

Dr. Babasaheb Ambedkar Open University
Term End Examination January – 2026

Course	: MCA	Date	: 20/02/2026
Subject Code	: MCA-105	Time	: 11:30am to 01:45pm
Subject Name	: Software Engineering and Software Project Management	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three) (30)

1. Which activities, when applied systematically throughout a software project, ensure its successful completion and are considered as umbrella activities surrounding all framework activities?
2. What is the Capability Maturity Model Integration (CMMI), and how does it contribute to improving the processes of software development and project management?
3. Explain the Waterfall Model in software engineering. What are its key phases and limitations?
4. What are the main categories of UML diagrams, and what purpose do they serve? Explain Use Case Diagram in detail.
5. What is Whitebox Testing, and how does it differ from Blackbox Testing in software engineering? Explain the types of techniques used in Whitebox Testing.

Section B

Answer the following (Attempt any four) (20)

1. What is Scrum, and how does it function as an Agile development process model?
2. What are the key attributes of software measures, and why are they important in software engineering?
3. What is a System Requirement Specification (SRS), and what are its primary purposes in software development? How can an SRS be presented?
4. What are Cohesion and Coupling in the context of software design? Explain their significance and how they affect software quality.
5. What is the difference between Verification and Validation (V&V) in software testing? Explain their importance and how they contribute to the overall software development process.
6. Explain the key principles of software testing. How do these principles contribute to effective software testing? Discuss the main characteristics that define high-quality software testing processes.

Section C

Part – A (Multiple Choice Questions)

(10)

1. What is the primary goal of software engineering?
A To produce hardware systems B To develop software without bugs
C To design, develop, and maintain software efficiently D To manage network systems
2. Which of the following is a linear software process model?
A Waterfall model B Spiral model
C Agile model D RAD model
3. Agile development is best suited for projects with:
A Well-defined requirements B Fixed deadlines and no changes
C Rapidly changing requirements D Small teams only
4. The primary purpose of Function Point Analysis (FPA) is to:
A Estimate the project's cost B Determine the functionality of software
C Assess the software's complexity D Measure software's quality

- 5 Cyclomatic complexity is used to measure:
A Code reliability B Number of defects
C Number of test cases D Complexity of a program's control flow
- 6 LOC (Lines of Code) is a common metric to measure:
A Project cost B Software complexity
C Project size D Quality
- 7 What is the primary purpose of regression testing?
A To test individual modules B To ensure that new changes don't affect existing functionality
C To check the overall system performance D To validate user requirements
- 8 Which of the following is a widely used quality model for software?
A CMMI B Spiral model
C Agile methodology D RAD model
- 9 In UML, an association between two classes is represented by:
A Solid line B Dashed line
C Solid arrow D Rectangle
- 10 Which of the following is an example of white-box testing?
A Usability testing B Unit testing
C System testing D Acceptance testing

Part – B (State whether the following statements are true or false)

(10)

- 1 The Incremental model delivers the entire system in a single iteration.
- 2 Beta testing is performed by internal users of the software to identify defects before release.
- 3 Prototyping models are used when requirements are well understood and fixed.
- 4 In Agile, customer feedback is considered at the end of the development process.
- 5 Function point analysis measures software size based on lines of code (LOC).
- 6 Functional requirements specify the behavior of the system.
- 7 In object-oriented analysis, an object is an instance of a class that encapsulates data and behavior.
- 8 Requirement engineering is a one-time activity performed at the beginning of the software development process.
- 9 In structured analysis, the focus is on identifying classes and objects for the system design.
- 10 A Gantt chart is commonly used to track project schedules and timelines.
