



School of Computer Science Engineering and Information Systems
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT: E1

Programme Name & Branch : B. Tech. IT
Course Code and Course Name : BITE307L (Software Engineering)
Faculty Name(s) : Dr. Sweta Bhattacharya, Dr. Karthikeyan. P, Dr. Krithika L.B
Class Number(s) : VL2024250503094, VL2024250503098, VL2024250503106
Date of Examination : 20.03.25
Exam Duration : 90 minutes **Maximum Marks: 50**

General Instructions:

Blooms Taxonomy Level: (1- Remember, 2-Understand, 3- Apply,4- Analyse,5-Evaluate,6-Create)
Course Outcome 3 and 4:

3. Develop abstract models and architectural design for software development
4. Choose appropriate software testing and evolution strategies

Q. No	Question	M	CO	BL
1.	You have been asked to develop a system that will help with planning large-scale events and parties such as weddings, graduation celebrations and birthday parties. Using an activity diagram, model the process context for such a system that shows the activities involved in planning a party and the system elements that might be used at each stage.	10	CO3	BL3
2.	Develop a sequence diagram showing the interactions involved when a student registers for a course in a university. The student initiates the course registration process by accessing an electronic course catalogue to browse available courses. Since some courses have limited enrolment, the system must check for seat availability before confirming registration. The sequence diagram should illustrate the interactions among the student, course catalogue, registration system, and university database to ensure a smooth enrolment process.	10	CO3	BL3
3.	A smart farming company is developing an Agriculture Management System to track crop growth, manage farm equipment, and monitor soil health. The system needs to handle data from multiple farms, including crop data and soil data to store information about different crops type, growth stage, irrigation needs, track soil moisture, nutrients, and pH levels. a) Identify and illustrate the suitable pattern for the scenario with justification [6 Marks] b) How does this pattern help in managing farm data efficiently? [2 Marks] c) If new sensor technology is introduced to provide real-time soil health updates, how would this pattern help integrate this change? [2 Marks]	10	CO3	BL4



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4.	Draw the Control Flow Graph and compute cyclomatic complexity for the given code. <pre>while(x<100){ if (a[x] % 2 == 0) { parity = 0; } else { parity = 1; } switch(parity){ case 0: println("a[" + i + "] is even"); case 1: println("a[" + i + "] is odd"); default: println("Unexpected error"); } x++; } p = true;</pre>	10	CO4	BL6
5.	Oxford university recently advanced its course registration system to support online and hybrid learning options. As part of this enhancement, a new requirement has emerged where students should be able to filter courses based on mode of instruction either online, in-person, or hybrid. To implement this, the IT team needs to alter the electronic course catalogue and the user interface of the registration portal. Additionally, the database structure must be adjusted to store course delivery modes. a) Identify and justify the suitable maintenance for this scenario. [4 Marks] b) Elucidate the maintenance process for the given scenario. [3 Marks] c) What factors can affect the maintainability of this system? [3 Marks]	10	CO4	BL6