

**VIT**Vellore Institute of Technology
(Autonomous Institute of Technology established in 1984, AICTE Approved)NAME OF THE SCHOOL
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2024-2025

REG.NO.:

SLOT:C1+TC1

Programme Name & Branch : B.Tech (UBBS)
 Course Code and Course Name : CBS1005 & Software Engineering Methodologies
 Faculty Name(s) : VL2024250103934, VL2024250103937
 Class Number(s) : Prof. Manjula R, Prof. Swarnalatha P
 Date of Examination : 15.10.24, 2PM to 3.30 PM
 Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
 - M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
 - Course Outcomes
- Specify the business requirements through appropriate system analysis and design.
 - Adapt good programming and documentation standards
 - Implement and demonstrate any business system software from specification to validation and verification

Q. No	Question	M	CO	BL
1.	a. Identify any two continuous improvement and tradition approach of Total Quality Management for the scenario given in Q.No.2b.	5	CO3	BL3
	b. Calculate the Halstead metrics for the following piece of code: <pre>def calculate_area(radius): pi = 3.14 area = pi * radius * radius return area print (calculate_area (5))</pre>	5		
2	a). Match the following: - [5]	10	CO4	BL3
	1. Loose Coupling	A. Modules depend heavily on each other's internal workings.		
	2. Tight Coupling	B. Modules can be developed, tested, and maintained independently.		
	3. Data Coupling	C. Modules share data through parameters but do not depend on each other's implementations.		

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4. Control Coupling	D. One module controls the behavior of another by passing control information.			
5. Content Coupling	E. One module accesses or modifies the data of another module directly.			
b) Explain the importance of interaction within modules in software design. Justify this significance using a relevant design mantra, and apply to the Smart Home Automation System by identifying any two types of selected mantra and illustrate your points briefly. [5]				
Consider a Smart Home Automation System that integrates various modules, including lighting control, security monitoring, climate control, appliance management, and user interface. Each module is responsible for specific functionalities: the lighting control module manages smart lights based on user preferences or schedules, the security monitoring module oversees surveillance cameras and alarms, the climate control module regulates heating and cooling systems, the appliance management module allows control of devices like smart plugs and ovens, and the user interface module provides a centralized platform for users to interact with all these functionalities. The interaction between these modules is essential for creating an efficient, user-friendly experience that enhances comfort and security in the home.				
3.	a. Identify any two UI principles for an Interface given below and explain their characteristics.	5	CO4	BL3



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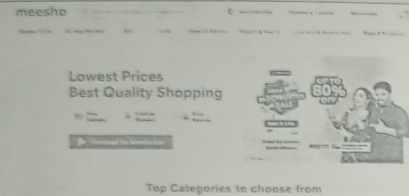
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b. Design the sequence model with suitable notations for the system given in Q.No.2b. Explain briefly.	5
4. Calculate the Cyclomatic Complexity for the following code and draw the corresponding flow graph: <pre> i = 0; n=4; //N-Number of nodes present in the graph while (i<n-1) do j = i + 1; while (j<n) do if A[i]<A[j] then swap(A[i], A[j]); end do; j=j+1; end do; </pre>	7
b). Fill up the blanks for the following: _____ ensures that the software meets the criteria set forth during the requirements phase. - In the _____ process, the focus is on determining whether the right product is being built based on user requirements. _____ is typically performed throughout the development lifecycle, while validation occurs after the software is developed.	3

5. a).Generate 5 test cases using functional testing for the Scenario: "Testing a Login Functionality". Explain briefly. [5] b) Apply Boundary value analysis technique for Let's consider a system that validates the length of a password. The password must meet the following criteria and generate 5 test cases. Explain briefly. [5] Criteria: "Valid length range: 8 to 16 characters (inclusive)"	CO5 BL2 10
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