Reg. No. ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

III SEMESTER B.TECH (COMPUTER SCIENCE AND ENGINEERING)

END SEM EXAMINATIONS, NOV 2017

SUBJECT: OBJECT ORIENTED PROGRAMMING [CSE 2104]

REVISED CREDIT SYSTEM

Time: 3 Hours   **25 -11- 2017**   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ALL** questions.
❖ Missing data, if any, may be suitably assumed.

1A. Explain the use of *finalize( )* method with its general form.   3M
1B. How is Dynamic polymorphism achieved in Java using interfaces?
   Explain with an example program.   3M
1C. Illustrate call by value and call by reference each with an example program.   4M

2A. Explain seek( ) method and constructors of RandomAccessFile with their syntax and
    also show how the RandomAccessFile supports both read and write of primitive
    data with an example program. Use try with resources.   4M
2B. Write a swing applet program as shown in Figure 2B with a text field and a button.
   The text entered in the text field should get changed to upper case on pressing the
   Check button. Use event dispatching thread and anonymous inner class for handling
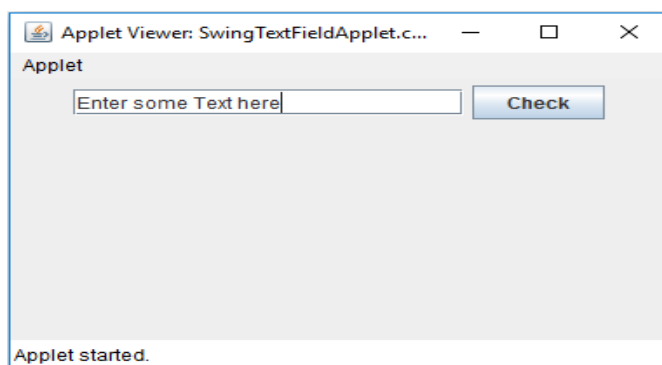   events.   4M

Applet Viewer: SwingTextFieldApplet.c... — ☐ ✕
Applet
Enter some Text here   Check

Applet started.

Figure 2B

2C. When do we use Character Stream over Byte Stream and Byte Stream over Character
   Stream classes?   2M

3A. How do you prevent a method from being overridden? Describe with an example.   2M
3B. What are packages? List their benefits. How do you define and find packages? Explain with an
example program.   4M
3C. What do you mean by method overloading? Do the automatic type conversions have any
    role in method overloading? Illustrate with an example program.   4M

4A. Why do you make a method **static** instead of non-static?
  Give an example where it would be useful.
  Implement a static generic method **median( )** which takes only one parameter, that is 1D array and returns the median of the array. Also write main ( ) to test the method. Also show that the method cannot be used with non-numeric array.
  Note: The **median** of a set of numbers is the middle-most number in the sorted array if the array is of odd length, if the array is of even length, then median is the average of the middle two numbers in the sorted array.   4M

4B. What are the three ways that an exception can be generated? What are the two direct subclasses
  of Throwable?   2M

4C. Write an applet banner program that displays the string passed to it as a first parameter. Add a
  second parameter that specifies the time delay (in milliseconds) between each rotation.   4M

5A. Write a multi-threaded program that simulates the ticking of a clock by displaying the words Tick and
  Tock on the screen. For this, create a class called **TickTock** that contains two methods: **tick( )** and
  tock( ). The **tick()** method displays the word "Tick", and **tock( )** displays "Tock". To
  run the clock, two threads are created, one that calls **tick( )** and one that calls **tock( )**. The two
  threads execute in a way that the output from the program displays a consistent "Tick Tock",i,e.,
  a repeated pattern of one tick followed by one tock.   5M

5B. Write a java program to compute and store the following multiplication table in a 2D array.
  Display the contents of 2D array using for each loop.   2M

```
MULTIPLICATION TABLE
100  110  120  130  140  150  160  170  180  190
110  121  132  143  154  165  176  187  198  209
120  132  144  156  168  180  192  204  216  228
130  143  156  169  182  195  208  221  234  247
140  154  168  182  196  210  224  238  252  266
150  165  180  195  210  225  240  255  270  285
160  176  192  208  224  240  256  272  288  304
170  187  204  221  238  255  272  289  306  323
180  198  216  234  252  270  288  306  324  342
190  209  228  247  266  285  304  323  342  361
```

5C.
 i)   Check whether there are any errors in the Program 5C or not. In case of errors, list and
      correct them, and write the output, otherwise write no errors and write the output.
 ii)   What happens when   the line **System.exit(0);**   is replaced with **throw new MyException();**
      in the following program and compiled?
 iii) Show two different ways of corrections, and write the output for any one type of correction.

```
class MyException extends  Exception {   }
class ExceptionDemo
{    public static void main(String args [])
  {   int a=-10;
     try {  if ( a<0)      System.exit(0);  }
      finally { System.out.println("From finally block");   }      } }
            (Program 5C)
```
3M