ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Programming Language-III (3415)

Level: Post Graduate **Semester: Autumn, 2013**
Total Marks: 100 **Pass marks: 50**

ASSIGNMENT No. 1

All questions carry equal marks.

Q.1 a) Explain what a Java applications, also describe the history of Java?
b) Write a simple program which printing a line of text.

Q.2 a) What is any array? Explain all types of array with an example.
b) Explain different data types used in Java with examples.

Q.3 a) Describe *if* and else Selection structures with example.
b) Why *"while"* repetition structure is used in java programs, explain the *"while"* repetition structure?

Q.4 The factorial of a nonnegative integer n is written n! (Pronounced "n factorial") and is defined as follows:
n! = n (n-1) (n-2). . . 1 (for values of n greater than or equal to 1) and n! = 1 (for n = 0)
For example, 5! = 5.4.3.2.1, which is 120.
a) Write an application that reads a nonnegative integer from an input dialog and computes and prints its factorial.
b) Write an application that estimates the value of the mathematical constant *e* by using the formula

$$e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \ldots$$

Q.5 a) Describe switch Multiple-Selection structure. Also write down it programming structure in java.
b) What is Object oriented? Describe controlling access to members and scope of class.

ASSIGNMENT No. 2

Total Marks: 100 **Pass Marks: 40**

All questions carry equal marks.

Q.1 a) Discuss why casting a superclass reference to a subclass reference potentially dangerous?

b) What are packages in java? Briefly describe the Java API packages.

Q.2 a) Distinguish between inheriting interface and inheriting implantation? How do inheritance hierarchies designed for inheriting interface differ from those designed for inheriting implantation?

b) What is Polymorphism? Describe with an example.

Q.3 a) Briefly describe the constructors of Class string. Also write demonstrating of String class constructors in java.

b) Differentiate between abstract super class and concrete classes.

Q.4 a) Explain the relationship between Superclass and Subclass Objects with examples.

b) Explain the *private, public and protected* members of a Superclass and Subclass in java.

Q.5 a) Write a program in java having parent and child classes to demonstrate the concept of inheritance. Write down the advantages and disadvantages of multiple inheritances.

b) Explain String Buffer and String Tokenizer classes along with their methods.

COURSE OUTLINE

Credit Hours: 4 (3+1)

3415 Programming Language-III

Recommended Book: Java How to Program by Deital & Deital, 3rd Edition

Unit–l Introduction

a) Introduction to Java Applications, Introduction
b) Using Comments, Block of Codes, a Simple Java Program

Unit–2 Data Types & Arrays

a) Data Types, Declaring & Allocating Arrays
b) References and Reference Parameters
c) Searching Arrays, Multiple Subscripted Arrays

Unit–3 Control Structures-I

a) Selection Structure
b) While Repetition Structure

Unit–4 Control Structures-II

a) For Repetition Structure, Do/While Repetition Structure
b) Break and Continue
c) Multiple Selection Structure

Unit–5 Object Oriented Programming-I

a) Introduction to Class, Class Scopes, Creating Packages
b) Constructors, Set & Get Method
c) This Reference, Finalizer, Static Class Member

Unit–6 Object Oriented Programming-II

a) Super Class, Sub Classes, Protected Members
b) Inheritance, Polymorphism
c) Dynamic Method Binding, Inner Class Definitions

Unit–7 Packages, Interfaces, and Exception Handling

a) Defining a Package, Access Protection, Importing Packages, Interfaces
b) Exception-Handling Fundamentals, Exception Types, Using Try & Catch
c) Java Built-in-Exceptions

Unit–8 Strings & Characters

a) String Constructors, String Comparing, String Methods
b) String Concatenating
c) String Classes, String Methods

Unit–9 GUI

a) Graphics Context, Graphic Methods, Color and Font Control
b) Drawing Shapes, Java 2D API
c) Java 2D Shapes, Swing Overview, Jlable, Event Handling Model
d) JButton, JTextfield, JRadiobutton, JCheckbox, JList
e) Multiple Selection List, Mouse Event Handling
f) KeyBoeard Event Handling, Layout Managers.