Reg. No.										

प्रज्ञानं ब्रह्म

Manipal
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MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

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MANIPAL INSTITUTE OF TECHNOLOGY

THIRD SEMESTER B. Tech (IT & CCE) DEGREE MAKE UP EXAMINATION, DEC– 2015
SUBJECT: OBJECT ORIENTED PROGRAMMING -ICT201/ICT255
(REVISED CREDIT SYSTEM)

TIME: 3 HOURS **30/12/2015** **MAX. MARKS: 50**

Instructions to candidates

- Answer any **FIVE FULL** questions.
- Missing data, if any, may be suitably assumed.
- All programs should be well commented.

1A. A mail order house sales five products whose retail price is as follows: PRODUCT1: Rs.20.50, PRODUCT2: Rs.44.00, PRODUCT3: Rs.100, PRODUCT4: Rs.35.50, & PRODUCT5: Rs.60.00. Write an application that reads a series of input as follows: Product number, Product Name, Quantity Sold. Use BufferedReader for input. Use FileReader to store all information (product number, product name, quantity sold, price) into a file called "Product.txt". Use FileWriter to read these inputs, use a switch statement to determine the retail price for each product. It should calculate and display the total retail value of all product sold. It should also display the total amount collected from all the products if quantity sold for any product is an odd number.

1B. Distinguish between the following.
- i) String and StringBuffer
- ii) Abstract class and interface.
- iii) Applets and application programs

1C. What is the necessity of a finalize method? Explain with syntax. [5+3+2]

2A. Write a java program to create a Student class with registration number, name, marks of three subjects and total marks of three subjects as attributes. The total of the three marks is calculated only when student passes in all the subjects otherwise total is 0. The pass mark for each subject is 50. From the Student class, derive the class FirstYear which has the Name of the class (MCA, MSC…etc), Name of the staff, number of the students and array of students as its attributes and also write a method bestStudent() which processes a FirstYear object and returns the student with the highest total marks.

2B. What type of variables can be defined inside an interface? Give an example program for implementing an interface having variables in a class.

2C. Write the output of the following error-free code along with justification:

i)
```
int a= 10, b=5, d=0;
if (d != 0 &&  ++a > 10 ) { System.out.println("Short Circuit AND ") ;}
 else {System.out.println(a); }
```

ii)
```
byte a = - 64, b;
int i;
i = a >> 3;  System.out.println("I is "+i);
```
[5+3+2]

3A. Write a complete java program to create an applet to do the following:
- i. Draw the flag of India.
- ii. Draw a clock

3B. Create a class StringArrayDemo with an array of strings called "stringArray" as its data member which stores integer and decimal numbers as strings. Write a method "disp" to display the contents

of stringArray. Write a method called acceptValue which takes integer and decimal numbers as input from the user through the keyboard and store the same in the stringArray. Write a method called checkValid which takes stringArray as parameter and return type is boolean. The checkValid method checks whether the value contained in stringArray is a valid integer or valid double. If all the elements are valid return true else throws NumberFormatException. If return value is true display the contents of stringArray.

3C. Differentiate between overloading and overriding with an example program. [5+3+2]

4A. Explain need for synchronization with an example program. Also tell the ways to synchronize this example program. Which method of synchronization is used in which situation? Explain.

4B. Write a java program, which reads a string. Let x and y be respectively left and right neighbors of the second occurrence of the 0th letter. Find the substring between first occurrence of y and first occurrence of x after first occurrence of y. e.g. input:patkgfmpkst output:kgfm, input:pastgksfsptse output:tgks, input:raklfrgmcfd output:gmcf.

4C. Explain array list with a suitable example program. [5+3+2]

5A. Define a class named movieMagic with the following description:
i) year ii)title iii) rating. Define default constructor to initialize these fields.Define a method to accept these fields from keyboard. Define another method called getrating() to return message to be displayed as per rating. The message to be returned, based on the rating is as per the table below.

RATING	MESSAGE TO BE DISPLAYED
0.0 to 2.0	Flop
2.1 to 3.4	Semi-hit
3.5 to 4.5	Hit
4.6 to 5.0	Super Hit

Write a main method with an array of movieMagic. Input the details and write hit (hit, semihit, super hit) movie details to a file called "hitmovie" and flop movie details to a file called "flop". Display all hit movies from the hitmovie file on to the screen.

5B. Explain the try, catch and finally keyword usage with a suitable example program.

5C. Explain the following member methods of Thread class.
i) setPriority ii) run [5+3+2]

6A. Explain two methods of creation of threads with example program.

6B. Discuss various ways of using break statement in java with suitable examples.

6C. Differentiate between short circuit logical operator && and &.