Course Code: 25MC9103

R25

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
(AUTONOMOUS)
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QUESTION BANK (DESCRIPTIVE)

Subject with Code : Software Engineering (25MC9103) **Course & Branch**: MCA
Year & Sem: II-MCA & II-Sem **Regulation:** R25

UNIT – I
Basic Concepts

1	**a)**	Define Software Development Life Cycle (SDLC).	**[L1][CO1]**	**[6M]**
	b)	List key features of the spiral model.	**[L2][CO1]**	**[6M]**
2	**a)**	Discuss advantages of incremental and evolutionary models.	**[L4][CO1]**	**[6M]**
	b)	Write a note on software myths.	**[L2][CO1]**	**[6M]**
3	**a)**	What is configuration management and why is it important?	**[L1][CO1]**	**[6M]**
	b)	Explain project estimation with COCOMO.	**[L3][CO1]**	**[6M]**
4	**a)**	Describe risk management in software projects.	**[L2][CO1]**	**[6M]**
	b)	Distinguish between software process and software project.	**[L4][CO1]**	**[6M]**
5	**a)**	State process assessment and its uses in software engineering.	**[L1][CO1]**	**[6M]**
	b)	List the five process framework activities and explain any one.	**[L2][CO1]**	**[6M]**
6		Compare iterative waterfall and spiral models with suitable examples.	**[L4][CO1]**	**[12M]**
7		Explain the phases and activities in RAD model for software development.	**[L2][CO1]**	**[12M]**
8		Analyze the impact of abstractions and decompositions in SE.	**[L4][CO1]**	**[12M]**
9		Describe all SDLC models and their context of use.	**[L2][CO1]**	**[12M]**
10		Prepare a project plan estimation, staffing, scheduling using COCOMO and team structure.	**[L3][CO1]**	**[12M]**

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UNIT – II
Nature of Software

1	**a)**	What is a functional requirement? Give one example.	**[L1][CO2]**	**[6M]**
	b)	Differentiate between functional and non-functional requirements.	**[L4][CO2]**	**[6M]**
2	**a)**	Explain the purpose of a data dictionary in software requirements.	**[L2][CO2]**	**[6M]**
	b)	What are the steps in requirements engineering?	**[L1][CO2]**	**[6M]**
3	**a)**	What is software prototyping? List benefits.	**[L2][CO2]**	**[6M]**
	b)	List and briefly discuss elicitation techniques.	**[L2][CO2]**	**[6M]**
4	**a)**	Explain traceability in SRS documents.	**[L2][CO2]**	**[6M]**
	b)	State the importance of requirement validation.	**[L2][CO2]**	**[6M]**
5	**a)**	Write IEEE 830 standards for SRS.	**[L1][CO2]**	**[6M]**
	b)	Write a simple decision table for a college admission system.	**[L3][CO2]**	**[6M]**
6		Prepare a sample SRS for a bus reservation system as per IEEE guidelines.	**[L3][CO2]**	**[12M]**
7		Explain, with example, the use of decision trees to capture system complexity.	**[L3][CO2]**	**[12M]**
8		Compare axiomatic and algebraic specification techniques with examples.	**[L4][CO2]**	**[12M]**
9		Explain formal system development techniques with suitable scenarios.	**[L2][CO2]**	**[12M]**
10		Analyze requirement gathering and representation for WebApps versus conventional software.	**[L4][CO2]**	**[12M]**

