Third Semester B.E. Makeup Examination, January 2020
OBJECT ORIENTED PROGRAMMING WITH JAVA

Time: 3 Hours   Max. Marks: 100

Instructions:
1. Answer any five (05) FULL questions selecting one full question from each unit.
2. Write appropriate comments wherever necessary.

UNIT - I

		L	CO	PO	M

a. List and briefly describe key attributes of Object Oriented programming.

     (2)   (1)   (1)   (06)

b. Can a String control a switch statement? If yes, develop a suitable Java program to demonstrate the same.

     (3)   (1)   (1)   (06)

c. Implement a method addAtBeginning() that takes an integer array named **a** and an integer **k** as its parameters. It creates a new array whose length is one greater than array a's length. It then copies k as the first element of the new array and copies a's elements as remaining elements into the new array. It displays the contents of the new array and returns.

     (3)   (2)   (1)   (08)

OR

a. Develop a Die class with one integer instance variable called sideUp. Give it a constructor and a getSideUp() method that returns the value of sideUp and a void roll() method that changes sideUp to a random value from 1 to 6. Then create a DieDemo class with a main method that creates two Die objects, rolls them, and prints the sum of the two sides up. (Hint: Math.randon() method returns a random number between 0 and 1.)

     (6)   (2)   (3)   (08)

b. What is a class? Give the general form of a class. Write a suitable Java program to demonstrate, as to how classes are defined and objects are created.

     (2)   (1)   (1)   (06)

c. Describe the syntax of for-each loop in Java. Develop a Java program to display the sum of odd numbers in the array, using both for and for-each statements in Java.

     (3)   (2)   (1)   (06)

UNIT – II

		L	CO	PO	M

a. Develop a recursive method to generate k^{th} Fibonacci number. Write the associated drive class containing main() method to generate first n Fibonacci numbers.

     (3)   (2)   (3)   (06)

b. Explain the static members of a class with suitable code snippets.

     (2)   (1)   (1)   (06)

c. Describe the significance of the four access specifiers in Java with suitable example programs.

     (2)   (1)   (1)   (08)

OR

a. Develop a method reverseArray() that reverses the order of the elements in the array. Implement it in two ways:
    i. iteratively
    ii. recursively

     (3)   (2)   (3)   (08)

b. What is method overloading? What is the need for method overloading? Demonstrate method overloading with a suitable program example.

     (2)   (3)   (1)   (06)

Note: L (Level), CO (Course Outcome), PO (Programme Outcome), M (Marks)

c. Justify the following statement with suitable programming example and explanation:
An inner class has access to the members of its enclosing class. The opposite, however, is not true

(4) (1) (1) (06)
L. CO PO M

UNIT - III

5 a. Write a java program that creates a superclass called TwoDShape which stores the width and height of a two dimensional object. It also has a subclass triangle which has a dimension as style that describes the triangle such as filled, outlined and transparent. It also computes area of triangle and displays triangle style.

(3) (3) (1) (10)

b. Write a java program that specifies an interface called Series that describes the methods used to generate a series of numbers. Series defines three methods. A method to obtain next number in the series, second method to reset the series to its starting point and last method to set the starting point.

(3) (3) (1) (10)

OR

6 a. Create a class called vehicle that encapsulates information about vehicles, including the number of passengers they can carry, their fuel capacity and their fuel consumption rate. Vehicle class can be considered as a starting point from which more specialized classes are developed. One type of Vehicle is Truck. Truck extends Vehicle by adding an instance variable that stores the carrying capacity. Add the Accessor methods that provide for getting and setting their values.

(3) (3) (3) (10)

b. Describe the concept of extending an interface that inherits another interface with an example. Illustrate nesting of interfaces with an example.

(2) (3) (3) (10)
L. CO PO M

UNIT – IV

7 a. What is a package? What are the advantages of using a package in Java? Explain the process of creating a package.

(2) (1) (1) (07)

b. Develop a Java program to demonstrate handling of any two exceptions in Java.

(3) (4) (1) (06)

c. An anagram is a word or phrase formed by rearranging the letters of a different word or phrase, typically using all the original letters exactly once. Develop a Java program to check whether the strings are anagrams or not.

(6) (1) (12) (07)

OR

8 a. What is an exception? What are the five keywords used in exception handling in Java? Explain with a suitable programming example.

(2) (4) (3) (09)

b. Develop a Java program having a method that takes a string as its parameter and returns true if all the characters in the string are the same character.

(3) (1) (1) (06)

c. What are the three different ways to refer to any class contained in a different package? Explain with suitable code snippets.

(2) (1) (1) (0)
L. CO PO M

UNIT -V

9 a. What are the two key items of Swing GUI? Explain with examples.

