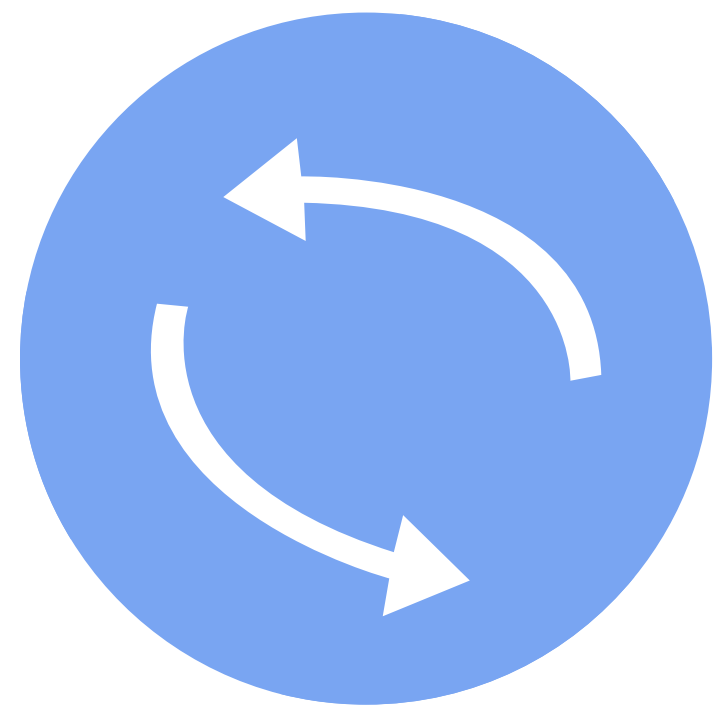


# IGNOU

# MCS-213

## 30 MOST REPEATED QUESTIONS



Curated List of 30 Questions  
that are seen to be repeated  
frequently in the examinations.

*By* [FarLearner.com](https://FarLearner.com)

# MCS-213 Most Repeated Questions

1 . List and explain various phases of Waterfall model.

Found in Dec 2021 ( 1 c ) , June 2023 ( 1 d i ) , June 2024(1b)

**Answer :** The Waterfall Model is a linear and sequential software development process in which each phase must be completed before the next phase begins.

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Phases of Waterfall Model :

- Requirement Analysis
  - All system requirements are gathered from users.
  - Requirements are documented in the Software Requirement Specification (SRS).
- System Design
  - System architecture and design are created based on requirements.
  - Includes high-level design and detailed design.
- Implementation (Coding)
  - Developers write code according to the design documents.
  - Each module is developed and tested individually.
- Integration and Testing
  - All modules are integrated to form the complete system.
  - Testing is performed to detect errors and ensure correctness.

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# MCS-213 Most Repeated Questions

- Deployment
  - The completed software is delivered to the customer and installed in the environment.
- Maintenance
  - After deployment, the software is maintained.
  - Includes bug fixing, updates, and improvements.

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# MCS-213 Most Repeated Questions

2 . Explain COCOMO model in detail (including levels and software project classes).

Found in Dec 2021 (4 b) , June 2023 ( 5 c ) , June 2024 ( 1 d )

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**Answer :** COCOMO (Constructive Cost Model) is a cost estimation model used to estimate the effort, cost, and time required for software development.

Levels of COCOMO Model :

- Basic COCOMO

Estimates software development effort using the size of the program (in KLOC). Simple and quick estimation.

- Intermediate COCOMO

Considers additional factors such as product attributes, hardware constraints, personnel capability, and project attributes.

- Detailed COCOMO

Provides detailed estimation for each phase of the software development lifecycle.

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## Three Classes of Software Projects :

- Organic Projects [FarLearner.com](http://FarLearner.com)
  - Small and simple projects.
  - Developed by small teams with good experience.
  
- Semi-Detached Projects
  - Medium size and complexity.
  - Team has mixed experience.
  
- Embedded Projects
  - Complex projects with strict constraints.
  - Often involve hardware, real-time systems, and tight regulations.

3 . What is Black Box Testing? How does it differ from White Box Testing?

Found in Dec 2021 ( 2 a ) , June 2024 ( 2 b )

Answer : White Box Testing : [FarLearner.com](https://www.farlearner.com)

White Box Testing is a software testing technique in which the internal structure, logic, and code of the program are examined and tested. Test cases are designed based on the program's internal working.

Features of White Box Testing :

- Tests internal code structure.
- Requires knowledge of programming and logic.
- Used to verify loops, conditions, and paths in the program.

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Questions With  
Answer**

Black Box Testing :

Black Box Testing is a testing technique in which the internal structure of the software is not known. Testing is done based on the external behavior of the software.

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4 . Discuss the various sections or provide an outline of an SRS (Software Requirements Specification).

