Software Engineering – MC 7303

UNIT – 1

PART – A

1. Define Software Engineering.
2. What is a Process Framework?
3. What are the Generic Framework Activities?
4. Define Stakeholder.
5. How the Process Model differ from one another?
6. Write out the reasons for the Failure of Water Fall Model?
7. What are the Drawbacks of RAD Model?
8. Why Formal Methods are not widely used?
9. How do we compute the “Expected Value” for Software Size?
10. What is an Object Point?
11. What is the difference between the “Known Risks” and Predictable Risks”?
12. List out the basic principles of software project scheduling?
13. Differentiate Software engineering methods, tools and procedures.
14. Write the disadvantages of classic life cycle model.
15. What do you mean by task set in spiral Model?
16. What is the main objective of Win-Win Spiral Model?
17. Which of the software engineering paradigms would be most effective? Why?
18. Write the objective of project planning?
19. What is Boot Strapping?
20. Write a short note on 4GT.
21. What are the four different Degrees of Rigor?
22. Write about Democratic Teams in software development. (Egoless Team)
23. What are the two project scheduling methods?
24. What is RMMM?
25. What are four impacts of the project risk?

PART – B

1. Explain iterative waterfall and spiral model for software life cycle and various activities in each phase.
2. Explain in detail about the software process.
3. Explain in detail about the life cycle process.
4. Explain the prototyping approaches in software process.
5. Explain about rapid prototyping techniques.
6. Explain incremental model in detail
7. Discuss about fourth generation techniques. 4GT.
8. Explain the Activities of Project Planning.
9. Explain the organizational structure of the software development.
10. Explain the process of Risk Analysis and Management.
11. Explain the following (i) Software requirement specification. (ii) Specification Review.
12. Discuss how the scheduling is prepared for any given project.
13. Explain the importance and impact of software project scheduling.
14. Discuss in detail various Evolutionary process models.
15. What are software risks? How are they identified? Prioritized? How are they contained? Discuss.
16. Explain briefly the algebraic specification in requirement analysis and specification.

UNIT – II

PART – A

1. Define the terms in Software Designing: (a) Abstraction (b) Modularity.
2. How the Architecture Design can be represented?
3. What is the Advantage of Information Hiding?
4. What types of Classes does the designer create?
5. What is Coupling?
6. What is Cohesion?
7. Define Refactoring.
8. What are the Five Types of Design classes?
9. What are the Different types of Design Model? Explain.
10. List out the Different elements of Design Model?
11. What are the Types of Interface Design Elements?
12. What Types of Design Patterns are available for the software Engineer?
13. Define Framework.
14. What is the Objective of Architectural Design?
15. What are the important roles of Conventional component within the Software Architecture?
16. What are the Basic Design principles of Class-Based Components?
17. What should we consider when we name components?
18. What are the Different Types of Cohesion?
19. What are the Different Types of Coupling?
20. What is Program Design Language [PDL]?
21. List the coupling factors.
22. Define Stamp coupling.
23. Define common coupling.
24. Define temporal cohesion.
25. Write a short note on structure charts.
26. What do you mean by factoring?
27. What do you mean by common coupling?
28. Write about Real Time Systems.

PART – B

1. What are the various modes of abstraction? Discuss any two in detail.
2. Explain modularity and the criteria for modular design method evaluation.
3. Explain Abstraction with examples.
4. What is cohesion? Explain different types of cohesion and coupling with examples.
5. What is Data flow oriented design? What are the components of it?
6. Draw a detailed DFD for the Library information system.
7. What is ER diagram? Discuss its usage in data modeling.
8. Consider a simple “Online Vehicle Purchase System”. Apply scenario based modeling and draw the appropriate diagrams for it.
9. Explain the various data design principles and architectural styles. Also describe the transform and transaction mapping processes.
10. Describe the fundamental software design concepts and explain the criteria for modular design method evaluation.
11. Explain documentation and its usages.
12. Describe the Jackson system development method. How is it better than other design techniques?

