04/01/2023 - FN

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 70074

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Third Semester

Computer Science and Engineering

CS 3391 — OBJECT ORIENTED PROGRAMMING

(Common to : B.E. Biomedical Engineering/B.E. Medical Electronics/
B.Tech. Computer Science and Business Systems/B.Tech. Information Technology)

(Regulations 2021)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Java Language is Platform Independent. Justify your answer.

2. Difference between Method and Constructor.

3. Differentiate Method overloading and overriding.

4. Can we access parent class variables in child class by using super keyword?

5. Define Arithmetic Exception with example.

6. Name the two ways to create a thread in Java.

7. What is Thread Pool?

8. When a class must be declared as abstract?

9. What is a layout manager and what are different types of Layout managers available in java AWT?

10. Differentiate Hbox and VBox.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Differentiate between object oriented programming and procedure oriented programming. (7)

(ii) Write a Java program to find the greatest of three numbers. (6)

Or

(b) (i) Explain constructor with an example. (6)

(ii) Write a java program to display the grade of the students by using get() method to get marks and compute() method to compute the average and display() method to display the grade of the student. (7)

12. (a) (i) Write a java program for library interface with drawbook(), returnbook() and checkstatus() methods. (8)

(ii) Explain Method overloading with an example. (5)

Or

(b) (i) What are the advantages of using packages? (5)

(ii) Illustrate how to add classes in a package and how to access these classes in another package. (8)

13. (a) Create software for departmental stores to maintain the following details like item_no, item_description, requested quantity, cost price. Provide the options to update the stock. Calculate the selling price (SP = CP*20%). Create an exception whenever the selling price of item exceeds the given amount.

Or

(b) (i) Discuss about try, catch and finally Keywords in Exception Handling with an example. (8)

(ii) List and explain Data types and their Corresponding Wrapper class. (5)

14. (a) (i) Explain string buffer class with example. (6)

(ii) Outline parameter type bounds with an example. (7)

Or

(b) Apply the String handling functions to do the following operations :

(i) Compare the two strings

(ii) Reverse the String - "Happy".

15. (a) (i) List and explain the various layouts in java GUI. (8)

(ii) Explain the four types of buttons swing. (5)

Or

(b) Discuss the following with example:

(i) Mouse listener

(ii) Mouse motion listener

PART C — (1 × 15 = 15 marks)

16. (a) Create a Central Library management system with libraries in different locations in a city. Each Library can order a book from the central library and give it to the requesting customers. Availability of that book should be updated on each lending.

Consider each library as a thread that requests for a book for purchase from the central library. If the requested book count is less than zero, then central library provides an appropriate message to the appropriate requesting library. Implement using Multithreading.

Or

(b) With neat example, explain java AWT Menu bars and Menu items.

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Object Oriented Programming

Unit I: Introduction to OOP and Java

Object Oriented Programming paradigm | Features of Object Oriented Programming | Benefits and Drawbacks of OOP | Applications of OOP | Introduction to Java (Java Buzzwords, features) | Structure of a Java Program | Java Tokens | Variables | Data Types | Operators | Control Statements | Control Statements Example Java Programs | The Break and Continue Statements | Arrays | Arrays Example Java Programs | Defining Classes in Java | Constructor | Methods | Access Specifiers | Static Members | JavaDoc Comments | Two marks Questions with Answers |

Unit II: Inheritance, Packages and Interfaces

Overloading Methods | Objects as Parameters | Returning Objects | Static, Nested and Inner Classes | Inheritance: Basics | Type of Inheritance | What is Protected Member? | Implementation of Different Type of Inheritance | Super Keyword | Method Overriding | Polymorphism | Abstract Classes | The Final with Inheritance | The finalize() Method | Packages | Interfaces | Implementing Interface | Applying Interfaces | Multiple Inheritance | Two marks Questions with Answers |

