CourseCode:23CS0513 **R23**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
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QUESTIONBANK (DESCRIPTIVE)

Subject with Code: SOFTWARE ENGINEERING (23CS0513) **Year &Sem:** II- B.Tech. & II-Sem
Course & Branch: B.Tech. -CSE& CSIT Regulation: **R23**

UNIT-I
Introduction, Software Life Cycle Models

1	**a)**	Define software engineering.	**[L1][CO1]**	**2M**
	b)	What is software crisis.	**[L1][CO1]**	**2M**
	c)	List out the phases of Software life development models?	**[L1][CO1]**	**2M**
	d)	What is Exploratory style of software development.	**[L1][CO1]**	**2M**
	e)	Name three popular Agile development models.	**[L1][CO1]**	**2M**
2	**a)**	Explain About software engineering? Is software engineering a science or an art?	**[L2][CO1]**	**5M**
	b)	Evaluate the exploratory S style of software development? Graphically depict the activities that a programmer typically carries out while developing a programming solution using the exploratory style.	**[L5][CO1]**	**5M**
3	**a)**	Explain in detail software development projects.	**[L2][CO1]**	**5M**
	b)	Distinguish between a program and a professionally developed software.	**[L4][CO1]**	**5M**
4	**a)**	Explain Waterfall model with a neat diagram and list out the merits and demerits of waterfall model.	**[L2][CO1]**	**5M**
	b)	List and explain the major differences between the exploratory and modern software development practices.	**[L2][CO1]**	**5M**
5	**a)**	Define software crisis? Identify the reasons for software crisis.	**[L1][CO1]**	**5M**
	b)	Elaborate on the key phases of the RAD life cycle. Describe the primary objectives, key activities involved, and the expected deliverables.	**[L2][CO1]**	**5M**
6	**a)**	Infer the different stages involved in the computer system engineering lifecycle, highlighting the key activities in each stage.	**[L2][CO1]**	**5M**
	b)	Build the Rapid Application Development model. Discuss each phase in detail.	**[L3][CO1]**	**5M**
7	**a)**	Express what do you understand by terms of software development life cycle? Why it is important to while developing as of software product?	**[L2][CO1]**	**5M**
	b)	Explain notable changes in software development.	**[L1][CO1]**	**5M**
8	**a)**	Discuss the proto typing model. What is the effect of designing a prototype on the overall cost of the software project?	**[L2][CO1]**	**5M**
	b)	Explain the spiral model of software development. What are the Limitations of such model?	**[L2][CO1]**	**5M**

9		Explain in detail the followingWaterfall Model and its Extensions. i) V-Model ii) Prototyping Model	**[L2][CO1]**	**10M**
10		Explain in detail the followingWaterfall Model and its Extensions. i) Classical Waterfall Model ii) Incremental Development Model	**[L1][CO1]**	**10M**
11	**a)**	Examine the concept of iterative and incremental development within the context of Agile methodologies.	**[L4][CO1]**	**5M**
	b)	Explain evolutionary process model in software engineering.	**[L1][CO1]**	**5M**

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UNIT-II
Software Project Management,Requirements Analysis and Specification

1	a)	Define software project management?	[L1][CO2]	2M
	b)	Identify skills necessary for Managing Software Projects.	[L1][CO2]	2M
	c)	What are thethree stages of COCOMO estimation technique and express general form of the COCOMO.	[L1][CO2]	2M
	d)	Name the characteristics of a Good SRS Document.	[L1][CO2]	2M
	e)	What is a Formal Technique?	[L1][CO2]	2M
2	a)	Discuss Few points about project size? What are the popular metrics to measure project size? How can the size of a project be estimated during the project planning stage?	[L2][CO2]	5M
	b)	Identify and explain factors contributing to the complexity of managing a software project.	[L2][CO2]	5M
3	a)	List the important shortcomings of LOC metric when used as a software size metric for carrying out project estimations.	[L2][CO2]	5M
	b)	Demonstate the Responsibilities of a software project manager? Explain it.	[L2][CO2]	5M
4	a)	Compare the following project size estimation techniques. i) Expert judgement ii) Delphi technique.	[L4][CO2]	5M
	b)	Interpret an overview of the different categories of estimation techniques.	[L3][CO2]	5M
5		Explainin detailthe following project size estimation techniques. i) Lines of Code (LOC) ii) Function Point (FP) Metric	[L2][CO2]	10M
6		Define Risk Management and Explain types of risk management?	[21][CO2]	10M
7	a)	Analyze the concept of COCOMO model and its extension.	[L4][CO2]	5M
	b)	Evaluate the analytical technique 'Halstead's Software Science' with example	[L5][CO2]	5M
8	a)	Iillustrate basic classes of software development projects with examples.	[L2][CO2]	5M
	b)	Describe the main activities carried out during requirements analysis and specification phase? Explain it.	[L2][CO2]	5M
9	a)	Identify and illustrate the important uses of a well-formulated SRS document.	[L3][CO2]	5M
	b)	Contrast the following categories of requirements. i) Functional requirements ii) Non-functional requirements	[L4][CO2]	5M
10	a)	What is a Formal Technique? Identify important concepts in formal methods, and examine the merits and demerits of using formal techniques	[L3][CO2]	5M
	b)	What is Axiomatic Specification? How to develop an axiomatic specification with an example	[L2][CO2]	5M
11		Explain in details Algebraic Specification. Identify Pros and Cons of algebraic specifications with an example.	[L2][CO2]	10M