(2) (5) (1) (0)

Note: L (Level),CO (Course Outcome), PO (Programme Outcome), M (Marks)

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b. Develop the following GUI shown in FigQ9b. When "First" button is clicked, the program should display on the label called "Press a button..." the message, "Hello World!". When "Second" button is clicked, the program should display on the label called "Press a button..." the message, "Good Day!".
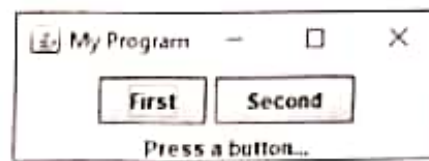
My Program — □ ✕

First   Second

Press a button...

Fig Q9b.

(4) (5) (12) (08)

c. How does a JToggleButton work? Demonstrate using a Java program.

(2) (5) (3) (06)

OR

10 a. With example, explain the following terms associated with event handling.
   i.   Event
   ii.   Event sources
   iii. Event listeners

(2) (5) (1) (06)

b. Develop the following GUI shown in Fig.Q10b. When the user enters name and presses "OK" button, the program should display "Welcome "followed by string contained in the text field.
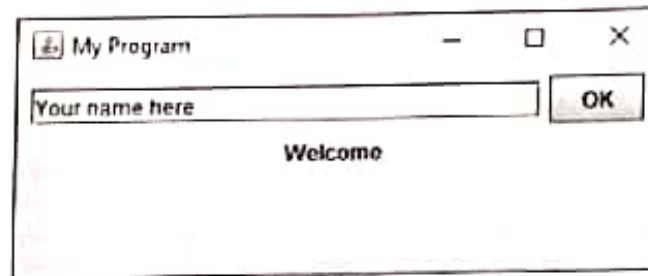
My Program — □ ✕

Your name here   OK

Welcome

Fig.Q10b.

(4) (5) (12) (08)

c. What are the different layout managers available to a Swing programmer? Describe BorderLayout and FlowLayout.

(2) (5) (1) (06)

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Third Semester B.E. Semester End Examination, Dec./Jan. 2019-20
OBJECT ORIENTED PROGRAMMING WITH JAVA

Time: 3 Hours   Max. Marks: 100

Instructions: 1. *Answer any one full question from each UNIT.*
2. *Each full question of a UNIT carries 20 marks*

			L	CO	PO	M

UNIT - I

1 a. Explain the three key attributes of object oriented principles. Describe the general form of a java program. Write a java program to convert 10 gallons to liters and display the result. There are approximately 3.7854 liters in a gallon.
(2) (1) (1) (10)

 b. Explain methods of String class that operate on strings. Write a java program to display twelve names, stored in a one-dimensional array, in a tabular form that has 3 rows and 4 columns.
(2) (2) (3) (10)

OR

2 a. Describe the creation of a two dimensional array. Write a java program to sort elements of an array num[ ]={99, -10, 100123, 18, -978, 5623, 463, -9, 287, 49} using Bubble sort and print the sorted array.
(2) (1) (3) (10)

 b. Describe for-each style for-loop with an example. Write a Java program to perform multiplication of two matrices.
(2) (2) (1) (10)

			L	CO	PO	M

UNIT – II

3 a. Illustrate the use of java's access modifiers private and public. Define a class Myclass, alpha is a private data member and beta is public data member in Myclass. It includes accessor methods to get and set member alpha. The program initializes both the members and display messages appropriately.
(2) (2) (1) (08)

 b. Write a java program that illustrates passing of objects to methods, it defines a class called Cuboid that stores the three dimensions namely width, breadth and height. Write a method, computeVolume that accepts object of this class and returns the volume. In the DemoClass, instantiate object of this class, invoke the method and display the result.
(3) (2) (3) (06)

 c. Demonstrate method overloading in a FunClass, in which a method fun( ) is overloaded four times. First version takes no parameters, the second takes one integer parameter, the third takes two integer parameters and fourth takes two double parameters. Each method prints appropriate messages.
(3) (2) (1) (06)

OR

4 a. Illustrate a class that encapsulates information about a vehicle, it stores 3 attributes about a vehicle namely, the number of passengers, its fuel capacity and its average fuel consumption in miles per gallon(mpg). Use parameterized constructor to initialize 2 vehicles. Add a method computeRange that returns distance covered by the vehicle. Print the values of two vehicles and also the distance travelled.
(2) (2) (1) (10)

 b. Describe the use of this keyword. Write a java program that defines a Class Power that stores, base and exponent of the term a^n. Add a parameterized constructor that initializes a and n using this pointer. Also add a method computePower that iteratively computes a^n.
(3) (2) (3) (10)

Note: L (Level),CO (Course Outcome), PO (Programme Outcome), M (Marks)

5   a.   In a class hierarchy, in what order are the constructors executed? Explain with a programming example.

