Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17CS2012** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OBJECT ORIENTED PROGRAMMING IN C++** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain any five features of object oriented programming. | CO1 | 15 |
| b. | Illustrate the usage of setw( ) with necessary header file in C++. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Explain the three logical operators with sample code. | CO1 | 9 |
| b. | Illustrate any four relational operators with sample code. | CO1 | 8 |
| c. | Write sample code to illustrate conditional operator. | CO1 | 3 |
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| 3. | a. | Design a structure named Cricketer with the following details such as name, age, number of test matches played and the average runs scored. | CO2 | 6 |
| b. | Write the necessary C++ code to create array of structure to hold records of 10 cricketers. | CO2 | 4 |
| c. | Write C++ code to read these records and display the cricketer’s details by arranging it according to runs. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Compare and contrast ‘break’ and ‘continue’ statements with appropriate code. | CO1 | 5 |
| b. | Is it possible to make functions as inline? Justify with proper C++ code. | CO1 | 5 |
| c. | Elaborate various storage classes with necessary code. | CO2 | 10 |
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| 5. | a. | Design a class Time which stores hours, minutes and seconds as integer attributes. Create a constructor with arguments to initialize the attributes. Generate the necessary getters and setters for all the attributes. | CO2 | 10 |
| b. | Write a main( ) function which creates two initialized Time objects.  Pass two Times objects as arguments to a function, named add(Time t1, Time t2 ) which returns a new Time object which contains the addition of t1 and t2 objects’ attributes. | CO2 | 7 |
| c. | Display the values of the resultant Time object’s attributes. | CO2 | 3 |
| (OR) | | | | |
| 6. | a. | Create a character array and initialize it. Find the length of the string and reverse the string without using any cstring functions. | CO6 | 10 |
| b. | Discuss operator overloading and its types with necessary example programs. | CO3 | 10 |
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| 7. | a. | Write a C++ program to create a class called Person with data members Name, Age, Gender also include necessary constructors to initialize the variables. | CO5 | 5 |
| b. | Write another class called Employee with the following attributes emp\_id, emp\_name, date\_of\_joining also include necessary constructors to initialize the variables. | CO5 | 5 |
| c. | Inherit a class called Software\_Engineer from the above two classes also with its own attributes. Create three objects for the child class and access the base classes and its member functions. | CO5 | 10 |
| (OR) | | | | |
| 8. | a. | Explain the way to access the private properties of another class with an example program. | CO2 | 10 |
| b. | Discuss runtime polymorphism with necessary program. | CO3 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Design a function template which accepts two arguments of any datatype and find the greatest of two. Write a main function to call the function with necessary arguments. | CO4 | 10 |
| b. | Appraise the usage of fstream, ofstream and istream class with an example program. | CO6 | 10 |