Unit III: Exception Handling and Multithreading

Exception Handling | try-catch Block | Multiple Catch Clauses | Nested try Statements | Using finally | Using throws | Using throw | Java's Built-in Exceptions | User defined Exception | Basic Concepts of Thread | Java Thread Model | Creating a Thread | Multithreading | Priorities | Synchronization | Inter Thread Communication | Suspending - Resuming and Stopping Threads | Wrappers | Autoboxing | Two marks Questions with Answers |

Unit IV: I/O, Generics, String Handling

Java I/O Stream | Reading and Writing Console I/O | Reading and Writing Files | Generic Programming | Generic Methods | Generic Classes | Bounded Types | Restrictions and Limitations | Basic String Class | String Methods | StringBuffer Class | Two marks Questions with Answers |

Unit V: JAVAFX Event Handling, Controls and Components

Basicas of JAVAFX | JAVAFX Controls | JAVAFX Event Basics | JAVAFX Handling Key and Mouse Events | JAVAFX Layouts | JAVAFX Menus | Two marks Questions with Answers |

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CSE - Department

ANNA UNIVERSITY – 2021 Regulation

1st Semester

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- Professional Elective III
- Professional Elective IV

8th Semester

- Project Work/Internship

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Question Paper Code : 70436

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Third / Fourth / Fifth Semester

Computer Science and Engineering

CS 8392 — OBJECT ORIENTED PROGRAMMING

(Common to : Computer and Communication Engineering / Electrical and Electronics Engineering / Electronics and Communication Engineering / Electronics and Instrumentation Engineering / Electronics and Telecommunication Engineering / Instrumentation and Control Engineering / Artificial Intelligence and Data Science / Computer Science and Business Systems / Information Technology)

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How does Java achieve portability and platform neutrality?
2. What is the importance of static keyword?
3. How do Interfaces differ from Abstract classes?
4. What is deep object cloning? How it is implemented in Java.
5. What will the output of the following Java code?

```
class test {
    public static void main(String args[ ]) {
        int x = 0;
        int y = 80;
        int z = y/x;
        System.out.print(z);
    }
}
```

6. State the difference between character stream and Byte stream with an example.

7. Mention the benefits of using generics over non-generic code.

8. Justify the need of multithreaded programming with a real-time example.

9. What is source and listener in Java event handling?

10. List the features of AWT.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain in detail about the concepts of Object Oriented programming with an example. (7)

(ii) Write a Java code which accepts a set of 5 words from the user and perform reverse operation on each word and also display the resulting words in alphabetical order. (6)

Or

(b) (i) Explain the need of constructors and mention the type of constructors with an example for each type. (7)

(ii) Write a program in Java which gets 'n' numbers from the user in an array, compute and display the sum and average of the numbers. (6)

12. (a) (i) Mention the difference between class and interface also state the need of implementing interface in Java. (6)

(ii) Develop a Library interface which includes methods like drawbook( ) returnbook(fine), checkstatus( ) and reservebook( ) to carry out the task of library. Implement the library interface and perform the functionalities of library. (7)

Or

(b) (i) Discuss how reusability of code can be achieved through inheritance with an example. (6)

(ii) Develop a simple Employee information system application using Java. Create a class named 'Member' having the following members :

Data members – Name, Age, Phone number, Address, mailid and Salary It also has a method named 'displaySalary which prints the salary of the members.

Two classes 'Employee' and 'Manager' inherits the 'Member' class. The 'Employee' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name age, phone number, address, mailid and salary to an employee and a manager by making an object of both of these classes and print the same. (7)

13. (a) What is an exception? How exceptions are handled in Java. Discuss the use of throw, throws keyword, try, catch and finally blocks. Write an interactive program to compute the square root of a number. The input values must be tested for validity. If it is negative, the user defined method MySqrt( ) should raise an exception. (13)

Or

(b) Explain in detail about all Input and Output Byte Stream class with simple examples. Write a program to copy the bytes from one file to another file. (13)

14. (a) (i) How a thread is created? Discuss the life cycle of threads. (6)

(ii) Write a java program that implements a multi-threaded application that has three threads. First thread generates a random integer every 1 second and if the value is even, second thread computes the square of the number and prints it. If the value is odd, the third thread will print the value of cube of the number. (7)

