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| **SESSION** | **APRIL 2025** |
| **PROGRAM** | **MASTER OF COMPUTER APPLICATIONS (MCA)** |
| **SEMESTER** | **III** |
| **COURSE CODE & NAME** | **DCA 7103 ADVANCED SOFTWARE ENGINEERING** |
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**Set-I**

**Q1. Describe the iterative development model and explain how it differs from the Waterfall model. 5+5**

**Ans 1.**

**Iterative Development Model**

The Iterative Development Model is a software development methodology where the process is broken down into smaller, repeated cycles or iterations. Each iteration goes through the stages of requirement analysis, design, implementation, and testing, resulting in an incremental improvement in the software product. This approach allows for modifications and refinements after each cycle based on user feedback or testing outcomes. The project evolves over time with continuous evaluation and enhancement, leading to a more flexible and adaptive development

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**Q2. Discuss Software Engineering and explain its importance in software development by giving suitable examples. 10**

**Ans 2.**

**Software Engineering**

Software engineering is the systematic, disciplined, and quantifiable approach to the design, development, testing, and maintenance of software systems. It encompasses a set of best practices, methodologies, and tools aimed at delivering high-quality software efficiently. The discipline ensures that software products are reliable, maintainable, and meet user requirements.

**Importance of Software Engineering in Structured Development**

The significance of software engineering lies in its ability to bring structure and organization to

**Q3. What is the purpose of the Software Requirements Specification (SRS) document, and how does it guide development? 5+5**

**Ans 3.**

**Definition and Purpose of the SRS Document**

A Software Requirements Specification (SRS) document is a comprehensive description of the intended functionality and constraints of a software application. It defines what the software is expected to do, how it should perform, and under what conditions. The primary purpose of the SRS is to serve as a formal agreement between the stakeholders—clients, developers, testers, and project managers—ensuring a shared understanding of the project requirements.

The SRS eliminates ambiguity by clearly listing functional requirements (what the system should

**Set-II**

**Q4. Explain various code verification techniques. Write short notes on coding tool. 5+5**

**Ans 4.**

**Code Verification Techniques**

Code verification refers to the process of ensuring that software code meets the specified requirements and adheres to design principles before it is released for deployment. The main aim is to detect defects early in the development cycle and maintain code quality. Several code verification techniques are commonly used in the industry.

**Static Code Analysis**

This technique involves examining the code without executing it. Tools automatically scan the

**Q5. Describe the role of Software Project Management in managing project scope, time, and cost. 10**

**Ans 5.**

**Software Project Management**

Software Project Management (SPM) is the application of knowledge, skills, tools, and techniques to plan, execute, and oversee software projects. It ensures that software products are delivered on time, within scope, and under budget, while meeting desired quality standards.

**Managing Project Scope**

Scope management involves defining what is included and excluded in the project. The project manager works closely with stakeholders to identify business requirements and translate them

**Q6. Explain the importance of software testing and its different levels (unit, integration, system, and acceptance testing). 10**

**Ans 6.**

**Software Testing**

Software testing is the process of evaluating a software system to detect defects and ensure it meets the specified requirements. It is vital for ensuring software reliability, performance, security, and usability. Testing not only finds bugs but also verifies that the software behaves as expected under various conditions.

Testing reduces the risk of failure in production, improves user satisfaction, and ensures compliance with legal and industry standards. It also helps save time and costs by identifying