UNIT – III

PART – A

1. What are the Basic Principles of Software Testing?
2. List out the Characteristics of Testability of Software?
3. List out various Methods for finding Cyclomatic Complexity ?
4. Define Smoke Testing ?
5. What are the Attributes of Good Test?
6. Define White Box Testing.
7. Define Basic Path Testing.
8. Define the terms: a) Graph Matrices b) Connection Matrices .
9. What is Behavioral Testing?
10. What are the Benefits of conducting Smoke Testing?
11. What errors are commonly found during Unit Testing?
12. What problems may be encountered when Top-Down Integration is chosen?
13. What are the Steps in Bottom-Up Integration?
14. What is Regression Testing?
15. What are the Characteristics of “Critical Module”?
16. What is an Object Oriented Testing?
17. Define State based testing.
18. What are testing tools?
19. How do you prepare test cases?
20. What is meant by software maintenance?
21. What are the various types of maintenance?
22. What are the various types of reports in maintenance?

PART – B

1. Explain the strategic approach to software testing with any four testing techniques.
2. Explain Block Box and White Box testing. Give the merits and demerits of both approaches.

3. Explain in detail Object Oriented Testing strategies.
4. What is system testing? Explain about system testing.
5. What is Test case management? How testing tools are used to test a software? Explain any two testing tools to test a software.
6. Explain the three types of maintenance in detail.
7. Discuss briefly on software maintenance activities and how do you estimate the cost involved.
8. Explain Data Flow Oriented design in detail.
9. Explain Testing tools and Test cases.
10. Explain the importance of Testing and Maintenance of software.

UNIT - IV

PART - A

1. What is FP ? How it is used for project estimation?
2. What is LOC? How it is used for project estimation?
3. Write the formula to calculate the effort in persons-months used in Dynamic multi variable Model?
4. Write the differences between measures and metrics.
5. What is meant by Cyclomatic Complexity?
6. What is function point count?
7. Why to measure software?
8. Differentiate Product and Process metrics.
9. What is meant by direct measures?
10. What is meant by indirect measures?
11. What do you mean by function oriented metrics?
12. What are the parameters used for measuring Quality?
13. What are the factors affecting quality?
14. What is flow graph notation?
15. Write the formula to calculate the effort in persons-months used in Dynamic multi variable model?
16. What are the Components of the Cost of Quality?
17. What is Software Quality Control?
18. What is Software Quality Assurance?
19. What are the Objective of Formal Technical Reviews?
20. What Steps are required to perform Statistical SQA?
21. Define SQA Plan.

PART - B

1. Explain the cost estimation procedure using COCOMO Model.
2. Explain the following:
   - (i) Delphi Cost Estimation
   - (ii) Putnam Estimation model

(iii). Decomposition approach

3. Describe the software metric attributes. Also explain about Mc call's quality factors for software metrics.
4. How do you classify software metrics and describe how they are measures.
5. Describe the process and product metrics in detail.
6. What is meant by quality assurance? Explain.
7. Explain SQA activities.
8. Explain the activities involved in conducting Formal Technical Review.
9. Explain on ISO 9000 certification of software organization.
10. Write briefly on software quality assurance plan.
11. What is meant by formal approach to software quality assurance? Explain different approaches.
12. Discuss the importance of reliability with respect to software.
13. What is software reliability? How is it different from software availability? Discuss at least one reliability model.

UNIT – V

PART – A

1. What are Baseline criteria in SCM?
2. Define Status Reporting?
3. What is the Origin of changes that are requested for software?
4. List out the Elements of SCM?
5. What are the Features supported by SCM?
6. What are the Objectives of SCM Process?
7. What are the issues to be considered for developing tactics for WebApp Configuration Management?
8. Define CASE Tools.
9. How do we define Software Quality?
10. Define the terms:
11. What are the Type of CASE Tools?
12. Define Software Reliability?
13. How the Registration process of ISO 9000 certification is done?
14. What are the Factors of Software Quality?
15. