20MCA22

Second Semester MCA Degree Examination, Jan./Feb. 2023 Object Oriented Programming with Java

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- a. What is Typecasting? Explain different types of typecasting in java with suitable example.
 (05 Marks)
 - b. Explain the following with example:

 i) % = (ii) > (iii) Find the type of the roots of the quadratic equation for the discriminant value using ternary operator (iv) Bitwise complement operator (iii) Warks)
 - c. Explain the scope and lifetime of variables in giva.

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- a. How arrays are initialized and defined in java explain with example. Write a java program to find the maximum and minimum element among array = \$5.36, 105, 15, 18, ... using for each loop.
 - b. Explain the following. i) charAtt) (i) getBytes() (iii) compareTer (iv) regionMatches() (i) lastIndexof() (ii) Marks)

Module-2

- 3 a Explain about static variable, static method and static block with suitable example.
 - (06 Marks)
 - b. What is varargs? Specify the restrictions on varargs. Explain varargs with an example.
 - (06 Marks)

(08 Marks)

106 Marks

- c. Create a class called distance where distance is expressed in terms of mts and cms. Write constructors to initialize the distance object. Overload a method add such that distance add (distance int). Add intivalue and object distance add (distance distance). Add two objects
 - Lest the same on creating the objects.

OR

What is inheritance? What is the advantages of inheritance, write a java program to explain the execution of the constructor when an object of permanent Employee is created for the following hierarchy.

(10 Marks)

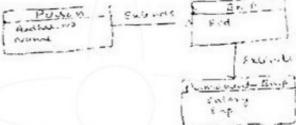


Fig.Q.4(a)

What is method overriding? Explain how overriding methods supports polymorphism create a class called Vehicle and a class Car which extends vehicle. Illustrate overriding using the relationship between the classes.

(10 Marks)

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2. Any revealing of identification, appeal to evaluator and for equations written eg. 42±8.—50, will be treated as malpractice.

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(04 Marks)

Module-3

- 5 a. What is an interface? With an example explain how multiple inheritance is implemented in java.
 - b. Design an interface called polygon with a method called area. Implement this interface to create different classes like square, rectangle and print the area of square and rectangle.
 (08 Marks)
 - c. What is a package? Write a simple program to create a package and import package to make use of the class declared in the package.
 (07 Marks)

OR

- 6 a. Define exception and explain the general structure of exception handling mechanism. Write a simple program to generate arithmetic exception and print the description of exception through the program.
 (10 Marks)
 - b. How to create user defined exception in java explain with an example? (06 Marks)
 - Differentiate between throw and throws.

Module-4

- Define a thread. Explain the two methods of creating threads. Write a java program to create multiple threads by implementing runnable interface. (10 Marks)
 - b. Write a java program to demonstrate producer consumer problem using synchronized threads. (10 Marks)

OR

- 8 a. What is enumeration? Explain values() and valueOft) methods. (10 Marks)
 - b. What is autoboxing and autounboxing in arithmetic expressions? Explain with an example.
 (10 Marks)

Module-5

- 9 a. Explain about URL connection class. Give suitable example for the same. (10 Marks)
 - b. What is TCP/IP client socket? Explain the two constructs used to create client socket.

(10 Marks)

OR

- 10 a. Explain linked list collection class in java with any 4 methods associated with it and write the java program to demonstrate adding a user defined class into linked list collection class.
 - (12 Marks) (08 Marks)

b. Explain Map interface with an example.