                                                       (2)   (3)   (1)   (06)

    b.   Create a class named 'Rectangle' with two data members 'length' and 'breadth' and two methods to print the area and perimeter of the rectangle respectively. Its constructor having parameters for length and breadth is used to initialize length and breadth of the rectangle. Let class Box inherit the 'Rectangle' class with its constructor having a parameter for its side (suppose s) calling the constructor of its parent class as 'super(s,s)'. Print the area and perimeter of a rectangle and a square.

                                                       (3)   (3)   (12)   (06)

    c.   What is an interface? What are the differences between a class and an interface? How do you create an interface? Explain with an example.

                                                       (2)   (1)   (1)   (08)

<div align="center">OR</div>

6   a.   What is method overriding? What is the need for method overriding? Demonstrate method overriding with a suitable program example.

                                                       (3)   (3)   (1)   (06)

    b.   Develop a Java program to implement the following inheritance hierarchy. The Employee class has name, address, basic as the instance variables. Given the basic salary, components of his/her salary are: Dearness allowance – 75% of basic salary, HRA – 7.5% of basic salary. A deduction of 10% of basic is deducted from gross salary as Income Tax to compute the net salary. Programmer class inherits from Employee class. The Programmer class has bonus as instance variable. The bonus is added to gross salary depending upon the skills and experience as per the following criteria.

Experience	Skill		
	Java	Python	C++
1-5 years	10% of basic	15% of basic	8% of basic
6-10 years	15% of basic	20% of basic	10% of basic
>10 years	20 % of basic	25 % of basic	15 % of basic

                                                       (3)   (3)   (12)   (08)

    c.   What is an abstract class? What are the rules applicable to abstract classes? How can you use a reference of an abstract class to achieve run-time polymorphism? Explain with an example program.

                                                       (2)   (3)   (3)   (06)

7   a.   Describe defining a package. Write a java program that illustrates use of package. It includes a class Book with dimensions title, author and pubDate. It initializes book objects and prints the content of atleast 5 books.

                                                       (2)   (4)   (1)   (10)

    b.   Write a java program to illustrate exception handling that handles the array index out of bound. Describe several commonly used methods defined by Throwable.

                                                       (3)   (4)   (1)   (10)

<div align="center">OR</div>

8   a.   Describe importing of the packages with an example. List java's standard packages with description. What is static import, explain with an example.

                                                       (2)   (4)   (1)   (10)

    b.   Describe with an example throwing of an exception for a user defined exception. Explain string comparison using any five methods provided by String class.

                                                       (2)   (4)   (1)   (10)

<div align="center">Note: L (Level), CO (Course Outcome), PO (Programme Outcome), M (Marks)</div>

UNIT -V

				L	CO	PO	M

9 a. Create a swing application that demonstrates several key features of swing.

(3)   (5)   (3)   (10)

   b. List all Event classes and corresponding event listener. Describe the cause for generation of each event.

(2)   (5)   (1)   (10)

OR

10 a. Write a java program that demonstrates icon based JButtons. It displays traffic light icons inside buttons.

(3)   (5)   (3)   (10)

   b. Write a java program to illustrate the use of checkboxes. User can select supported operating systems Windows, Linux and Mac os. It displays appropriate messages for the selection made by the user.

(3)   (5)   (3)   (10)

Note: L (Level), CO (Course Outcome), PO (Programme Outcome), M (Marks)

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Third Semester B.E. Makeup Examination, May/June 2018-19

OOP WITH JAVA

Max. Marks: 100

Time: 3 Hours

Instructions:
1. Units II and III are compulsory.
2. Answer any one full question from remaining each UNITS.
3. Write Java program, where ever necessary.
4. Assume suitable data, if necessary.

			L	CO	PO	M
UNIT – I						
1	a.	Infer a class and an object in Java with example.	(2)	(2)	(2)	(06)
	b.	Paraphrase terms associated with Java: i) Multithreaded ii) Architecture Neutral.	(2)	(1)	(1)	(08)
	c.	List and discuss three principles of Object Oriented Programming.	(2)	(1)	(1)	(06)
OR						
	a.	Explain Java program's format or skeleton, with an example.	(2)	(1)	(1)	(10)
	b.	Explain buzzwords of Java, JVM and byte code, briefly.	(2)	(1)	(1)	(10)
			L	CO	PO	M
UNIT – II (Compulsory)						
3	a.	How you add a Method to the Box Class, explain with Java program.	(2)	(2)	(1)	(06)
	b.	Write a Java program to demonstrate Parameterized Constructors.	(2)	(2)	(1)	(08)
	c.	With Java code, review the General Form of a Class.	(2)	(2)	(1)	(06)
UNIT – III (Compulsory)			L	CO	PO	M
4	a.	Illustrate with a Java program using the ArrayList Class and LinkedList Class.	(2)	(3)	(2)	(08)
	b.	Interpret Nested and Inner Classes using Java program.	(2)	(3)	(2)	(06)
	c.	Describe Recursion in Java. Write an example.	(2)	(3)	(2)	(06)
UNIT - IV			L	CO	PO	M
5	a.	What is polymorphism, explain with simple Java program.	(2)	(4)	(2)	(08)
	b.	Define method overriding, with a java program.	(2)	(4)	(2)	(06)
	c.	With respect to Java, review benefits of inheritance and costs of inheritance.	(2)	(4)	(1)	(06)

