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 C++ program to check whether a triangle is valid or not, when the three angles of the triangle are entered by the user. A triangle is valid if the sum of all the three angles is equal to 180 degrees. | CO1 | 5 |
| b. | Write a C++ program to swap values of two variables. | CO1 | 5 |
|  | c. | Explain the feature of object oriented programming that supports reusability of code. Give suitable illustration. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Explain the features of object oriented programming. | CO1 | 15 |
| b. | Write a C++ program which reads three numbers and display the largest number. | CO1 | 5 |
| 3. | a. | Write a function called hms\_to\_secs() that takes three int values for hours, minutes, and seconds as arguments, and returns the equivalent time in seconds (type long). Create a program that exercises this function by repeatedly obtaining a time value in hours, minutes, and seconds from the user (format 12:59:59), calling the function, and displaying the value of seconds it returns. | CO1 | 10 |
|  | b. | What are reference arguments? With a suitable example describe the significance of such variables. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Write a C++ program to find the volume of rectangle and square by using inline functions. Highlight the need and advantages of inline functions. | 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( ). What are the ways of passing arguments to a function. | 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. Write a method that prints the number of objects of class time created. | CO3 | 10 |
|  | b. | Write a main() function which creates two initialized Time objects. | CO3 | 2 |
|  | c. | Pass two Times objects as arguments to a function, named add(Time t1, Time t2 ) which returns a new Time object representing t1+t2. | CO3 | 6 |
|  | d. | Display the values of the resultant Time object’s attributes. | CO3 | 2 |
| (OR) | | | | |
| 6. | a. | Write a C++ program to find the addition of two matrices. | CO1 | 6 |
|  | b. | Write a C++ program to find the odd numbers and even numbers in an integer array. | CO1 | 6 |
|  | c. | Explain the different types of constructors. Can constructors and destructors be virtual? Justify your answer. | CO3 | 8 |
| 7. | a. | Explain multiple and hierarchical inheritance with sample code. | CO2 | 12 |
|  | b. | What are namespaces? Fix error, if any for the following program and write its output.  #include <iostream>  using namespace std;  intmain(){  char arr[20];  inti;  for(i = 0; i< 10; i++)  \*(arr + i) = 65 + i;  \*(arr + i) = '\0';  cout<<arr;  return(0);  } | CO4 | 8 |
| (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  Overload operators +, << accordingly. | 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 C++ program to count number of words in a text file named "OUT.TXT". | CO5 | 15 |
|  | b. | #include <iostream>  using namespace std;  int main(){  int p;  p = Max(100, 200);  cout<< p <<endl;  return 0;  }  Provide a necessary function template for the function call, Max. | CO5 | 5 |

ALL THE BEST