



**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY**  
(AN AUTONOMOUS INSTITUTION)  
(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(Accredited by NAAC with "A" Grade, NBA (EEE,ECE & ME) & ISO9001:2008 Certified Institution)

**QUESTION BANK (DESCRIPTIVE)**  
**SOFTWARE ENGINEERING**

**A.Y2024-25**

**Subject Name with Code: 22A0508T**

**Branch: CSE(AI&ML) & CSE(CS&DS)**

**Year & Semester: III-I**

**Regulation: RG22**

**UNIT - I**

Basic concepts: abstraction versus decomposition, evolution of software engineering techniques, Software development life cycle (SDLC) models: Iterative waterfall model, Prototype model, Evolutionary model, Spiral model, RAD model, Agile models, software project management: project planning, project estimation, COCOMO, project scheduling, Organization and team structure, risk management.

**UNIT-1. Software, Software Engineering and Software Process**

S. No.	Question	[BT Level] [CO][ Marks]
<b>2 Marks Questions (Short)</b>		
1.	Define software and specify various characteristics of software.	L1, CO1, 2M
2.	Define Software Engineering? What are its applications?	L1, CO1, 2M
3.	List out the characteristics of software?	L1, CO1, 2M
4.	Define software and hardware failure rate curves as a function of time?	L1, CO1, 2M
5.	List out the types of software?	L1, CO1, 2M
6.	What are the layers of software engineering?	L1, CO1, 2M
7.	What is Decomposition?	L1, CO1, 2M
8.	What is software process? Give its importance.	L1, CO1, 2M
9.	What is Abstraction?	L1, CO1, 2M
10.	List various software development life cycle phases	L1, CO1, 2M
<b>Descriptive Questions (Long)</b>		
11.	Describe at least one scenario where 'RAD model would be applicable than waterfall model'.	L2, CO1, 10M
12.	Describe in detail COCOMO model for software cost estimation.	L2, CO1, 10M
13.	Compare the Waterfall, Prototyping and Spiral model. List the features of each model, advantages and disadvantages and a type of application where the model will be acceptable.	L4, CO1, 10M
14.	a) Which process model is good for risk management? Explain that model. b) Describe how the model is used to layout the objectives, risks and plans for quality improvement.	L2, CO1, 5M L2, CO1, 5M
15.	Illustrate the following models in detail: (i) Iterative water fall model. (ii) Agile model.	L3, CO1, 10M
16.	Explain Briefly about the Evolution of software engineering techniques?	L2, CO1, 10M
17.	Explain in detail about software development life cycle model.	L2, CO1, 10M
18.	Explain about Evolutionary model and Agile models.	L2, CO1, 10M
19.	Illustrate software project management	L3, CO1, 10M
20.	Explain about project planning and Project estimation?	L2, CO1, 10M
21.	Write a short Note on Organization Team Structure & Project Scheduling?	L2, CO1, 10M

## **UNIT - II**

The Nature of software, The unique nature of web apps, The software myths Requirements Engineering: Functional and non-functional requirements, the software requirements document, Requirements specification, Requirements engineering processes, Requirements elicitation and analysis, Requirements validation, Requirements management Agile development model: What is agility, what is an agile process, XP, Agile process models, CMMI

