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



**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14CS2035** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OBJECT ORIENTED PROGRAMMING IN C++** | **Max. Marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Describe the various object oriented characteristics with real time examples. | CO1 | 12 |
| b. | Elaborate on primitive data types used in C++ with sample code. | CO1 | 8 |
| **(OR)** | | | | |
| 2. | a. | Explain the following operators with example programs.   * Arithmetic Operators * Relational Operators * Bitwise Operators | CO1 | 12 |
| b. | Create a program to calculate the Body Mass Index(BMI) for the given height(cm) and weight(kg). Formula = | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | Write a program to reverse the digits of a given integer number. For example, if the input is 4528, the output must be 8254. | CO2 | 10 |
| b. | Discuss the user defined functions with following constraints and example demonstrations.   * Function with no parameters and no return value * Function with parameters and no return value * Function with parameters and return value | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Explain all the looping statements with suitable example program. | CO1 | 10 |
| b. | Create a Structure to store the details of student such as name, regno, mark1, mark2, mark3, mark4. Demonstrate the same by creating two student variables and display the details along with total marks. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Discuss the following string functions with suitable example code.  a) strlen() b)replace() c)erase() d)find() e)append() | CO2 | 8 |
| b. | Design a class called “Book” with attributes such as name, authorname, price. Include member functions such as addBookDetails() and View(). Demonstrate the class by creating three book objects and then initialize the data and display the details. | CO2 | 12 |
| **(OR)** | | | | |
| 6. | a. | Write a program to store given N numbers including both positive and negative numbers in an array and display the total sum of only negative numbers available in the array. | CO2 | 10 |
| b. | Describe the following types of constructors that can be used within a class with suitable sample code.   * Default Constructor * Parameterized Constructor * Copy Constructor | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | Design a class called Complex with realpart and imaginary part as attributes. Include necessary constructors and create two Complex objects like c1(5,6), c2(1,3), perform sum of c1 and c2 using binary operator overloading. | CO2 | 12 |
|  | b. | Explain the following features of pointers with suitable programs.   * Array of pointers * Passing pointers to function | CO2 | 8 |
| **(OR)** | | | | |
| 8. | a. | Diccuss the following inheritance with suitable example program.   * Heirarchical Inheritance. * Multilevel Inheritance. * Multiple Inheritance | CO3 | 12 |
| b. | Demonstrate a program with virtual function in inheritance. | CO3 | 8 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Demonstate the following file operations with sutiable programs.   * Write a message “I like programming” in a file “abc.txt”. * Read the above mentioned file and display only the vowels present in the file. | CO3 | 10 |
| b. | Describe the class template with an example program. | CO3 | 5 |
| c. | Create a program that reads two integer number and find out the maximum value using function template and display the same. | CO3 | 5 |