Or

(b) (i) What is synchronization? With an example explain how thread synchronization is carried out in Java. (6)

(ii) Justify the purpose of using Inter-thread communication. Demonstrate how threads are suspended, stopped and resumed with an example. (7)

15. (a) (i) Explain the features of Swings and brief the GUI components used in Swings. (6)

(ii) Write a Java Swing program to create a GUI which has a textbox and two buttons. One button will convert the text in the textbox from Upper case to Lower case and other resets the textbox. (7)

Or

(b) (i) Describe in detail about different layouts in Java GUI with an example. (6)

(ii) Write a program to create a frame with the following menus such that the corresponding geometric object is created when a menu is clicked Circle, rectangle, line, and arc. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Develop a Java GUI application to implement a Vending Machine which follows following requirements :

(i) Accepts coins of ₹ 1, ₹ 5, ₹ 10, ₹ 25, ₹ 50

(ii) Allows user to select products (Chocolate(10), Snack(25), Nuts(50), Juice(20))

(iii) Allow user to take refund by cancelling the request

(iv) Return selected product and remaining change, if any

(v) Allow reset operation for vending machine supplier.

Use multithreading, inheritance, exception handling mechanism in appropriate scenario.

Or

(b) Create a Java console application for Dessert Shop which sells chocolates, cookies, ice cream and icecream with topping. Implement the following :

Dessert Item is Abstract class which has abstract method as getcost, it can have other non-abstract methods also. Candy, cookie and icecream class will be derived from Dessert Item and Icecream with topping are derived from Icecream class. Cost of candy should be 10rs per item, Cost of Cookie should be 20rs for 10 Cookies, Cost of Icecream should be 100rs per scoop. Cost of Icecream with toppings will have the base price of icecream + topping price. The price of topping varies as follows : Caramel-25rs, Chocolate coating-30rs, Nuts-40rs, and Fruit-45rs. All Dessert Item have calories, you can set and get calories for each Desserts available in shop. There will be checkout class where total cost of the items is calculated after adding CGST and SGST. Output will be displayed as item name, quantity and its price. Implement Run-time polymorphism using these classes for this Java application. Use excepting handling techniques wherever it is necessary.

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Unit II: Inheritance, Packages and Interfaces

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Unit III: Exception Handling and Multithreading

Exception Handling | try-catch Block | Multiple Catch Clauses | Nested try Statements | Using finally | Using throws | Using throw | Java's Built-in Exceptions | User defined Exception | Basic Concepts of Thread | Java Thread Model | Creating a Thread | Multithreading | Priorities | Synchronization | Inter Thread Communication | Suspending - Resuming and Stopping Threads | Wrappers | Autoboxing | Two marks Questions with Answers |

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CSE - Department

ANNA UNIVERSITY – 2021 Regulation

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2nd Semester

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- Mandatory Course II

7th Semester

- Human Values and Ethics
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- Professional Elective II
- Professional Elective III
- Professional Elective IV

8th Semester

- Project Work/Internship

08/02/2024-FN.

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 20867

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Third/Fourth Semester

Computer Science and Engineering

CS 3391 – OBJECT ORIENTED PROGRAMMING

(Common to : Computer Science and Design/Biomedical Engineering/Computer Science and Engineering (Artificial Intelligence and Machine Learning)/Computer Science and Engineering (Cyber Security)/Computer and Communication Engineering/Medical Electronics/Computer Science and Business Systems and Information Technology)

(Regulations 2021)

Time : Three hours — Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is an array? How multidimensional arrays are implemented in Java?
2. Name the access modifiers in Java.
3. Define inheritance.
4. How can a subclass can call a constructor defined by its superclass?
5. Outline the difference between unchecked exceptions and checked exceptions.
6. Name the methods used by Java for interprocess communication to avoid polling.
7. What are streams?
8. Why parameterized types are important?
9. What is JavaFX?
10. Write a note on HBox and VBox.