Found in Dec 2021 ( 2 b ) , June 2024 ( 1 c )

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**Answer :** SRS (Software Requirement Specification) is a document that describes the functional and non-functional requirements of a software system.

Phase of SDLC where SRS is prepared :

- Requirement Analysis Phase

SRS Outline

- Introduction

- Purpose

- Scope

- Definitions and abbreviations

- References

- Overall Description

- Product perspective

- Product functions

- User classes

- Constraints

- Other

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## MCS-213 Most Repeated Questions

5 . What is meant by “Functional Requirements”? How are they different from “Non-functional Requirements”?

Found in Dec 2021 ( 1 d ) , Dec 2023 ( 2 a )

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**Answer :** Requirements engineering is the systematic process of identifying, analyzing, documenting and managing the requirements of a software system. It ensures that the final software meets the needs of users and stakeholders.

Tasks and Processes in Requirements Engineering:

- Inception (Feasibility Study)

Understanding the basic problem, identifying stakeholders and defining the scope of the system.

- Requirements Elicitation

Gathering requirements from users, customers and stakeholders using techniques such as interviews, questionnaires, observation and workshops.

**Get All Repeated**

**Questions With**

**Answer**

- Requirements Analysis

Analyzing the collected requirements to remove conflicts, ambiguities and inconsistencies and organizing them into clear specifications.

- Requirements

Documentation

called Software

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document

6 . Define the term “Risk” and explain different phases or techniques of Risk Management.

Found in Dec 2021 ( 5 a ) , Dec 2022 ( 3 b ) , Dec 2023 ( 3 b ) , Dec 2024 ( 4 b )

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**Answer :** Risk is a potential problem that may occur during software development and can negatively affect project objectives such as cost, schedule, and quality.

Risks are uncertain events that may cause project delays, increased cost, or system failure if not properly managed.

Examples of Risks

- Requirement changes
- Technology failure
- Lack of skilled personnel
- Schedule delays
- Budget limitations

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Answer**

Phases of Risk Management

- Risk Identification

In this phase, possible risks that may affect the project are identified and categorized into high, medium, and low risks, and budgeted.

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## MCS-213 Most Repeated Questions

7 . List and explain various techniques or processes for Requirement Gathering.

Found in Dec 2021 ( 5 b ) , Dec 2023 ( 2 a )

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**Get All Repeated  
Questions With  
Answer**

- Requirements Analysis

Analyzing the collected requirements to remove conflicts, ambiguities and inconsistencies and organizing them into clear specifications.

- Requirements

Documenting the requirements in a document called Software Requirements Specification (SRS).

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## MCS-213 Most Repeated Questions

8 . Draw the first three levels of DFDs for a specific system (e.g., Library, Student, or Railway Information System).

Found in Dec 2021 ( 4 a ) , Dec 2022 ( 5 a ) , June 2022 ( 4 a )

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**Answer :** A Data Flow Diagram (DFD) represents the flow of data through a system and shows how data is processed by the system.

Level 0 DFD (Context Diagram) : Level 0 DFD represents the entire system as a single process and shows the interaction between the system and external entities.

External Entities

- Student
- Administrator

Process

- Student Information System

Data Flows

- Student sends registration details and receives information.
- Admin records.

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9 . What are the steps or methods involved in Software Project Estimation?

Found in Dec 2021 ( 3 a ) , Dec 2022 ( 1 a ) , June 2023 ( 1 c )

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**Answer :** Software Project Estimation is the process of predicting the effort, time, cost, and resources required to develop a software system.

Steps involved in Software Project Estimation:

- Si213e Estimation
  - The si213e of the software is estimated.
  - It can be measured using Lines of Code (LOC) or Function Points (FP).
- Effort Estimation
  - The total effort required to develop the software is estimated.
  - Effort is usually measured in person-months.
- Time Estimation
  - The total time required to complete the project is calculated based on the estimated effort and available resources.
- Cost Estimation
  - The overall cost of the project is determined.

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## MCS-213 Most Repeated Questions

10 . Define Cleanroom Software Engineering and discuss its underlying principles or significance.

Found in June 2022 ( 1 a ) , June 2023 ( 3a ) , Dec 2024 ( 3a )

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**Answer :** Cleanroom Software Engineering : Cleanroom Software Engineering is a software development approach that focuses on producing high-quality software with minimal defects. It emphasizes formal methods, statistical quality control and correctness verification rather than relying mainly on testing to remove defects.

Principles of Cleanroom Software Engineering:

- Incremental Development:

Software is developed and delivered in small increments so that each increment can be verified and validated.

- Formal Specification:

System requirements and design are defined using precise and formal specifications to reduce ambiguity.

- Correctness Verification:

Developers verify the correctness of the software through mathematical reasoning and formal verification instead of executing the program during development.

- Structured Programming:

The system is developed using structured programming techniques to ensure clarity.

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Questions With  
Answer**

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