CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐   **18CS45**

Fourth Semester B.E. Degree Examination, July/August 2022
Object Oriented Concepts

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1. a. Explain the concept of object oriented programming language
      (i)   Encapsulation
      (ii) Polymorphism
      (iii) Inheritance   **(06 Marks)**
   b. What is an inline function? What are the advantages of inline functions? Write a C++ program to find minimum of two numbers using inline function. **(08 Marks)**
   c. Define a friend function. Illustrate with an example. **(06 Marks)**

OR

2. a. Why friend functions are required? Write a C++ program to illustrate the use of friend function. **(06 Marks)**
   b. What is function overloading? Write a C++ program to swap two integers by function overloading. **(08 Marks)**
   c. Explain instance variable hiding. Explain with example how to overcome instance variable hiding. **(06 Marks)**

Module-2

3. a. What are constructors and destructors? Explain default constructors with example. **(08 Marks)**
   b. Illustrate with an example the order of calling constructor and destructor. **(08 Marks)**
   c. Explain namespaces with example. **(04 Marks)**

OR

4. a. Explain the following : Java buzzwords, Object oriented, Robust, Multi-threaded, Architecture neutral. **(08 Marks)**
   b. Write a Java program to find the sum of even numbers using for each version of for loop and print the result. **(06 Marks)**
   c. Explain labelled break and labelled continue with examples. **(06 Marks)**

Module-3

5. a. Explain general form of a class with example. **(06 Marks)**
   b. Write a Java program to implement stack of integers. Provide constructors and methods to push an element, POP an element and display the contents of the stack. **(14 Marks)**

OR

6. a. Explain multilevel inheritance with an example. **(06 Marks)**
   b. Explain exception handling mechanism provided in Java. Give syntax. Write a Java program to demonstrate exception handling construct. **(08 Marks)**
   c. Write a Java program to create user defined exception and demonstrate its use. **(06 Marks)**

Module-4

7 a. Explain the steps to create a package in Java with an example. (08 Marks)
   b. Explain interfaces in Java with example. (06 Marks)
   c. Can interfaces be inherited? Justify with an example. (06 Marks)

OR

8 a. Explain the following methods of Thread class, getName ( ), getPriority ( ), isAlive ( ), join ( ). (08 Marks)
   b. Write a Java program to illustrate thread creation using Runnable interface. (06 Marks)
   c. Write a Java program to illustrate synchronization using synchronized methods. (06 Marks)

Module-5

9 a. What are events, event listener and event source. Explain delegation event model used to handle events in Java. (07 Marks)
   b. Write a Java program to handle mouse dragged and mouse moved events. (07 Marks)
   c. Explain Adapter class with example. (06 Marks)

OR

10 a. Explain the following with examples :
      (i) JLabel   (ii) JTextField (04 Marks)
   b. Write a Java program to create a button, on clicking which displays "Welcome to VTU". (06 Marks)
   c. Write a Java program to create a table with column heading as FirstName, LastName, Age. Insert at least 3 records in the table and display. (10 Marks)

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