<b>UNIT-2. Requirements Engineering and Agile Models</b>		
<b>S. No.</b>	<b>Question</b>	<b>[BT Level] [CO][ Marks]</b>
<b>2 Marks Questions (Short)</b>		
1.	Define Requirement engineering	L1, CO2, 2M
2.	What is meant by software myths	L1, CO2, 2M
3.	What is SRS	L1, CO2, 2M
4.	List various functional requirements	L1, CO2, 2M
5.	Write the customer myths existing in software engineering industry.	L1, CO2, 2M
6.	What is meant by elicitation	L1, CO2, 2M
7.	List various non-functional requirements	L1, CO2, 2M
8.	Define CMMI	L1, CO2, 2M
9.	What is agile process	L1, CO2, 2M
10.	Define requirements management	L1, CO2, 2M
<b>Descriptive Questions (Long)</b>		
11.	Discuss the Tasks involved in requirement engineering and also explain requirement engineering process?.	L2, CO2, 10M
12.	Explain about Function and Non-Functional Requirements in Requirements Engineering ? Differentiate Between Them?	L2, CO2, 10M
13.	What is SRS? Explain in detail the various components of an SRS.	L2, CO2, 10M
14.	Explain about requirements elicitation and analysis.	L2, CO2, 10M
15.	Explain about unique nature of web apps.	L2, CO2, 10M
16.	Write neatly about: (i) The structure of software requirements document. (ii) The various software myths.	L2, CO2, 5M L2, CO2, 5M
17.	What is agility? & Briefly Explain Agile Process Models & XP?	L2, CO2, 10M
18.	Explain in detail about Capability Maturity Model Integration (CMMI)?	L2, CO2, 10M
19.	Write a short note on Requirements management and Validation?	L2, CO2, 10M
20.	Explain about Nature of software and also explain in detail about the changing nature of Software?	L2, CO2, 10M

## **UNIT – III**

Design Concepts: Good Software Design, Cohesion and coupling, The design Process, Design concepts, design models Component Level Design: Introduction to components, designing class-based components User Interface Design: Golden rules, User Interface analysis and design

<b>UNIT-3. Design Concepts, Component Level and User interface Design</b>		
<b>S. No.</b>	<b>Question</b>	<b>[BT Level] [CO][ Marks]</b>
<b>2 Marks Questions (Short)</b>		
1.	Define interface design.	L1, CO3, 2M
2.	Define component level design.	L1, CO3, 2M
3.	Name the software quality attributes suggested by Hewlett-Packard.	L1, CO3, 2M
4.	Name the software design concepts.	L1, CO3, 2M
5.	In the design model, what is process dimension?	L1, CO3, 2M
6.	In the design model, what is Abstraction dimension?	L1, CO3, 2M
7.	What are Deployment level design elements?	L1, CO3, 2M
8.	Define cohesion and coupling.	L1, CO3, 2M
9.	Define class Responsibility Collaborator (CRC) modeling.	L1, CO3, 2M
10.	List out the types of requirements identified by QFP (Quality Function Deployment).	L1, CO3, 2M
<b>Descriptive Questions (Long)</b>		

11.	Discuss about user interface design of software with an example and neat sketch.	L2, CO3, 12M
12.	What is structured design? Illustrate the structured design process from DFD to structured chart with a case study.	L2, CO3, 12M
13.	Clearly explain the concepts and types of coupling and cohesion with examples of each.	L2, CO3, 12M
14.	Explain the steps involved in conducting component level design when it is applied for object oriented system.	L2, CO3, 12M
15.	Illustrate neatly about user – interface design methodology.	L3, CO3, 12M
16.	Explain about Golden rules and write about advantages and disadvantages.	L2, CO3, 12M
17.	Write a short Note on Design process & its models in software Engineering?	L2, CO3, 12M
18.	What is Component? & Explain Briefly about the Designing of Class Based Components?	L2, CO3, 12M
19.	Differentiate Between Cohesion & Coupling terms in software engineering?	L2, CO3, 12M
20.	Write a short Note on Design concepts & good Software Design in SE?	L2, CO3, 12M

### **UNIT – IV**

Software Testing Strategies: coding standards and guidelines, code review, testing, types of testing. Process and project metrics: software measurement, A framework for product metrics. Quality Management: Quality, Software quality, metrics for software quality, software quality assurance

