



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:
22BCE0347

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT: G1+TG1

Programme Name & Branch : B.Tech. & Computer Science (Core and Specialization)
Course Code and Course Name : BCSE301L and Software Engineering
Faculty Name(s) : common to all
Class Number(s) : 2303, 2265, 2259, 2249, 2231, 2268, 2276, 2300, 2301, 2292, 5540, 2273, 2233, 2284, 2289, 2242, 2236, 2279, 2281, 2253, 2299, 2305
Date of Examination : 22.03.2025
Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions

Course Outcomes

CO 2: Demonstrate various software project management activities that include planning, Estimations, Risk assessment and Configuration Management

CO 3: Perform Requirements modelling and apply appropriate design and testing heuristics to produce quality software systems.

CO 5: Escalate the use of various standards and metrics in evaluating the process and product.

Q. No	Question	M	CO	BL
1.	Global Finance Corp. (GFC) is a multinational banking and financial services company with a large customer base and complex IT infrastructure. They handle sensitive customer data, including financial transactions, personal information, and investment portfolios. GFC experienced a sophisticated cyberattack originating from an external source. The attackers exploited a vulnerability in the company's firewall, gaining access to the internal network. They then moved laterally, compromising several servers, including those hosting customer databases and transaction processing systems which impacted in Data Breach (Sensitive information loss), System disruption, Financial Loss and Reputation Damage. Assume you are the Risk Management Team Head in GFC, classify various types of risks involved and prepare a Risk Management plan that should be relevant for above mentioned scenario	10	C O 2	B L 6
2.	Style Sphere was a start-up e-commerce platform focused on sustainable and ethically sourced fashion. It targeted a specific demographic: environmentally conscious millennials and Gen Z consumers looking for unique, high-quality apparel. The company has faced lot of challenges to take it forward and to generate the revenue. They have their own software application that runs the e-commerce platform but facing issues with customer acquisition, building trust and supply chain. Modify the requirement by identifying the various sources of changing requirements along with its factors and explain the types of volatile requirements for making the newer version of the e-commerce application. (7) For the above scenario, do we need to implement requirement validation techniques? Justify your answer with suitable example (3)	10	C O 3	B L 4
3.	a) An ABC Company requires antivirus software to enhance the security of their applications. As you own the start-up, the company approaches you to design their software by giving their requirements as follows. 1. Core Detection Capabilities (signature based, heuristic approach, ML based detection), 2. Real-time monitoring and protection from both system and web, 3. Automatic malware removal, 4. Low resource consumption, 5. Daily updates form server,	10	C O 3	B L 6



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	6. Attractive User Interface, 7. Code security, 8. Legal considerations. Based on the above requirements build the software model based on the elements of the requirements model. 1. scenario- based elements (3) 2. Behavioural elements (3) 3. flow oriented Model (4)			
4.	a) Hint to solve the below question: - These are fundamental design principles in software engineering that influence the maintainability, reusability, and overall quality of an application. It is a measure within the module and between the modules. (i) code Snippet: def calculate_average(numbers): """Calculates the average of a list of numbers.""" if not numbers: return 0 return sum(numbers) / len(numbers) (ii) Code Snippet: class Utility: def print_message(self, message): print(message) def calculate_square(self, number): return number * number def read_file(self, filename): with open(filename, 'r') as file: return file.read() Identify the type of bonding and justify whether it should be high or low? For both the above given code snippets (i) and (ii).	4	C O 3	B L 4
	b) User Interface (UI) design is the process of creating the visual layout and interactive elements of a digital product, such as a website, mobile app, or software application. Its primary goal is to make the user's interaction with the product intuitive, efficient, and enjoyable. List out any four key aspects (principles, design process and elements) of UI Design.	6		
5.	def factorial(n): if n == 0: return 1 else: result = 1 for i in range(1, n + 1): result *= i return result a. Compute cyclomatic complexity for the above code using flow graph/chart method. (5) b. Understand the Boundaries and generate at least five test cases for the above code using Boundary Value Analysis Technique. (5)	10	C O 5	B L 5