

**VIT**Vellore Institute of Technology
Chennai 600 127, India

REG.NO.:

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

SLOT: G1 +TG1

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Programme Name & Branch : B.Tech CSE Core and All Specialization
 Course Code and Course Name : BCSE301L - Software Engineering
 Faculty Name(s) : PEREPI RAJARAJESWARL, MADHAN E S, KRISHNARAJ N, BAIGU B V, USHUS
 ELIZABETH ZACHARIAN, BASKARAN P, SUNILKUMAR G, AKILA VICTOR, ARIVOLU A, SWATHI IN, PRABIN S,
 YOGANAND S, DEEPAK, SAMBODHI SARKAR, ADRIJA BHATTACHARYA, BHAWANA TYAGI, ANAND BIHARI,
 DEEPIKA J, SAURABH AGRAWAL, SVAPRAKASH S, GOWTHAMI V, PRIYA PONNUSWAMY P
 Class Number(s) : VL2024250502303, VL2024250502265, VL2024250502259,
 VL2024250502249, VL2024250502231, VL2024250502268, VL2024250502276, VL2024250502300,
 VL2024250502301, VL2024250502292, VL2024250505540, VL2024250502273, VL2024250502233,
 VL2024250502284, VL2024250502289, VL2024250502242, VL2024250502236, VL2024250502279,
 VL2024250502281, VL2024250502253, VL2024250502299, VL2024250502305
 Date of Examination : 02-02-2025 FN
 Exam Duration : 90 minutes
 Maximum Marks: 50

General Instructions:

- 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:
 CO1: Apply and assess the principles of various process models for the software development.
 CO2: Demonstrate various software project management activities that include planning, Estimations, Risk assessment and Configuration Management
 CO3: Perform Requirements modelling and apply appropriate design and testing heuristics to produce quality software systems.

Q. No	Question	M	CO	BL
1.	a.) A technology company, Tech Innovators Ltd., plans to develop a cutting-edge, highly customizable Enterprise Resource Planning (ERP) system for small size enterprise. This system will integrate various business functions, such as finance, human resources, supply chain management, and customer relationship management, into a unified platform. The requirements for the application are clearly defined by the customer and duration for project is from 4 to 5 months. Identify the appropriate process model and explain the process in detail. (7 Marks) b.) Compare the failure curves for hardware, civil, electrical, and software projects. Highlight their unique characteristics and typical failure rates over their lifecycle stages. Discuss the factors influencing failures and mitigation strategies for each project type. (3 Marks)	10	CO1	BL-3
2.	a.) Imagine you are part of a software development team tasked with creating a new e-commerce platform for a client. The project is involving multiple features such as user authentication, product catalog management, shopping cart functionality, payment processing, and customer reviews. The client has a broad vision but is unsure about specific requirements and expects changes as the project progresses and they want to have worked model from	10	CO1	BL-3

	beginning of the development. Which model is suitable to solve this problem and explain model with scenario (7 Marks)																																											
	b.) Explain the Umbrella Activities that are carried out in the development of software project (3 Marks)																																											
3.	a.) You have a project with the following activities and their respective optimistic (O), most likely (M), and pessimistic (P) time estimates																																											
	<table border="1"> <thead> <tr> <th>Activity</th><th>Predecessor Activity</th><th>Optimistic (O)</th><th>Most Likely (M)</th><th>Pessimistic (P)</th></tr> </thead> <tbody> <tr> <td>A</td><td>-</td><td>2</td><td>3</td><td>5</td></tr> <tr> <td>B</td><td>A</td><td>4</td><td>5</td><td>8</td></tr> <tr> <td>C</td><td>A</td><td>3</td><td>4</td><td>6</td></tr> <tr> <td>D</td><td>B</td><td>5</td><td>7</td><td>10</td></tr> <tr> <td>E</td><td>C</td><td>6</td><td>8</td><td>12</td></tr> <tr> <td>F</td><td>D, E</td><td>3</td><td>4</td><td>6</td></tr> <tr> <td>G</td><td>F</td><td>4</td><td>5</td><td>7</td></tr> </tbody> </table>	Activity	Predecessor Activity	Optimistic (O)	Most Likely (M)	Pessimistic (P)	A	-	2	3	5	B	A	4	5	8	C	A	3	4	6	D	B	5	7	10	E	C	6	8	12	F	D, E	3	4	6	G	F	4	5	7	10	CO2	BL-3
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	Calculate the following:																																											
	i. Expected time (TE) for each activity using PERT. (3 Marks)																																											
	ii. Create a network diagram for the project and find the total duration of the project. (3 Marks)																																											
	b.) Draw the work breakdown structure for the online food delivery app by using process based with three levels. (4 marks)																																											
4.	a.) A software development project involves creating a complex application that is estimated to have around 150,000 delivered source instructions (DSI). Using the Basic COCOMO model, estimate the effort (in person-months) and development time (in months) required for the project. The project is categorized as an embedded project. (for embedded projects A= 3.6, B= 1.20, C= 2.5, D=0.32). (5 Marks)	10	CO2	BL-3																																								
	b.) Compare the different types of projects: organic, semi-detached, and embedded. Discuss their unique properties and characteristics. Provide an example scenario for each type. Highlight key differences and similarities among these project types. (5 Marks)																																											
5.	The university aims to develop an ERP (Enterprise Resource Planning) system to streamline their entire operational process. They plan to assign this project to XY Software Development Organization. As the project manager, explain and identify the following: (5 X 2 marks)																																											
	i. User Requirements	10	CO3	BL-2																																								
	ii. System Requirements																																											
	iii. Stakeholders (Direct, Indirect)																																											
	iv. Functional Requirements (2 No's)																																											
	v. Non-functional Requirements (2 No's)																																											