

## SEMESTER END EXAMINATIONS - APRIL 2023

Program	: <b>B.E :- Computer Science and Engineering</b>	Semester	: <b>III</b>
Course Name	: <b>Object Oriented Programming</b>	Max. Marks	: <b>100</b>
Course Code	: <b>CS34</b>	Duration	: <b>3 Hrs</b>

### Instructions to the Candidates:

- Answer one full question from each unit.
- Draw diagram wherever necessary.

### UNIT - I

- Define Object Oriented Programming, Design and Analysis. List the five main kinds of programming styles and the kinds of abstractions they employ. CO1 (06)
  - List Java Buzzwords. Examine the buzzwords that helped to accomplish the goal s "write once; run anywhere, any time, forever.", memory management mistakes and mishandled exceptional conditions. CO1 (08)
  - Write a java program program to create a 3 by 4 by 5, three-dimensional array. then load each element with the product of its indexes and display these products. CO1 (06)
- Identify the e property of an object through which its existence transcends Time and explain in details its spectrum. CO1 (06)
  - List the major and minor elements of the Object Model. Explain the element in detail with an example that focuses on the outside view of an object and so serves to separate an object's essential behavior from its implementation. CO1 (08)
  - Using three Jump statements, write a java program to find the prime numbers between range specified. CO1 (06)

### UNIT - II

- Why inner class is required? Illustrate with suitable example. CO2 (04)
  - An electricity board charges the following rates to domestic users to discourage the large consumption of energy:  
0 – 100 units - Rs. 1.50 per unit.  
101 – 200 units – Rs. 1.80 per unit.  
Beyond 200 units – Rs. 2.50 per unit.  
All users are charged a minimum of Rs. 50. If the total amount is more than Rs. 300 then an additional surcharge of 10% is added. Write a Java program to read names of users, number of units consumed and display the calculated charges. CO2 (07)
  - Explain the following with suitable examples:  
i) this keyword ii) final keyword iii) finalize() method. CO2 (09)
- Design a Java program to create a class "Student" with suitable members and implement the following methods:  
(i) to read students details like name, register number and test marks.  
(ii) to compute average test marks considering best two out of three marks.  
(iii) to display the complete student information.  
Use suitable attributes and constructors. CO2 (07)

- b) Describe argument passing and returning objects concepts in Java with suitable example program. CO2 (07)
- c) With suitable examples, explain the access control mechanism and nested classes in Java. CO2 (06)

## UNIT - III

- 5. a) Differentiate between Method Overloading and Method Overriding in Java. Create a class called Vehicle and a class called Bike which extends Vehicle. Illustrate Method Overloading and Method Overriding using the relationship between the classes. CO3 (08)
- b) Demonstrate the uses of keyword super in inheritance. CO3 (06)
- c) Write the general form of an interface. How interfaces can be extended? Explain. CO3 (06)
- 6. a) Explain the difference between String and String Buffer class. With proper syntax, explain the following methods:
  - (i) to extract particular character from a given string.
  - (ii) to reverse a given string.CO3 (06)
- b) Illustrate the mechanism of dynamic method dispatch. With an example, show how it is achieved? CO3 (07)
- c) Define Package. Describe the steps involved in creating a user defined package with suitable example. CO3 (07)

## UNIT- IV

- 7. a) Mention the use of setting Thread priorities. Write a java program to create two threads by extending thread class and set priority for each thread. Print the current thread name that has max priority to print first five odd numbers, and so does the other threads name that has less priority to print first five even numbers. Comment on suspending, resuming and stopping threads. CO4 (10)
- b) Identify the following exceptions as checked or unchecked Runtime Exceptions. Illustrate exceptions with Java programs. CO4 (10)
  - i) Number Format Exception
  - ii) File Not Found Exception
  - iii) Negative Array Size Exception
  - iv) IO Exception
  - iv) Null Pointer Exception.
- 8. a) Outline the need for Java Thread Synchronization. Write a java program to create two threads by extending the thread class and synchronizing them to print the following output:  
Sending Hi  
Hi Sent  
Sending Bye  
Bye Sent CO4 (10)
- b) Write a java program to illustrate multiple catch and nested try statements to print Arithmetic Exception, Array Index Out Of Bounds Exception, and Exception. CO4 (10)

## UNIT - V

- 9. a) Explain the following: CO5 (08)
  - i. Event ii. Event Sources iii. Event Listeners iv. Components.
- b) What are adapter classes? Demonstrate the use of mouse handling using adapter classes. CO5 (06)
- c) What is block lambda expression? What are its uses? Explain with an example program. CO5 (06)

10. a) Describe the delegation event model. Write java a program display a greeting message when a mouse button clicked. CO5 (08)
- b) What Is a Lambda Expression? Explain the Syntax and Characteristics of a Lambda Expression. CO5 (06)
- c) What is method reference in Java 8? Give an example of method reference. CO5 (06)

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