PART B — (5 × 13 = 65 marks)

11. (a) (i) List the symbols that are used as separators in Java and present an outline of the same. (7)

(ii) Outline the primitive types of data in Java. (6)

Or

(b) (i) Outline the bitwise operators in Java that can be applied to the integer type. (7)

(ii) Outline while and do–while iteration statements in Java with its general form. (6)

12. (a) Outline method overloading and method overriding in Java with code fragments. (13)

Or

(b) What is an interface? How to define an interface? How one or more classes can implement an interface? Outline with code fragments. (13)

13. (a) (i) What is a Java exception? How Java exception handling is managed? Outline. (7)

(ii) Outline Java's checked exceptions defined a java.lang package. (6)

Or

(b) Present an outline of Java's multithreading system. Also outline the two ways to create a thread. (13)

14. (a) (i) Outline reading console input and writing console output in Java. (8)

(ii) Present an outline of FileInputStream and FileOutputStream classes. (5)

Or

(b) What is StringBuffer? Name and outline the constructors defined by StringBuffer with code fragments. (13)

15. (a) What is a button? Name and outline the types of buttons JavaFX provides with visual representations. (13)

Or

(b) Name and outline the types of panes JavaFX provides for organizing nodes in a container. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Write a Java program to accept 'n' names, store it in an array, sort the names in alphabetic order and display the result. Use classes and methods. (15)

Or

(b) Write a Java program to accept two square matrices, store them in an array, add the matrices and display the result. Use classes and methods. (15)

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7th Semester

- Human Values and Ethics
- Elective-Management
- Professional Elective II
- Professional Elective III
- Professional Elective IV

8th Semester

- Project Work/Internship

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50900

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024

Third / Fourth Semester

Computer Science and Engineering

CS 3391 – OBJECT ORIENTED PROGRAMMING

(Common to : Biomedical Engineering / Computer Science and Design / Computer Science and Engineering (Artificial Intelligence and Machine Learning) / Computer Science and Engineering (Cyber Security) / Computer and Communication Engineering / Medical Electronics / Computer Science and Business Systems / Information Technology

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the features of Object Oriented Programming.
2. Give an example for defining constant in Java.
3. Mention the use of constructor overloading.
4. Illustrate method overriding with an example.
5. Why to handle exceptions?
6. What is thread priority? How it can be set for a thread?
7. Write any four methods associated with basic string class.
8. What is a String Buffer Class?
9. Why JAVAFX is preferred for building Internet applications?
10. Write the constructors of HBox class.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss the various access specifiers in Java.

Or

(b) Explain Java static members with examples.

12. (a) With an example explain the use of Abstract classes in Java.

Or

(b) What is user defined package? How to create and import a user defined package? Explain with example.

13. (a) Discuss about user defined exceptions in Java. Give suitable example.

Or

(b) How thread synchronization is managed in java. Write example code.

14. (a) Write a Java program to read data from a file and to write data to a file.

Or

(b) Discuss about Generic classes and Generic methods in Java.

15. (a) With an example code explain how the key events are handled using JAVAFX.

Or

(b) Write a Java program to illustrate the use of JAVAFX checkbox and choice box controls.

PART C — (1 × 15 = 15 marks)

16. (a) Design a class called Ship that has the following members:

- Name of the ship-string
- Year-the year of the ship built in integer
- A constructor, get and set methods
- to String that displays the name of the ship and year

Extend a class CruiseShip from Ship with the following members:

- Maximum number of passengers – integer
- A constructor, get and set methods
- To String method that overrides base class to display the name of the ship and number of passengers.

Demonstrate the classes with ship array assigned with Ship and Cruise Ship objects and calling the respective to String method.

Or

(b) A and B are any two players in a game which progresses by making alternate moves by the players. Assume the odd moves are played by the player A and the even moves are played by the player B. Define a class for generating the player move which implements runnable interface and ensures that the player is operated with lock. Implement using thread pool so that A and B will get only the alternate moves. The players can stop after making a total of 100 moves.

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