DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY ALLAHABAD
B. Tech. III Semester (CSE & IT) End Semester Exam (Odd Semester) 2018-19
Object Oriented Programming (CS-13105)   Max. Marks: 60
Time: 180 Minutes
Note: Attempt any five questions. All programs must be written in JAVA. All part of a question must be answered in a sequence.

Q1. (a) What do you mean by object oriented programming concept? Write down the key features of a language to be object oriented. Also, discuss why java is more popular that other programming languages. [6]

(b) You are required to count the number of 1's in binary number using shift (left and right) operators. First you count using left shift followed by right shift starting with binary number obtained at the end of left shift counting. Also, draw the flow chart for the same and verify the result obtained with both operators. [6]

Q2. (a) Find the output of a following program. In case program is not executable, list out the errors, correct the program and then give output. [4]

```java
public class Test {
    public static void main(String[] args) {
        try    {
            System.out.printf("1");
            int data = 5/ 0;
        }
        catch(ArithmeticException e)  {
            Throwable obj = new Throwable("Sample");
            try  {
                throw obj;
            }
            catch(Throwable e1)   {
                System.out.printf("8");
            }
        }
        finally {
            System.out.printf("3");
        }
        System.out.printf("4");
    }
}
```

(b) You are required to create three buttons named "RED", "GREEN" and "BLUE" with one compulsory "Exit" button. The background color should be change according to click on respective button (button click is an event. Action should be performed according to this event). [4]

(c) What is JDBC Connection? Write down the steps involved in connecting java program with mysql database. Explore this with suitable example. [4]

Q3. (a) You are required to write classes for student details (name, registration number, fathers name), address (current address, permanent address, contact number, email Id) using inheritance concept where address is child class. [4]

· (b) You are required to read a given paragraph consisting of words from input file and Convert this paragraph to tokens (word) to be stored in array of string in sorted ascending order where sorted array does not have duplicate words. Finally array of string to be stored in output file. [5]

· (c) Write the differences between overriding and overloading? Explain it in context of static method used in Java. [3]

· Q4. (a) Write down the differences between final and finally keywords used in JAVA. Give examples in support of your answer. [4]

(b) Write a program that sort an integer array using merge sort and draw the flow chart for the same. Further, merge two sorted integer arrays which are in descending order into ascending order sorted array. Justify the correctness of program using suitable example. [8]

· Q5. (a) Create three buttons, First two buttons should have numeric values (e.g. "50" and "100") and third button should be "submit" button. When click on submit button then addition of both values should be displayed on a label. [4]

(b) Convert integer decimal number to binary number. You are required to take input from a given input file and store results in output file. [4]

(c) Write a java program to implement the inheritance. The methods and variables (name, return type, arguments passed) are same in child and parent classes. The main function is implemented in child class. You are required to call the constructor, methods & variables of parent class without making the object of parent class. [4]

Q6. Explain the any six of the following terms in context of JAVA. [12]

A. Re-throwing exception.
B. Multiple inheritances.
C. One to many relationship among objects of multiple classes.
D. Protected access.
E. AWT.
F. Mark and Sweep Garbage collection
G. Super keyword

Good Luck