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



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

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| **Code :** | **18CS2014** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OBJECT ORIENTED PROGRAMMING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (10X1 = 10 MARKS)** | | | |
| 1. | Predict the new value of x.  #include <iostream>  using namespace std;  void fun(int &x)  { x = 20; }  int main() {  int x = 10;  fun(x);  cout<< "New value of x is " << x;  return 0;  } | CO1 | 1 |
| 2. | Differentiate between String class and StringBuffer class. | CO1 | 1 |
| 3. | Write the expansion of JRE and JDK. | CO1 | 1 |
| 4. | Identify the use of super() with constructor. | CO4 | 1 |
| 5. | Identify the reason for error, if any in the following code.  *final abstract class Internal2{}* | CO3 | 1 |
| 6. | Give an example to import nested packages. | CO3 | 1 |
| 7. | Write the purpose of the finally clause of a try-catch-finally statement. | CO4 | 1 |
| 8. | Name the method to be implemented by all threads. | CO5 | 1 |
| 9. | List any two classes that supports Character stream to do I/O operations. | CO5 | 1 |
| 10. | Read the following code and answer the question that follow:  *String str="Green World, Clean World";*  *int len=str.length();*  *int remain=100-len;*  *jTextField1.setText(str.toUpperCase());*  *jTextField2.setText(Integer.toString(remain)+" more charachters can be entered");*  Predict the output displayed in text fields named jTextField1 and jTextField2 after running the above code. | CO5 | 1 |

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| **PART – B (6 X 3 = 18 MARKS)** | | | |
| 11. | Write a C++ program that displays a decimal number in reverse order. (Ex. If the number is 34521, output expected is 12543) | CO1 | 3 |
| 12. | Java has been called as “Write once and run anywhere”. Justify. | CO1 | 3 |
| 13. | Differentiate between the syntax of ‘for’ and ‘for-each’ style loops. | CO1 | 3 |
| 14. | Define inner class. Give an example for it. | CO3 | 3 |
| 15. | Demonstrate the concepts of Auto-boxing and unboxing with a sample code. | CO4 | 3 |
| 16. | Discuss any three points to exhibit the need of design patterns. | CO2 | 3 |

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| **PART – C (6 X 12 = 72 MARKS)**  **(Answer any five Questions from Q.no 17 to 23. Q.No 24 is a Compulsory Question)** | | | | |
| 17. | a. | Describe the various ways of passing arguments to functions. | CO1 | 6 |
| b. | Define recursion. Write a program in C++ to find the sum of ‘N’ natural numbers using recursion. | CO1 | 6 |
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| 18. | a. | Consider the following code:  **Public class** Demo3 {  **int** a;  **int** b;  **int** c, d;  **public static void** main(String[] args)  {  Demo3 obj1 = **new** Demo3();  }  }  Rewrite the above code using different types of constructor to perform the following:   1. Intialize the Data members with default values. 2. Intialize the Data members through arguments. | CO1 | 6 |
| b. | Discuss any eight features of Java and its benefits. | CO1 | 6 |
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| 19. | a. | Create a Java class ‘Shape’ with constructor to initialize one parameter ‘dimension’. Now create two sub classes of Shape with following methods.   1. ‘Circle’ class with method to calculate area with dimension as radius. 2. ‘Square’ class with method to calculate area with dimension as length of one side.   Create a main class named **Demo**, instantiate suitable objects and invoke the methods. | CO4 | 6 |
| b. | Differentiate between abstract class and interface with sample Java code snippet. | CO3 | 6 |
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| 20. | a. | Write a Java program that enters an 8 digit string for a birthdate. The first two digits in the string are the months of birth, the next two are the day and the remaining four are the year. The Java program should squeeze out these substrings and calculate the current age. Raise a ‘negative\_age’ exception if the calculated age is negative. (Hint: Approximately print the differences in years) | CO4 | 6 |
| b. | Explain the various ways of creating threads in Java. | CO5 | 6 |
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| 21. | a. | Write a Java program to demonstrate how to read and write data to a file. | CO5 | 6 |
| b. | Implement Generic Stack using Array in Java to hold any type of object like String or Integer etc. First create the interface IStack to define operations supported by Stack implementation, second create the ArrayStack which implements this interface and support all operation by storing elements in array, and third, define the StackDemo class, which is the main class to demonstrate the use of ArrayStack class. | CO4 | 6 |
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| 22. | a. | Override the methods of an interface called “Event\_Management” by two classes called “Wedding” and “Birthday” where each class is in different package. Create relevant objects to generate a bill as per the event. | CO3 | 6 |
| b. | Elucidate dynamic method dispatch with an example. | CO3 | 6 |
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| 23. | a. | Explain in detail the Model-View-Controller pattern in Java. | CO2 | 6 |
| b. | Create a class Student with properties reg\_no and no\_of\_arrears, then create two array of object variables such as “stud\_with\_ arrear” and “stud\_no\_arrear” in order to add the student objects based on the arrear status. Demonstrate this program with user input and store the student details in both array based on the arrear details, then display all the students details. | CO1 | 6 |
|  | **Compulsory:** | | | |
| 24. | a. | Design a GUI program using Java Swing API to create a frame containing three buttons (Yes, No, Close). When button yes or no is pressed, the message "Button Yes/No is pressed" gets displayed in label control. On pressing CLOSE button frame window gets closed.  button clicked yes | CO5 | 6 |
| b. | Explain the stages in software development process with neat diagram.  Question No.24 from Module 6 | CO6 | 6 |