Reg. No.									

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

II SEMESTER B.S. DEGREE EXAMINATION – NOV. / DEC. 2016

SUBJECT: JAVA PROGRAMMING (CS 243)

(BRANCH: CS)

Monday, 12 December 2016

Time: 3 Hours **Max. Marks: 100**

✓ **Answer ANY FIVE FULL Questions.**

1A. Write the general form of writing the *for-each* version of the *for loop* and explain the same with an example code.

1B. Define constructors in a class. What are the special features of constructors? Write a simple program to explain constructors and parameterized constructors.

1C. With suitable examples, explain the working 'break label;' and 'continue label;' statement. List its advantages. **(7+6+7)**

2A. What are the different ways of initializing arrays in java? Give an example program to initialize a matrix as given below and print the matrix.

2	3	4	
6	4		
2	3	4	9
1	2		

2B. List and explain the different types of nested classes. Give an example program illustrating the same.

2C. What is the difference between overloading and overriding? Explain with suitable examples. **(7+6+7)**

3A. Design a class ReserveTicket with an instance variable seatsavailable, and a method void reserve(int numberofseats). If `numberofseats' is greater than `seatsavailable' or `numberofseats' is less than 1 then throw a user defined exception SeatNotBookedException. However, in the main program one must be able to know why a seat was not booked. Illustrate the concept of chained exception to add an underlying exception NegativeRequestValueException, SeatFullException with `SeatNotBooked' exception for showing a zero or negative request and if request exceeds the availability.

3B. Illustrate the uses of 'final' with examples.

3C. What is an abstract class? Why do we need abstract classes?. How an interface is different from abstract class.

(7+6+7)

4A. Write a java program to create a package myMathPack, that contains a class `ComplexNumber' with the methods to add and multiply two complex numbers. Show the usage of myMathPack package in the main program. Also, mention the steps in package creation and usage.

4B. Explain 'interfaces' in java with an example. How interfaces are useful in achieving run-time polymorphism?

4C. Write a recursive method to list the contents of a directory and its sub directory using File class in java.io package. **(7+7+6)**

5A. Explain chained exception with an example.

5B. What are the different ways of creating a thread in Java? Illustrate with examples.

5C. What are adapter classes? Give an example to show their usage.

(7+7+6)

6A. Explain method synchronization and object synchronization considering suitable examples.

6B. Write a Java program to copy one file to another using character stream classes.

6C. Write an applet program to output a message to the status window of the applet viewer.

(6+8+6)

7A. Illustrate the use of anonymous inner class in an applet with a complete example. How is it useful?

7B. With an example program explain inter thread communication mechanism in java.

7C. Write the code snippets to show the steps required to access a database using JDBC.

(6+6+8)

8A. Write a program to develop the following design using swings as in Fig 8.A.

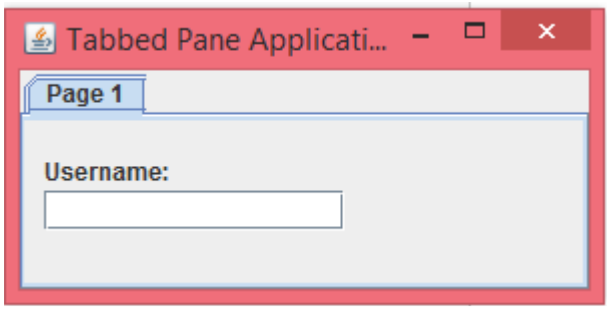

Fig.8.A.

8B. Explain event delegation model in applets with an example.

8C. List and explain the basic steps involved in building and testing simple servlet. **(6+6+8)**