1. Explain following in detail:
   1. Waterfall model
   2. RAD model
   3. Incremental model
   4. Spiral model
   5. Agile model
   6. Iterative model
   7. Prototype model
2. What is Software engineering?
3. Explain software characteristics.
4. Explain software as a layered technology.
5. What is software process flow? Explain it in detail.
6. Explain generic and umbrella activities.
7. What is process? Differentiate process and product.
8. What is requirement engineering?
9. List out various non-functional requirements.
10. What is functional and non-functional requirements?
11. Explain SRS in detail.
12. Explain requirement elicitation with its different method.
13. Give classification of UML.
14. Explain following relationship:
    1. Generalization
    2. Aggregation
    3. Multiplicity
    4. Association
    5. Dependency
    6. Composition
15. Explain class diagram with example.
16. Define Requirement Engineering.[CO1]
17. What are functional requirements?[CO3]
18. What are non-functional requirements?[CO3]
19. List any two types of requirements.[CO3]
20. What is feasibility study in requirement engineering?[CO1]
21. Define requirement validation.[CO3]
22. What is the purpose of requirement elicitation?[CO3]
23. What is the difference between user requirements and system

requirements?[CO3]

1. What is scope creep in requirement engineering?[CO4]
2. What are the key challenges in requirements gathering?[CO4]
3. Q1: Use Case Diagram [CO3]

Draw a Use Case Diagram for an Online Banking System with the following

functionalities:

* Users can log in to their accounts.
* Users can check their balance.
* Users can transfer money to another account.
* Users can pay bills.
* The system sends transaction notifications.
* The bank administrator can manage user accounts and approve transactions.
* Instructions:
* Identify actors and use cases.
* Show relationships like include and extend where applicable.

1. Data Flow Diagram (DFD)[CO3]

* Create a Level 0 and Level 1 DFD for an E-commerce Website where:
  + Customers browse products and place orders.
  + The system processes payments.
  + The seller manages inventory.
  + The system sends order confirmations.
  + The delivery team handles shipping.
* Instructions:
  + Use appropriate symbols for processes, data stores, external entities, and data
  + flow.
  + Clearly label each level.

1. Sequence Diagram [CO3]

* Design a Sequence Diagram for a Food Ordering System where:
* A customer places an order via a mobile app.
* The system verifies the payment.
* The restaurant prepares the food.
* The system notifies the delivery agent.
* The food is delivered to the customer.
* Instructions:
* Show actors, objects, lifelines, and interactions.
* Use arrows for messages and indicate synchronous or asynchronous calls.

1. Component Diagram [CO3][CO6]

* Develop a Component Diagram for a Library Management System where:
  + - Users search for books and borrow books.
    - The system manages book inventory.
    - The admin adds new books to the database.
    - The payment module handles fines for late returns.
    - A notification service sends alerts for due dates.
* Instructions:
* Show major components (User Interface, Database, APIs, etc.).
* Indicate dependencies and relationships.