SOFTWARE ENGINEERING
Unit wise Important Questions

Unit-1

1. Discuss the evolving role of software in modern society, highlighting its impact on various industries and our daily lives and Explain SE process paradigm.
2. Explain software myths?
3. Describe the concept of a layered technology in software engineering. Explain how this approach helps in developing complex software systems.
4. Explain different process frameworks used in software engineering, such as the Capability Maturity Model Integration (CMMI) , Personal and Team Process Models.
5. What are process patterns in software engineering? Explain how they contribute to the development and improvement of software processes.
6. Discuss the importance of process assessment in software development. Explain the benefits of conducting process assessments and how they can lead to process improvement.
7. Explain the a) Waterfall model b) incremental process models (e.g., Spiral model) c) evolutionary process models (e.g., Agile methodologies) and also Highlight their strengths and weaknesses.
8. What is the Unified Process? Describe its key characteristics and explain how it adapts to different project requirements.
9. As a software engineer, how would you choose the most appropriate process model for a specific project? Consider various factors that might influence your decision.

UNIT-2

1. Explain and differentiate functional and non-functional requirements in software engineering..
2. Describe the different types of user requirements and system requirements.
3. What is the importance of interface specification in software development? Discuss how it helps in ensuring seamless integration between various components of a software system.
4. Define and discuss the purpose of the software requirements document. Explain its role in project planning, communication, and management throughout the software development life cycle.
5. What are feasibility studies and explain its types?.
6. Describe the requirements elicitation and analysis process. Explain requirements validation in software engineering. Discuss common challenges in validating requirements and strategies to ensure their correctness and completeness.
7. Discuss the importance of requirements management in software development projects. Explain how effective requirements management contributes to successful project outcomes.

8. Describe different system a) context models b)behavioral models c)object models. Provide examples of how each model aids in understanding and designing a software system.
9. Compare and contrast structured methods for system modeling. Discuss the strengths and weaknesses of each approach and their suitability for different types of projects.

UNIT-3

1. Explain the design process in software engineering and its levels.
2. Describe the concept of design quality in software engineering.
3. What are design concepts in software engineering? Explain how they help in structuring and organizing the design of complex software systems.
4. Discuss the importance of the design model in software development. Explain how it serves as a blueprint for the entire software development process.
5. Define software architecture and its significance in software engineering. Discuss the role of software architecture in ensuring the scalability, maintainability, and performance of a software system.
6. Explain the data design phase in software engineering. Discuss various data modeling techniques used to design the data aspects of a software system.
7. What are architectural styles and patterns? Describe some common architectural styles and patterns used in software development and provide examples of their applications.
8. Discuss the key principles and considerations for creating an effective architectural design. Explain how design patterns contribute to achieving these principles.
9. Explain the UML (Unified Modeling Language) conceptual model. Discuss the basic structural modeling diagrams in UML, such as class diagrams, and their significance in representing the design of a software system.
10. Describe the dynamic modeling diagrams, use case diagrams and component diagrams in UML. Discuss how they help in visualizing the physical components and dependencies of a software system.

UNIT-4

1. Explain the importance of having a strategic approach to software testing. Discuss the key elements of a comprehensive test strategy and how it contributes to successful software development.
2. Compare and contrast black-box testing and white-box testing techniques. Provide examples of scenarios where each type of testing is most effective.
3. Describe a) validation testing b) system testing c) unit testing d) smoke testing
4. The art of debugging is a critical skill for software developers. Discuss common debugging techniques and best practices for identifying and resolving software defects effectively.
5. Explain the importance of software quality metrics and its stages in software development.

6. Describe metrics used for analyzing the design model of a software system. Discuss how these metrics can help in evaluating the quality and effectiveness of the design.
7. Discuss the significance of source code metrics in software engineering. Provide examples of source code metrics used to measure code complexity, maintainability, and readability.
8. What are testing metrics, and how do they help in assessing the effectiveness of the testing process? Discuss key testing metrics used to evaluate the quality of the testing effort.
9. Maintenance is an integral part of the software life cycle. Explain metrics used for software maintenance activities. Discuss how these metrics help in managing and improving the maintenance process.

UNIT-5

1. Explain the importance of software measurement in software engineering. Discuss various metrics used to quantify and improve the software development process.
2. Describe metrics for software quality. Discuss how these metrics are used to assess and enhance the quality of software products.
3. Compare and contrast reactive and proactive risk management strategies. Discuss the advantages and disadvantages of each approach in the context of software development projects.
4. What are software risks, and why is it essential to manage them during the software development life cycle? Discuss various types of software risks and their potential impact on project success.
5. Explain the process of risk identification and techniques and tools used to identify and prioritize potential risks.
6. What is risk projection in software risk management? Explain how risk projection helps in evaluating the potential consequences of identified risks.
7. Describe the risk refinement process. Discuss how risk refinement contributes to creating effective risk response strategies.
8. What is RMMM (Risk Mitigation, Monitoring, and Management)? And How do you develop an effective RMMM plan for a software project
9. Explain the fundamental concepts of software quality. Discuss the factors that contribute to achieving high-quality software products.
10. Describe software quality assurance(SQA) and its role in ensuring the delivery of a high-quality software product.
11. Explain the concept of software reviews in quality management. Discuss different types of software reviews, their objectives, and their significance in identifying defects and improving the quality of the software.
12. Discuss statistical software quality assurance techniques(Six Sigma).
13. What is software reliability, and why is it crucial for software systems? Discuss methods used to measure and improve software reliability.
14. Describe the ISO 9000 standards for software organizations.