JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- September 2018

B. Tech III Semester

COURSE CODE: 10B11CI311

MAX. MARKS: 15

COURSE NAME: Object-Oriented Programming

COURSE CREDITS: 4

MAX. TIME: One Hour

Note: All questions are compulsory. Carrying of a mobile phone during examinations will be treated as the case of unfair means.

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1. Create a class String that stores a string using pointers. The class has a default constructor, a constructor with one parameter of string type, a copy constructor, and a destructor. Besides, the class has the following two member functions:
   a) A function that performs the concatenation of two strings.
   b) A function to display the string value.
   In the main() method invoke the default constructor, copy constructor, destructor, and both member functions of the class. **[4 marks]**

2. Create a class MusicComposition that contains fields for title, composer, and year written. The class consists of a default constructor and a constructor with three parameters to set the values of the above data members. The class also includes two member functions: enter() and display() to enter the values of all of the data members through the keyboard and display them, respectively. Now, define a subclass NationalAnthem that inherits the MusicComposition class. The NationalAnthem class contains an additions field to hold the name of the anthem's nation. The NationalAnthem class also contains two constructors: default and parameterized. The default constructor of the NationalAnthem class calls the default constructor of the base class MusicComposition. Similarly, the parameterized constructor also calls the parameterized constructor of the base class. Moreover, the NationalAnthem class overrides the enter() and display() functions. In the main() method use the concept of dynamic binding to invoke the member functions enter() and display(). **[5 marks]**

3. What are pure virtual functions? Why are these functions required? How are these functions different from virtual functions? Can we make the constructors and destructors as virtual? Explain with reason. **[3 marks]**

4. Differentiate between static function and friend function with the suitable example(s). **[3 marks]**