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Question Paper Code : 90922

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Third 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)/
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. Compare object oriented programming with procedural programming.
2. What for default constructor is used?
3. Mention the types of inheritance in java.
4. Differentiate method overloading and overriding with example.
5. Compare between suspend and stop in thread.
6. List the different priority levels in thread.
7. List the Important Constructors of String Buffer Class.
8. Write down the syntax of Java Generics class.
9. Mention the advantage of JAVA FX.
10. Write the constructors of VBox class.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss about Java data types and variables.

Or

- (b) Explain the control statements available in Java.

12. (a) With examples discuss Static, Nested and Inner Classes.

Or

- (b) Give examples for using “super” Keyword: to invoke parent class method, to invoke parent class constructor.

13. (a) (i) Compare and contrast between built-in and user-defined threads. (6)
(ii) Illustrate in detail about synchronization. (7)

Or

- (b) What are the methods used to achieve inter thread communication? Write a Java program to illustrate it.

14. (a) Write Java Program using examples for various methods of reading and writing console Input/Output.

Or

- (b) Write a program to implement bounded types (extend super class) with generics.

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

Or

- (b) Describe in detail about different Layout Pane with examples.

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
- ToString that displays the name of the ship and year

Extend a class Cruise Ship from Ship with the following members:

- Maximum number of passengers-integer
- A constructor, get and set methods
- To String method that overrides base 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) Create an abstract class Employee with two data members staff name, staff ID and total salary from which derive two subclasses Permanent and Temporary. Permanent class has data members Basic Pay, Allowances, deductions and tax amount. Similarly temporary has data members like per day salary, noof days worked and tax amount. Create an interface with: tax(). The derived classes will implement the interface for computing the tax amount. If the tax amount for the temporary employee exceeds 50,000, raise a custom exception and also handle it. Create a Test class in which an array list <Employee> is created to store the instances of derived classes.

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