members as feet (type `int`) and inches (type `float`). Write at least two constructors of class and a suitable method to compare two objects of the class in order compare which objects has greater value of distance. The result is displayed by `main()`.
(Note: the number of inches in each distance is less than 12).
- Q.3.** Write a class named **Array** that contains an array of integers as data member. The class contain the following member functions:
- A constructor that initializes the array element to -1.
 - Input function to input the values in the array.
 - Show function to display the values of array.
 - A member function to make the values of the array two times.
- Q.4.** Write a program that declares a **Value** class. It consists of only one data member of type `int`. Write an appropriate constructor and other member function in order to validate the following statement in `main()`.
`val3 = val1 + val2;`
where `val1`, `val2` and `val3` are the objects of **Value** class.
- Q.5.** Create a **Person** class having name (i.e. array of `char`) as a data member. Create another class **Student** that inherits from **Person** class and declares `cgpa` (of type `float`). Write suitable constructors (multiple) of **Student** class to initialize data members. Create two objects of **Student** class in `main()` with two different constructors and display them.
- Q.6.** Create a class **Human** with name (of type `string`) as its data member. Another class **Teacher** is inherited from **Human** class which declares his grade (of type `int`) and salary (of type `double`) as its data members. Derive another class **Student** from **Human** that includes degree name as its data member (of type array of `char` like "BS" or "MS"). Implement the concept of polymorphism and display all the values of objects in `main ()`.