

M.C.A. Semester I Examination 2024-25**CS-205: Software Engineering**

Time : Three hours

Max. Marks : 70

(Write your Roll No. at the top immediately on the receipt of this question paper)**Note: Answer any 5 questions. All questions carry equal marks.**

1. What are the five main challenges faced in Software Engineering? Explain.
2. Discuss the Iterative software development life cycle. How is it different from the Timeboxing model? Also discuss the type of projects where it is best suited. Name a few contemporary development approaches that are based on iterative model.
3. a) Discuss the concept of software re-engineering in detail. What are the advantages of software re-engineering?
b) Discuss the various approaches for problem analysis in the software requirement analysis phase.
4. a) Discuss the concept of problem partitioning and abstraction in function-oriented design. Why are they needed for designing? What is a structure chart? Why is it used? Explain with the help of example.
b) Define a module in function-oriented design? Discuss the concept of coupling and cohesion. What is the relationship between the two? Discuss any four different types of cohesion.
5. What do you understand by software architecture? Explain the following architectural styles with the help of an example for each:
 - a. Pipe and Filter
 - b. Shared Data Style
 - c. Client and Server
 - d. Peer-to-Peer
6. Differentiate between Error, Fault and Failure. Also differentiate between a test oracle and test case. Discuss the following variations of black-box testing in detail with the help of examples:
 - a. Boundary Value Analysis
 - b. Cause-Effect Graphing
 - c. Pair-Wise Testing
 - d. Special Cases
7. Write short notes on the following:
 - a. Iron Triangle
 - b. Project Management Process
 - c. Change Management Process
 - d. Constructive Cost Model (COCOMO)