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School of Computing Science and Engineering

Master of Computer Applications
Semester End Examination - Jun 2024

Duration : 180 Minutes

Max Marks : 100

Sem II - E1PY201B / MCAN1210 Object Oriented Programming with Java

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

- 1) State the difference between a class and an object in OOP. K1 (2)
- 2) Discuss the hierarchical structure of packages in Java. How are subpackages organized? K2 (4)
- 3) How do servlets handle concurrency and multithreading? K2 (6)
- 4) What are the benefits and limitations of using savepoints in transaction management? K3 (9)
- 5) What is the HashSet class in Java? How does it differ from TreeSet and LinkedHashSet? K3 (9)
- 6) Java uses “garbage collection” for memory management. Explain what is meant here by garbage collection. What is the alternative to garbage collection? K5 (10)
- 7) Explain the difference between ArrayList and LinkedList in Java. Compare their performance for various operations like insertion, deletion, and traversal. K4 (12)
- 8) (a) Compare the use of throw, throws in problem solving in java. (b) Write a program that calculates the factorial of a number. If the user enters a negative number, throw a custom exception NegativeNumberException. Handle this exception in the calling code using the throws clause. K5 (15)
- 9) (a) What are checked and unchecked exceptions in Java? (b) Write a program in java that simulates a banking system. Create a BankAccount class representing a bank account with methods to deposit and withdraw funds. Handle both checked exceptions (e.g., InsufficientFundsException for withdrawal of more money than available) and unchecked exceptions (e.g., NumberFormatException for invalid input when depositing or withdrawing funds). K5 (15)
- 10) Write a program in Java to store the marks of 10 students. Define your own exception. Make use of your exception if entered marks are less than 0 or greater than 100. K6 (18)