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MC–202

M. C. A. (FOURTH SEMESTER)

END SEMESTER EXAMINATION,

July/Aug., 2022

OBJECT ORIENTED ANALYSIS AND JAVA PROGRAMMING

Time : Three Hours

Maximum Marks : 100

ote : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are twenty.

(iv) Each sub-question carries 10 marks.

(a) Create a class named Shape. It should contain two methods, draw() and erase() that prints "Drawing shape" and "erasing

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shape" respectively. For this class, create three sub classes Circle, Triangle, and square. Each sub-class should override the parent class function draw() and erase(). The draw() method should print "Drawing circle", "Drawing Triangle" and "Drawing Square" respectively. Create the objects of Circle, Triangle, and Square using parent class reference. Now demonstrate the polymorphic nature of the class by invoking draw() and erase() using each object. (CO1)

(b) Create a new class Box with a parameterized constructor to initialize the dimensions of a box. The dimensions of the box are width, height, and depth. The class should have a method that can return the volume of the box. Create an Object of the Box class and test the functionality. (CO1)

(c) Explain object-oriented features. Differentiate between default constructor and parameterized constructor. (CO1)

2. (a) Explain the command line arguments in java. Write a java program that accept two, two digits integers from command line and print TRUE if the last digit of both the integers are same otherwise print FALSE. (CO1)

(b) Differentiate between mutability and immutability of string objects. Write a java code that return the first half of the string, if the length of the string is even. If the length is not even then it should return null. Use Scanner/BufferReader to enter String. (CO1)

(c) Explain package in java. Is it possible to create user define packages in Java ? If yes then explain how we can create package and execution commands (compile and

run) for package programs from command prompt. Create a package called "test" package. Define a class Foundation inside the test package. Inside the class declare 4 integer variables with private, <default>, protected and public access modifier. Import the class and package in another class named as "Base". Try to access all four variables of the Foundation class in Base class and explain which variable are accessible and which are not. (CO2)

3. (a) Differentiate between FileWriter and PrintWriter class. Assume two text files one.txt and two.txt. Write a java program to merge the content of one.txt and two.txt into third file three.txt. (CO2)

(b) Explain Applet Life Cycle. Create GUI application using applet having AWT components TextFileds named as t1 and t2 and one Button.On click Button the values

of t1 and t2 TextFileds should be added and the result should be print on Label component. (CO3)

(c) Explain Thread life cycle. Write a java code to demonstrate thread synchronization. (CO2)

4. (a) Assume a table customer in MySQL/oracle database having id, customer name, mobile no (id should be auto generated and not null). Write a JDBC program to ask a user to enter name and mobile number using scanner class. Now using PreparedStatement insert the asked data into customer table. (CO4)

(b) Explain the Callable statement. Assume a table employee having id, name and salary fields in mysql/oracle. Create a procedure named as selectInfo(IN, OUT) with IN and OUT parameter. Define the procedure with select query and return the name of

specified id of IN parameter. Now write a JDBC program and ask a user to enter the id using Scanner/BufferedReader class and invoke selectInfo(IN,OUT) procedure and print the output of procedure in console.

(c) Explain the batch Update in JDBC. Write a JDBC program to demonstrate batchUpdate( ). (CO4)

5. (a) Explain Servlet Life cycle. Create a dynamic web project having index.html page. Create a form in index.html page with one text fields and one submit button. Now create a servlet class as Factorial.java and define doGet() method. Fetch the value from textfields and calculate the factorial and display the result in Factorial class. (CO5)

(b) Differentiate between RequestDispatcher and sendRedirect( ). Explain forward() and include() method of Servlet. Create a dynamic web project to demonstrate the RequestDispatcher functionality. (CO5)

(c) Explain JSP life cycle. Explain the various JSP Scripting element. Assume studinfo table in mysql/oracle database having name, address, mobile number, gender. Create a simple student registration page using JSP having name, address, mobile number, gender. Onclick submit button data should be saved in database table. (CO5)