OR

6   a.   Define following. in Java context :i)Base class object, ii)subclass, ii!)subtype, iv)substitutability

(2)   (4)   (1)   (06)

  b.   Illustrate Hierarchical abstractions using a program written in Java.

(3)   (4)   (2)   (06)

  c.   Compare the forms of inheritance, using samples of Java.

(2)   (4)   (2)   (08)

L   CO   PO   M

UNIT - V

7   a.   Define super keyword in Java. Demonstrate the usage of super keyword.

(2)   (3)   (1)   (10)

  b.   Define exceptions. Illustrate Division by Zero run time error using a Java program.

(3)   (4)   (1)   (10)

OR

8   a.   Explain the following keywords briefly:

(a) try
(b) catch
(c) finally
(d) throw
(e) throws

(2)   (3)   (1)   (10)

  b.   Illustrate exception handling in Java, with a program.

(2)   (3)   (1)   (10)

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Fourth Semester B.E. Makeup Examination, June 2018
OBJECT ORIENTED PROGRAMMING WITH JAVA

Time: 3 Hours   Max. Marks: 100

Instructions: 1.   UNIT I and UNIT II are Compulsory questions
2.   Answer any Full Questions from the remaining UNITS
3.   Examples should be in the form of code snippet only

UNIT - I

1   a.   List and Explain the JAVA buzzwords.   **10 M**
(Level [L1, L2], CO [1], PO [1])

b.   Explain the three object oriented programming principles.   **10 M**
(Level [L1], CO [1], PO [1])

UNIT – II

2   a.   Describe the following terms in detail with an example each.   **10 M**
a.   Class
b.   Object
c.   Constructor
d.   this
(Level [L1, L3], CO [2], PO [1, 12])

b.   Write a JAVA program to implement the class.Explain   **10 M**
(Level [L3], CO [2], PO [2,12])

UNIT – III

3   a.   Explain with an example the concept of overloading with respect to: **10M**
a.   methods
b.   constructors
(Level [L2], CO [2], PO [1])

b.   Define nested class. Explain with an example the concept of inner class.   **10 M**
(Level [L1], CO [2], PO [2])

OR

4   a.   Explain with an example how objects can be passed to methods.   **05 M**
(Level [L3], CO [2], PO [2, 12])

b.   Write a JAVA program to illustrate parameterized constructor overloading.   **10 M**
(Level [L3], CO [2], PO [2,12])

c.   Write a note on String class with example   **05 M**
(Level [L3], CO [2], PO [1])

UNIT – IV

5   a.   Explain with examples the different uses of keyword 'super'.   **10 M**
(Level [L2], CO [3], PO [1])

b.   Explain with examples the effect of the keyword 'final' with respect to: **10 M**
a.   class
b.   methods of class
(Level [L2], CO [3], PO [2])

OR

a.   Distinguish between method overloading and method overriding with examples.   **06 M**
(Level [L4], CO [3], PO [2])

b. What are the rules to be followed to access the members in inheritance? Discuss the advantages and disadvantages of inheritance.   06 M
(Level [L2], CO [3], PO [1])

c. Write a JAVA program to illustrate the concept of inheritance.   08 M
(Level [3], CO [3], PO [2,12])

UNIT –V

7 a. Explain the nested try and catch with an example.   07 M
(Level [L2], CO [4], PO [1])

b. What is the exception hierarchy followed in Java? List the benefits of exception handling   05 M
(Level [L1], CO [4], PO [1])

c. Discuss the following terms with examples: 08 M
    a. throws
    b. finally
(Level [L2], CO [4], PO [2])

OR

8 a. Write a JAVA program to create a custom exception.   10 M
(Level [L3], CO [4], PO [12])

b. Explain with the syntax the try and catch block to handle multiple exceptions.   05 M
(Level [L2], CO [4], PO [1])

c. What is an exception? List the exception types in java. And what are uncaught exceptions?   05 M
(Level [L1], CO [4], PO [1,2])