Sub Code: R2321053 **R23** **Set No. 1**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURAJADA VIZINAGARAM
II B. Tech I Semester Regular/Supply Examinations, November – 2025
SOFTWARE ENGINEERING
(CSE)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part A, Part B.
Part A is compulsory, Answer all questions.
In Part B, Answer any one question from each unit.

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PART-A **(20 Marks)**

1	a)	Define software engineering. Why is it called an engineering discipline?	[2]
	b)	What are the key phases of the Software Development Life Cycle (SDLC)?	[2]
	c)	List the responsibilities of a software project manager.	[2]
	d)	What is COCOMO model? Mention its types.	[2]
	e)	Define cohesion and coupling. Why are they important in design?	[2]
	f)	What is a Data Flow Diagram (DFD)? Give its notations.	[2]
	g)	Differentiate between black-box testing and white-box testing.	[2]
	h)	What is software reliability?	[2]
	i)	Define software reuse. What are its advantages?	[2]
	j)	What is a CASE environment? Mention its major components.	[2]

PART-B **(50 Marks)**

Unit-1

2	a)	Explain the evolution of software engineering and its importance in modern systems.	[5]
	b)	Compare various software life cycle models and discuss their merits and limitations.	[5]
		(OR)	
3	a)	Describe the Spiral Model with a neat diagram. Highlight its risk-handling features.	[5]
	b)	Explain Agile Development Model and compare it with the Waterfall Model.	[5]
		Unit-2	
4	a)	Explain the process of software project estimation using COCOMO model.	[5]
	b)	Discuss the role of risk management in software project planning.	[5]
		(OR)	
5	a)	Define Software Requirements Specification (SRS). Describe its structure with examples.	[5]
	b)	Explain formal system specification methods – axiomatic and algebraic.	[5]
		Unit-3	
6	a)	Describe the characteristics of a good software design.	[5]
	b)	Explain cohesion and coupling with suitable examples.	[5]
		(OR)	
7	a)	What is Extreme Programming (XP)? Explain its practices in agile development.	[5]
	b)	Explain the principles of user interface design and their importance.	[5]
		Unit-4	
8	a)	Explain the phases of software testing with suitable examples.	[5]
	b)	Describe debugging and program analysis tools used in testing.	[5]

(OR)

9	a)	Discuss software reliability metrics and methods to improve reliability.	[5]
	b)	Explain the concept of Software Quality Management and ISO 9000 standards	[5]

Unit-5

10	a)	Explain the role and scope of Computer-Aided Software Engineering (CASE) tools.	[5]
	b)	Describe the architecture of a CASE environment.	[5]

(OR)

11	a)	Explain the various types of software maintenance with examples.	[5]
	b)	Write short notes on software reuse process and its challenges.	[5]

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