Quiz on 23rd September 2025

Section A: Multiple Choice Questions (10 Marks)

1. Which of the following best defines Software Engineering?
   a) Programming in a disciplined way
   b) Application of engineering principles to software development
   c) Use of advanced programming tools
   d) Writing programs without errors
2. The primary goal of software engineering is:
   a) To develop software quickly
   b) To develop reliable and efficient software within budget
   c) To write complex programs
   d) To eliminate programmers
3. In the **Waterfall Model**, testing begins after:
   a) Requirements analysis
   b) System design
   c) Coding
   d) Maintenance
4. Which software development model is best suited for projects with unclear requirements?
   a) Waterfall
   b) Spiral
   c) V-Model
   d) Big Bang
5. Which UML diagram is used to represent the dynamic behavior of a system?
   a) Class diagram
   b) Sequence diagram
   c) Use case diagram
   d) Component diagram
6. Which of the following is **not** a software process model?
   a) Agile
   b) Spiral
   c) V-Model
   d) Prototyping
   e) Regression
7. In Agile development, the product backlog is primarily managed by:
   a) Scrum Master
   b) Product Owner
   c) Development Team
   d) Stakeholders
8. Which type of testing checks the individual modules of software?
   a) System Testing
   b) Integration Testing
   c) Unit Testing
   d) Regression Testing
9. What is the main purpose of **Software Requirement Specification (SRS)**?
   a) To test the system
   b) To design the code
   c) To capture functional and non-functional requirements
   d) To prepare project reports
10. Which metric is used to measure software complexity?
    a) Cyclomatic complexity
    b) Cohesion

c) Coupling
d) Lines of Code

Section B: Short Answer Questions (10 Marks)

11. Differentiate between **functional** and **non-functional requirements** with examples.
12. Define **software reliability** and explain why it is important.
13. What are the main phases of the **software development life cycle (SDLC)**?
14. Explain the difference between **verification** and **validation**.
15. What is the purpose of **software maintenance**? Mention its types.
16. Give two advantages and two disadvantages of the **Agile methodology**.
17. What is **modularization** in software design? Why is it important?
18. Differentiate between **black-box testing** and **white-box testing**.
19. What is **software project risk management**? Provide one example of a project risk.
20. Why is **version control** important in software engineering?

Section C: Scenario-Based / Application Questions (10 Marks)

21. A company wants to build an online banking system. Which SDLC model would you recommend and why?
22. You are asked to design a library management system. Draw a simple **use case diagram** with at least three actors and five use cases.
23. During testing, a developer discovers that the system does not handle invalid user input properly. Which type of testing would help uncover this issue?
24. Suppose you are leading a software project with rapidly changing requirements. Which methodology would you choose and why?
25. A project is delayed because requirements were not clear at the beginning. Which model's drawback does this represent?
26. In a team project, one developer accidentally deletes critical code. How would **version control tools** (e.g., Git) help?
27. A software product must be scalable to handle 1 million users in the future. Is this a functional or non-functional requirement? Explain.
28. A hospital management system needs to keep patient data secure. Which **non-functional requirements** are relevant here?
29. A customer complains that the software runs too slowly. At which stage should performance testing have been conducted?
30. If you are managing a distributed software team, what collaboration tools and practices would you recommend to ensure project success?