

## MANIPAL UNIVERSITY

## SECOND SEMESTER B.S. (ENGG.) DEGREE EXAMINATION – JUNE 2015

SUBJECT: JAVA PROGRAMMING (CS 243)  
(NEW SCHEME)

(BRANCH: COMPUTR/C.SCIENEC)

Wednesday, June 17, 2015

Time: 10.00 – 13.00 Hrs.

Max. Marks: 100

✍ Answer any FIVE full questions.

1A. “Java Virtual Machine is an interpreter for bytecode”. Explain this statement. Explain the following Java Buzzwords:

- i) Secure
- ii) Multithreaded
- iii) Distributed

1B. “Java is a Strongly Typed Language.” Justify the statement with specific reasons. List and explain the type of literals in Java programming language.

1C. What is the need for the for-each version of for loop in Java? Write a Java program to print the following using the 2D array:

```
0    2    4    8
10   12   14
16   18
20
```

1D. Explain left shift and right shift operator.

(6+6+4+4 = 20 marks)

2A. How the objects are passed as parameters to methods in Java? Explain with the help of an example.

2B. Define constructor. What are the special features of constructors? Write a simple java program explaining about parameterized constructor.

2C. List the difference between overloading and overriding in Java programming language.

2D. Why main method is always static? List the restrictions for the method declared as static. Demonstrate the usage of static variables; methods and blocks using simple example.

(6+6+4+4 = 20 marks)

3A. “A Super class variable can reference a sub class object”. Support your answer with the help of an example.

3B. Write and explain the two uses of super.

3C. What are the two different uses of the keyword *final* with Inheritance? Explain with the relevant example.

3D. Differentiate between an abstract class and an Interface with example programs for each.

(5+4+7+4 = 20 marks)

4A. "Can interface be extended?" Justify your answer. Create an interface containing one method: `int increment (int param)`. Create two different classes which implement this interface. In one class the parameter is incremented by 1 and in the other class it is incremented by 2. Write a complete program. In `main ( )` use interface reference to access the implementation.

4B. Define package. How to create a package and implement it? Explain with an example.

4C. State the behavior of inner and outer try statements in nested try. With a suitable Java program, explain nested try statements.

4D. Define and use an exception class called "NoSuchStringException" that is thrown when a string is not equal to "Happy".

(6+6+4+4 = 20 marks)

5A. What is a context switch? What rules to be followed when context switch takes place?

5B. Write a java program which creates three threads. Each thread should take a number and print its multiplication table. (Hint: Assume one thread takes number as 5. That thread should print 5, 10, 15, 20, 25)

5C. Explain synchronization. What is inter-thread communication? Explain with producer-consumer problem.

5D. Explain predefined streams. Assume that a file named "Student.txt" contains the names of six students. Write a program to read the names from the file and display them using `FileInputStream`.

(3+3+7+7 = 20 marks)

6A. Explain the process of designing and executing an applet through applet window and a browser.

6B. What are adapter classes? Why are they required? Design an applet program to generate some mouse events using adapter classes.

6C. When is a `KeyEvent` generated? List the different types of events and explain. Write a program to handle Keyboard Events.

(4+6+10 = 20 marks)

7A. What are the steps to establish a connection with database using JDBC. Explain.

7B. What is AWT? Briefly explain every component in the hierarchy of AWT.

7C. Explain with example java programs the following layout managers:

- i) Border layout
- ii) Grid layout

7D. Write an applet program that draws a polygon shape on the applet window.

(7+3+6+4 = 20 marks)



- 8A. Write a Swing applet to generate three radio buttons of following color red, green and blue and a label component which displays the colour selected when one of the radio buttons is clicked.
- 8B. Explain briefly tabbed pane.
- 8C. Explain the Servlet Interface. List the different methods declared by ServletContext Interface.
- (10+3+7 = 20 marks)