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UNIT-III

Software Design, Agility, Function-Oriented Software Design, User Interface Design

1	**a)**	Write the difference between Coupling and Cohesion.	**[L3] [CO3]**	**[2M]**
	b)	Define Data Flow Diagram	**[L3] [CO3]**	**[2M]**
	c)	Define Design Review.	**[L3] [CO3]**	**[2M]**
	d)	Define LOC.	**[L3] [CO3]**	**[2M]**
	e)	What are the types of User-Interfaces	**[L3] [CO3]**	**[2M]**
2	**a)**	Compose and Explain briefly about Design Processes.	**[L6] [CO3]**	**[5M]**
	b)	Discuss Layered Arrangements of modules	**[L2] [CO3]**	**[5M]**
3		Classify and explain types of Cohesion and Coupling with neat sketch	**[L2] [CO3]**	**[10M]**
4	**a)**	Explain approaches of software design	**[L2] [CO3]**	**[5M]**
	b)	Demonstrate on Agile Process Models	**[L2] [CO3]**	**[5M]**
5		Explain briefly about the concept of the following. i) Structured Analysis ii) Structured Design	**[L2] [CO3]**	**[5M]**
6	**a)**	Explain Developing the DFD model of a system	**[L3] [CO3]**	**[5M]**
	b)	Discuss about Structured design & detailed design	**[L3] [CO3]**	**[5M]**
7		What are the characteristics of a good user interface? Explain in detail.	**[L3] [CO3]**	**[10M]**
8	**a)**	Discuss User interface design basic concepts	**[L3] [CO3]**	**[5M]**
	b)	What are the types of user interface	**[L3] [CO3]**	**[5M]**
10	**a)**	Discuss about fundamentals of Component based GUI development.	**[L2] [CO3]**	**[5M]**
	b)	Explain a UI design methodology	**[L2] [CO3]**	**[5M]**

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UNIT-IV

Coding And Testing, Software Reliability and Quality Management

1	**a)**	What do you mean by Block-box testing?	**[L2] [CO4]**	**[2M]**
	b)	Give two advantages about Integration testing?	**[L2] [CO4]**	**[2M]**
	c)	Define Smoke testing?	**[L2] [CO4]**	**[2M]**
	d)	Define the terms software reliability and software quality.	**[L2] [CO4]**	**[2M]**
	e)	What is statistical testing?	**[L2] [CO4]**	**[2M]**
2	**a)**	Discuss different types of code reviews.	**[L2] [CO4]**	**[5M]**
	b)	What is the difference between internal and external documentation?	**[L3] [CO4]**	**[5M]**
3		Classify the different types of program analysis tools used during program development.	**[L3] [CO4]**	**[10M]**
4	**a)**	Distinguish between software verification and software validation.	**[L3] [CO4]**	**[5M]**
	b)	What is the difference between black-box testing and white-box testing?	**[L3] [CO4]**	**[5M]**
5		What do you understand by the term integration testing? Briefly explain the important strategies used for integration testing of procedural programs.	**[L3] [CO4]**	**[10M]**
6	**a)**	What are the activities carried out during testing a Software?	**[L3] [CO4]**	**[5M]**
	b)	What do you understand by a reliability growth model?	**[L3] [CO4]**	**[5M]**
7	**a)**	Why is regression testing being important explain in detail.	**[L3] [CO4]**	**[5M]**
	b)	Define three metrics to measure software reliability.	**[L3] [CO4]**	**[5M]**
8	**a)**	Define the term total quality management (TQM)? What are the advantages of TQM?	**[L3] [CO4]**	**[5M]**
	b)	What is the Six Sigma quality initiative?	**[L3] [CO4]**	**[5M]**
10	**a)**	Explain the significance of ISO 9000 standards in Software Engineering	**[L2] [CO4]**	**[5M]**
	b)	Briefly discuss some general issues associated with testing.	**[L2] [CO4]**	**[5M]**

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UNIT-V

Computer-Aided Software Engineering (Case), Software Maintenance, Software Reuse

1	**a)**	What is programming environment?	**[L1][CO5]**	**2M**
	b)	Mention any two Benefits of CASE.	**[L1][CO5]**	**2M**
	c)	Define about code generation.	**[L1][CO5]**	**2M**
	d)	Discuss about test case generator.	**[L1][CO5]**	**2M**
	e)	List out the Types of Software Maintenance.	**[L1][CO5]**	**2M**
2		Explain about the characteristics of case tools.	**[L2][CO5]**	**10M**
3		Describe about software reverse engineering with examples.	**[L2][CO5]**	**10M**
4		Explain in detail about case support in software life cycle.	**[L2][CO5]**	**10M**
5		Explain detail second generation case tool.	**[L2][CO5]**	**10M**
6		Illustrate about software maintenance process models.	**[L2][CO5]**	**10M**
7		Discuss about estimation of maintenance cost.	**[L2][CO5]**	**10M**
8	**a)**	Explain about case environment in software engineering in detail.	**[L2][CO5]**	**5M**
	b)	Describe about Evolution of a reuse domain.	**[L2][CO5]**	**5M**
9		Describe about architecture of a case environment with neat sketch.	**[L2][CO5]**	**10M**
10		Evaluate in detail about basic issues in any reuse program.	**[L2][CO5]**	**10M**
11	**a)**	Discuss about Characteristics of Software Evolution.	**[L2][CO5]**	**5M**
	b)	Define Prieto-Diaz's classification scheme.	**[L1][CO5]**	**5M**