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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May– 2017**

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| **Code :** | **14CS2035** | **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. | Write a program in C++ to determine whether the character entered by the user is a capital letter, a small case letter, a digit or a special symbol. The following table shows the range of ASCII values for various characters.   |  |  | | --- | --- | | **Characters** | **ASCII Values** | | A – Z | 65 – 90 | | a – z | 97 – 122 | | 0 – 9 | 48 – 57 | | special symbols | 0 - 47, 58 - 64, 91 - 96, 123 – 127 | | CO1 | 17 |
| b. | What is the output of following program?  cout<<setw(5) << 77 <<endl;  cout<<setw(5) << 100 <<endl;  cout<<setw(5) << 12312 <<endl; | CO1 | 3 |
| (OR) | | | | |
| 2. | a. | Explain the features of object oriented programming. | CO1 | 15 |
| b. | Write a program in C++ which accepts a character and display its next character. | CO1 | 5 |
| 3. |  | Explain the various storage classes in C++ with sample code. | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Write a C++ program to find the area of rectangle and square by function overloading. | CO1 | 10 |
|  | b. | Write a function to calculate the factorial value of any integer as an argument. Call this function from main( ) and print the results in main( ). | CO1 | 10 |
| 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. | CO3 | 10 |
|  | b. | Write amain() function which creates two initialized Time objects. | 2 |
|  | c. | 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. | 6 |
|  | d. | Display the values of the resultant Time object’s attributes. | 2 |
| (OR) | | | | |
| 6. | a. | Write a C++ program to find the sum and average of one dimensional integer array. | CO1 | 8 |
|  | b. | Write a C++ program to find the largest and smallest element in an integer array. | CO1 | 12 |
| 7. | a. | Explain the different types of inheritance with sample code. | CO2 | 15 |
|  | b. | What is the out of the following program?  #include <iostream>  using namespace std;  intmain( ) {  int a = 5, b = 10, c = 15;  int \*arr[ ] = {&a, &b, &c};  cout<< \*arr[1];  return 0;  } | CO4 | 5 |
| (OR) | | | | |
| 8. | a. | Design a class Distance which stores feet and inches as attributes. Create two Distance objects as follows:  Distance d1(10, 5);// 10 feet and 5 inches  Distance d2(11,6);//11 feet and 6 inches  Add d1 and d2 by overloading the operator, **+** . | CO2 | 15 |
|  | b. | The operator overloading function should return a new Distance object which contains the addition of objects d1 and d2. | CO2 | 5 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Write a program in C++ to read the contents from a text file. | CO5 | 10 |
|  | b. | Explain function template with sample code. | CO5 | 10 |

ALL THE BEST