Module-1

1. What is Software Engineering? Briefly discuss the need for Software Engineering.
2. Discuss the four important attributes of good software and ethical responsibilities that all software professionals should have.
3. List out the difference between generic and customized products
4. What is the difference between Software Engineering and Computer Science?.
5. Compare the terms Software Engineering and System Engineering
6. Explain in brief about web-based software engineering methods and tools used.
7. Briefly explain the 4 fundamental activities common to all software process?
8. Explain the essential attributes of good software.
9. With a neat diagram, explain the activity model of the insulin pump control system.
10. What are some general issues facing software engineering?
11. What are the different application types?
12. What is the rationale for the ACM/IEEE code of ethics? List any 5 ethical principles.
13. Explain about the 4 issues of professional responsibility.
14. Discuss the reasons why software projects fail. Also explain about software costs.
15. Give two examples of ethical dilemmas.
16. What differences has the web made to software engineering?
17. Describe any two concerns of a software system for mental health care.

Module-2

1. List two types of reusable software.
2. What are the advantages and disadvantages of reuse oriented software.
3. Discuss in detail the Waterfall Model with the help of a neat diagram. Write down the advantages and disadvantages of the waterfall model.
4. With a neat block diagram explain Incremental Model. How does it overcome the problem of the waterfall model.
5. In general, explain what are the different processes involved in developing software.
6. What are the different software process models? Explain any two..
7. Discuss in detail the incremental development model with the help of a neat diagram. Write down the advantages and disadvantages of the model.
8. Explain Reuse-oriented software engineering with the help of a diagram.
9. With a diagram explain the requirements engineering process.
10. Explain about the four common design activities.
11. What do you understand about software design and implementation? Explain.
12. Explain process improvement cycle and activities with the help of a diagram.
13. With a neat diagram explain the testing phases in a plan-driven software process (V-model)
14. Explain system evolution process with a diagram.
15. List the 3 stages of testing   .

1. What are the principles of agile methods? Explain.
2. With the help of a diagram explain the extreme programming release cycle.
3. List and explain any 5 extreme programming practices.
4. Explain the following:
    i.   Refactoring
    ii. User stories
    iii. Test driven development
5. What are the phases of Scrum? Also list some of the benefits of scrum
6. Where are agile methods used and why?
7. Explain with the help of a diagram, the scrum sprint cycle.
8. List and explain 5 agile principles in organisational practice.
9. Explain what is meant by test automation.
10. Explain what is meant by user stories for software requirements. Give a simple example.
11. Explain refactoring with the help of examples.
12. Outline the role of scrum master in scrum.

Module-3

1. Explain the difference between a context model and a use case model. How do they complement each other?

2. What is aggregation and generalization?

3. What is system modeling? Discuss the use of class diagrams?

4. What are UML Diagrams? **What are the main components in an use case?**

5. Compare: state diagram and an activity diagram.

6. What are the key elements of a sequence diagram, and how do they contribute to

understanding system behavior?

7. With a neat diagram, explain class diagram.How effective is it in system modeling?

8. What are Use case diagrams.Explain with an example.

9. Explain the concept of Model Driven Engineering concept.What are its benefits and

   challenges?

10. Explain the difference between a system model and a context model.

11. What is event-driven modeling, and why is it used in certain types of systems?

12. Draw a simple class diagram for a school system, including classes like "Student" and "Teacher.

13. Explain behavioural model and its types with real world examples.

14. Explain the **concept and components** of a sequence diagram in UML using an Online payment system..

Module-4

1. Explain five different stages in an object-oriented design process.
2. Draw the use case of a weather station and explain the use case description
3. Define software reuse and explain its levels (abstraction, object, component, system).
4. Illustrate how design models are the bridge between the system requirements and the implementation of a system. Draw a sequence diagram describing data collection of weather information systems and state diagram for the weather station.
5. What is design pattern? Explain four essential elements of design pattern.
6. Describe the Observer pattern with an example.
7. Explain the various aspects of implementation that are particularly important to software engineering
8. What is host-target development? Why is it needed?
9. What is configuration management? Explain its four fundamental activities.
10. What is development testing? How is it different from debugging?
11. Differentiate between
    i. Validation and verification.
    ii. Black Box testing and White Box testing with an example
    iii. Software inspection and Testing
    iv. Alpha testing and beta testing
12. Explain the software testing process
13. Explain component testing?
14. What is system testing? How does it differ from component testing?
15. Explain requirements-based testing with an example.
16. What is scenario testing? Explain with an example.
17. Explain the six stages of acceptance testing process
18. What is user testing? Why is it important?
19. What is release testing? How does it differ from development testing?
20. Explain test driven software development with a neat diagram and its benefits

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Module-5

1. What are legacy systems? Explain the components of legacy system with neat diagram.
2. Explain about the layers of a legacy system with a diagram.
3. Explain the project planning process with the help of a neat diagram.
4. What is software pricing? List and briefly explain the factors affecting software pricing.
5. What are the risks involved for legacy system replacement. Explain any 5.
6. Describe risk identification with the help of risk item checklist.

7. Briefly explain about different categories of risks in risk management.
8. What is the need of Risk Management and explain various activities connected to Risk Management?
9. Explain the product and process standards in software quality management.
10. Explain the software evolution process with a neat diagram.
11. Explain the four strategic options of legacy system management.
12. Draw a chart showing relative business value and system quality of legacy system management and explain four clusters of systems.
13. Explain the factors considered to assess technical quality of an application system of legacy system management.