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UNIT – III

Good Software Design, Cohesion and coupling, Control Hierarchy

1	**a)**	Define cohesion/coupling and explain their role in design.	**[L2][CO3]**	**[6M]**
	b)	Differentiate object-oriented vs function-oriented design.	**[L4][CO3]**	**[6M]**
2	**a)**	What is layering in control hierarchy?	**[L1][CO3]**	**[6M]**
	b)	Explain structured analysis with DFD example.	**[L3][CO3]**	**[6M]**
3	**a)**	List characteristics of a good user interface.	**[L2][CO3]**	**[6M]**
	b)	What is the significance of user guidance and online help?	**[L2][CO3]**	**[6M]**
4	**a)**	Distinguish between mode-based and mode-less interfaces.	**[L4][CO3]**	**[6M]**
	b)	List UML diagrams used in software design with their primary purpose.	**[L1][CO3]**	**[6M]**
5	**a)**	Define GUI design methodology steps.	**[L1][CO3]**	**[6M]**
	b)	Explain the principles of structured design.	**[L2][CO3]**	**[6M]**
6		Design a DFD up to Level 2 for a library system.	**[L3][CO3]**	**[12M]**
7		Compare and contrast structured and object-oriented approaches, highlighting benefits.	**[L4][CO3]**	**[12M]**
8		Describe a detailed GUI design methodology for online shopping.	**[L2][CO3]**	**[12M]**
9		Analyze the effect of control abstraction and module depth on maintainability.	**[L4][CO3]**	**[12M]**
10		Evaluate user interface strategies for a mobile banking application.	**[L4][CO3]**	**[12M]**

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UNIT-IV

Coding Standards and Guidelines, Testing

1	**a)**	Why are coding standards important?	**[L2][CO4]**	**[6M]**
	b)	What is the difference between black box and white box testing?	**[L4][CO4]**	**[6M]**
2	**a)**	List steps involved in code review.	**[L1][CO4]**	**[6M]**
	b)	Write notes on regression testing.	**[L2][CO4]**	**[6M]**
3	**a)**	Explain unit and system testing.	**[L2][CO4]**	**[6M]**
	b)	What are the objectives of performance testing?	**[L1][CO4]**	**[6M]**
4	**a)**	Discuss program analysis tools used in testing.	**[L2][CO4]**	**[6M]**
	b)	List types of documentation needed during coding phase.	**[L1][CO4]**	**[6M]**
5	**a)**	Explain integration testing methodology.	**[L2][CO4]**	**[6M]**
	b)	Write two techniques of debugging and their benefits.	**[L3][CO4]**	**[6M]**
6		Prepare detailed test cases for a student registration module using black box and white box.	**[L3][CO4]**	**[12M]**
7		Analyze testing strategies for object-oriented programs.	**[L4][CO4]**	**[12M]**
8		Explain methodologies for thorough integration and system testing in a complex project.	**[L2][CO4]**	**[12M]**
9		Prepare a code review checklist and discuss its effectiveness.	**[L3][CO4]**	**[12M]**
10		Evaluate effectiveness of program analysis tools in debugging large projects.	**[L5][CO4]**	**[12M]**

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UNIT-V

Software Reliability and Quality Management

1	**a)**	What are software quality metrics? Give any three.	**[L1][CO5]**	**[6M]**
	b)	Explain ISO 9000 and its significance for SE.	**[L2][CO5]**	**[6M]**
2	**a)**	List levels of SEI Capability Maturity Model.	**[L1][CO5]**	**[6M]**
	b)	Define reverse engineering. Why is it needed?	**[L2][CO5]**	**[6M]**
3	**a)**	What is CASE? Write its scope in software engineering.	**[L1][CO5]**	**[6M]**
	b)	Explain software maintenance process model.	**[L2][CO5]**	**[6M]**
4	**a)**	What are types of software maintenance?	**[L1][CO5]**	**[6M]**
	b)	Define PSP and briefly outline its objective.	**[L2][CO5]**	**[6M]**
5	**a)**	Explain basic issues in software reuse program.	**[L2][CO6]**	**[6M]**
	b)	What is software estimation maintenance cost?	**[L1][CO5]**	**[6M]**
6		Analyze phases and issues in software maintenance, with examples.	**[L4][CO5]**	**[12M]**
7		Evaluate various metrics and models for software quality measurement.	**[L5][CO5]**	**[12M]**
8		Discuss the assessment steps in SEI CMM for software process maturity.	**[L2][CO5]**	**[12M]**
9		Explain organizational level approach to software reuse.	**[L2][CO6]**	**[12M]**
10		Analyze the effect of CASE tools on software life cycle efficiency and quality.	**[L4][CO5]**	**[12M]**

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