


Name:			
Enrolment No:			
UPES End Semester Examination, December 2024.			
Course: Backend Development Program: BTech FSA Course Code: CSFS3001		Semester : V Time : 03 hrs. Max. Marks: 100	
Instructions: Please attempt according to the provided time and given weightage.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Explain the significance of environment variables in backend development.	4	CO1
Q 2	Discuss common security vulnerabilities in backend applications.	4	CO2
Q 3	Explain various testing strategies and tools available for backend applications, including unit testing, integration testing, and performance testing.	4	CO4
Q 4	How do CI/CD pipelines streamline code integration and deployment?	4	CO4
Q 5	Define microservices architecture and its benefits over monolithic architecture.	4	CO5
SECTION B (4Qx10M= 40 Marks)			
Q 6	Design a database schema for an e-commerce application that includes users, products, and orders using MongoDB. OR Given an integer array nums, find the contiguous subarray (containing at least one number) which has the largest sum and return its sum using JavaScript.	10	CO2
Q 7	Discuss the difference between synchronous and asynchronous programming with examples from backend development.	10	CO3
Q 8	Evaluate the different types of caching mechanisms and performance optimization techniques.	10	CO4
Q 9	Explain the key components of Docker's architecture and its uses.	10	CO5
SECTION-C (2Qx20M=40 Marks)			
Q 10	Create real time chat communication between an admin and user in JavaScript using WebSocket. OR	20	CO5

	Design a scalable and secure user authentication system with JWT. Implement login, logout, and token validation functionalities.		
Q 11	Analyze the key differences between monolithic and microservices-based backend systems and discuss how microservices can be used to scale applications.	20	CO5