IN-SEMESTER EXAMINATION- I

TE (Semester-VI)

SUBJECT – Software Engineering

Branch: IT
Div.: ALL
Duration: 60 Minutes

Date: 06/03/2026
Timing: 02:00 pm to 03:00 pm
Maximum Marks: 20

Instructions –

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams / sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

Q.1		Answer any 5 of the following questions	Marks	Course Outcomes	Learning Levels
	a.	Apply the concept of layered approach in software engineering to explain how its layers can be used during the development of a simple web application.	2	CO1	A
	b.	Define process assessment and its importance in software engineering.	2	CO1	U
	c.	Identify the different umbrella activities in software development that support the software development process.	2	CO1	R
	d.	Apply your knowledge of Scrum framework to explain how the roles in a scrum team would function while developing a mobile application.	2	CO2	A
	e.	List different Prescriptive & Specialized Process Models? List all.	2	CO2	R
	f.	Classify the types of requirements in software engineering and explain in brief.	2	CO3	U
	g.	Discuss different origin of changes occurring during software product development process.	2	CO3	A
Q.2	a.	Under which situation Spiral model is used for the development of software product? Explain spiral model in detail.	5	CO2	A
		OR			
	b.	Illustrate how the concept of agility in software development can be used by a development team by referring to its core principles?	5	CO2	A
Q.3	a.	Sketch & Explain scheduling diagram for railway ticket reservation application development. Consider total span of development is 90 days.	5	CO3	A
		OR			
	b.	Consider a application which , if required to be developed by DRDO, Contain 3 modules M1,M2,M3 having Following Size: M1= 4600 LOC Optimistic developer M2 = 6900 LOC Most Likely Developer M3 = 8600 LOC Pessimistic developer. What is the expected size of application In General, if the S/W development effort is 10 person-month, find the productivity?	5	CO3	AN

IN-SEMESTER EXAMINATION-II
TE(Semester-VI)
SUBJECT – Software Engineering

Branch: IT **Date: 2**
Div.: ALL **Timing: 12:00 PM to**
Duration: 60 Minutes **Maximum M**

Instructions –

1. All questions are compulsory.
2. Assume suitable data wherever necessary and state the assumptions made.
3. Diagrams/sketches should be given wherever necessary.
4. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
5. Figures to the right indicate full marks.

Q.1		Answer any 5 of the following questions	Marks	Course Outcomes
	a.	Explain the goal of Data Design and illustrate its role in software architecture.	2	CO4
	b.	Apply the principle of Refinement in Component-Level Design and discuss its significance.	2	CO4
	c.	Differentiate between a software configuration audit and a software configuration review based on their objectives.	2	CO5
	d.	Apply risk mitigation principles to justify the importance of risk mitigation in project management.	2	CO5
	e.	Differentiate between White Box Testing and Black Box Testing by comparing their techniques and use cases.	2	CO
	f.	Apply the concept of Cyclomatic Complexity to explain its significance and demonstrate the formula with an example.	2	CO6
	g.	Describe the qualities assessed in the Product Transition Phase of McCall's Quality Factor Model.	2	CO6
Q.2	a.	Analyze the impact of poor User Interface Design on user satisfaction and system usability. Examine real-world failure cases.	5	CO4
		OR		
	b.	Analyze the role of information hiding in achieving secure and maintainable software systems. Examine its impact on module boundaries.	5	CO4
Q.3	a.	Apply Change Management concepts to draw a flowchart of the Change Management process and explain each step in the SCM change process.	5	CO5
		OR		
	b.	Design a complete Risk Information Sheet for a real-world software project by applying risk management documentation standards.	5	CO5

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END SEMESTER EXAMINATION, MAY 2026
T.E. SEMESTER VI (CBCGS-HME 2023)

Branch:	**IT**	**Q.P. Code:**	**E665RM263-2**
Subject:	**Software Engineering**	**Duration:**	**2 hours**
Subject Code:	**PCC- IT 602**	**Max. Marks:**	**60**

Instructions:
1. **All sections are compulsory**
2. **Figures to the right indicate full marks.**
3. **Assume suitable data if necessary and state the assumptions clearly.**

Section-I **Short Answer Questions (Answer any 05 questions out of 06)** **(10 Marks)**
(Fundamental, Core Types)

Q. No.		Marks	CO	RBT Level	PI
1	Illustrate the significance of SDLC by applying it to a software engineering context.	2	CO1	A	3.5.1
2	Examine different Prescriptive and Specialized Process Models and compare their applicability.	2	CO2	AN	1.7.1
3	Apply the concept of requirement gathering to justify its significance in software development.	2	CO3	A	1.6.1
4	Apply the principle of Refinement in Component-Level Design and discuss its significance.	2	CO4	A	2.6.1
5	Validate different categories of software risks and justify any one with a suitable example.	2	CO5	AN	1.7.1
6	Apply testing knowledge to illustrate the differences between Black Box and White Box Testing with examples.	2	CO6	A	2.7.1

Section-II **Descriptive Answer Questions (Answer any 04 out of 06)** **(20 Marks)**
(Descriptive, Comprehension Types)

1	Classify different types of software and construct a comparison illustrating the distinction between system software and application software.	5	CO1	A	2.5.1
2	Apply the Component Assembly Model to a software development scenario and demonstrate how reusable components improve development efficiency.	5	CO2	A	1.5.4
3	Analyze the key differences between Basic, Intermediate, and Detailed COCOMO models and examine their impact on cost estimation accuracy.	5	CO3	AN	1.2.5
4	Apply the concept of abstraction to design a high-level architecture for a banking system and illustrate how abstraction layers reduce complexity.	5	CO4	A	1.2.4
5	Apply risk identification techniques to identify two risks in a software project and construct a Risk Table with probability and impact values.	5	CO5	A	3.5.1
6	Analyze the effectiveness of Black Box Testing and White Box Testing in detecting different types of software defects.	5	CO6	AN	1.7.1

Section-III	Long Answer Question (Answer any 03 out of 05) (Application, Analytical, Evaluation, Design Type)				(30 Marks)
1	Analyze how Scrum benefits software development by promoting teamwork, adaptability, and continuous improvement. Examine its ceremonies, roles, and artifacts.	10	CO2	AN	2.8.4
2	Construct a Use Case Diagram for a Restaurant Management System and develop DFD Level 0 and Level 1 diagrams applying appropriate modeling standards.	10	CO3	C	1.7.1
3	Apply the concept of modularity to design a Library Management System and evaluate design decisions related to coupling, cohesion, and structural organization.	10	CO4	A	2.5.5
4	You are managing a software project, and you've identified the following risks in different categories. For each risk category, the likelihood (P), impact (I), and risk score (P * I) are provided. You need to analyze how reactive and proactive strategies would impact the project in terms of handling these risks. Here is the risk data: Task 1: Calculate the Risk Score for Each Risk Category Task 2: Prioritize the Risks Task 3: Suggest Mitigation Strategies	10	CO5	A	3.5.1
5	Design a test automation strategy for an online banking application. Apply test automation concepts, justify tool selection, and evaluate scenarios suitable for automation.	10	CO6	C	2.5.4

Risk Category	Likelihood (P)	Impact (I)	Risk Score (P × I)
Technical (T)	0.3	8	
Operational (O)	0.2	6	
Schedule (S)	0.4	7	
Budget (B)	0.6	5	
Environmental (E)	0.5	4	