

**VIT**Vellore Institute of Technology
CHENNAIReg. Number: **Continuous Assessment Test (CAT) – II – Apr 2024**

Programme	B.Tech.	Sem	Winter 2023-2024
Course Code & Title	BCSE301L Software Engineering	Slot	C2+TC2
Faculty	ILAKIYASELVAN N PRAKASH B ALOK CHAUHAN JAYANTHI R SUGANESHWARI RAMA PRABHA BRINDHA REVATHI SMRITHY SRINIVASA PERUMAL R ELAKIA E	Class Nbr	CH2023240501963 CH2023240501965 CH2023240501966 CH2023240501968 CH2023240501969 CH2023240501513 CH2023240501972 CH2023240501973 CH2023240501974 CH2023240501975 CH2023240501976
Duration	1½ Hours	Max. Mark	50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use statistical tables supplied from the exam cell as necessary
- Use graph sheets supplied from the exam cell as necessary
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Sub Sec	Description	Marks
1.		<p>A filling station (gas station) is to be set up for fully automated operation. Drivers swipe their credit card through a reader connected to the pump; the card is verified by communication with a credit company computer, and a fuel limit is established. The driver may then take the fuel required. When fuel delivery is complete and the pump hose is returned to its holster, the driver's credit card account is debited with the cost of the fuel taken. The credit card is returned after debiting. If the card is invalid, the pump returns it before fuel is dispensed.</p> <p>As a Software Engineer, elaborate on the requirement management process followed in the Agile method for the given scenario.</p>	10
2.		<p>To help monitor climate change and to improve the accuracy of weather forecasts in remote areas, the government of a country decides to deploy several hundred weather stations in remote areas. Weather stations are part of a larger system, which is a weather information system that collects data from weather stations and makes it available to other systems for processing. Each weather station includes a number of instruments that measure weather parameters such as wind speed and direction, ground and air temperatures, barometric pressure, and rainfall over a 24-hour period. Each of these instruments is controlled by a software system that takes parameter readings periodically and manages the data collected from the instruments. The station software must also monitor the instruments, power, and communication hardware and report faults to the management system. The weather station can also receive commands from a remote controller.</p>	10

	<p>a. Identify the suitable software architecture style with proper justification for the given scenario. List down its advantages and limitations.</p> <p>b. As a software designer, prepare a class diagram for the given system by identifying the class entities with all possible relationships and cardinalities.</p>	10
3.	<p>Consider designing a banking system software. The system is responsible for managing customer details, customer account details (checking account and savings account), loans, and transactions. Customer account is generalized into checking and savings accounts. Each customer can have multiple accounts. Each account belongs to one customer. The same condition applies to the loan as well. The system helps the customer to perform various banking transactions using the Internet banking portal.</p> <p>a. Identify and elaborate on the various types of software requirements for the given system.</p> <p>b. For the given scenario, design the sequence diagram for the fund transfer process.</p>	10

*****All the best *****