#### **UNIT-4. Software Testing Strategies, Project Metrics and Quality Management**

S. No.	Question	[BT Level] [CO][ Marks]
<b>2 Marks Questions (Short)</b>		
1.	What is Verification and Validation?	L1, CO4, 2M
2.	What are the different levels of testing?	L1, CO5, 2M
3.	What is Cyclomatic complexity?	L1, CO5, 2M
4.	How to compute the cyclomatic complexity?	L1, CO5, 2M
5.	What is equivalence partitioning?	L1, CO4, 2M
6.	What is a boundary value analysis?	L1, CO4, 2M
7.	What is various types black box testing?	L1, CO4, 2M
8.	What are various types of white box testing methods?	L1, CO4, 2M
9.	What is black box and white box testing?	L1, CO5, 2M
10.	What are types of system testing?	L1, CO4, 2M
<b>Descriptive Questions (Long)</b>		
11.	Explain Briefly about the Different types of Software Testing Strategies in SE?	L2, CO4, 12M
12.	List Out the Coding standards & Guidelines Involved in the Source Code & Explain Briefly about it?	L2, CO4, 12M
13.	Write a short note on Process and product metrics in software Engineering?	L2, CO4, 12M
14.	What is Testing? & Explain Briefly about the code Review process in it?	L2, CO4, 12M
15.	Explain Briefly about the project Metrics in Software Engineering?	L2, CO5, 6M L2, CO5, 6M
16.	Write a short note on Software Measurement and testing techniques in SE?	L2, CO5, 12M
17.	Explain Briefly about the framework for product Metrics in Software Engineering?	L2, CO5, 12M
18.	Write a short note on Regression testing & Black box testing?	L2, CO5, 12M
19.	Explain Briefly about the metrics for Software quality & Assurance in Software Engineering?	L2, CO5, 12M
20.	What is quality management & Write a short note on white box testing & Acceptance testing?	L2, CO5, 12M

## **UNIT – V**

Risk Management: Risk identification, Risk projection, risk refinement, RMMM Maintenance and reengineering: Software maintenance, reengineering, reverse engineering and forward engineering Case Study: Implementation of safe home system using software engineering principles.

<b>UNIT-5. Risk Management and Reengineering</b>		
<b>S. No.</b>	<b>Question</b>	<b>[BT Level] [CO][ Marks]</b>
<b>2 Marks Questions (Short)</b>		
1.	What is risk refinement?	L1, CO6, 2M
2.	What is risk projection?	L1, CO6, 2M
3.	What is Value at Risk (VaR)?	L1, CO6, 2M
4.	Which risk management technique involves in transferring risk to a third party?	L1, CO6, 2M
5.	What does the term “stress testing” refer to in market risk management?	L1, CO6, 2M
6.	What is a financial risk management?	L1, CO6, 2M
7.	What is operational risk?	L1, CO6, 2M
8.	What is the primary goal of a Business Impact Analysis ?	L1, CO6, 2M
9.	What is the purpose of Key Risk Indicators in operational risk management?	L1, CO6, 2M
10.	Which is an example of an internal operational risk event?	L1, CO6, 2M
<b>Descriptive Questions (Long)</b>		
12.	Write a short note on risk projection & refinement in Software engineering?	L2, CO6, 12M
13.	Explain briefly about The RMMM plan in SE?	L2, CO6, 12M
14.	Write a short note on Forward engineering &Reverse Engineering in SE?	L3, CO6, 12M
15.	Explain briefly about Reengineering process?	L2, CO6, 12M
16.	Explain briefly about Risk Management &Risk identification?	
17.	Differentiate Between forward & reverse Engineering process in detail?	L2, CO6, 12M
18.	Illustrate the implementation of safe home system using software engineering principles.	L3, CO6, 12M
19.	Write a short note on Risk identification &Risk mitigation?	L3, CO6, 12M

**Signature of the Staff: Mr.V.Chaithanya/Mrs.B.POOJITHA**

**Signature of Department Academic Committee Member 1:**

**Signature of Department Academic Committee Member 2:**

**Signature of Department Academic Committee Member 3:**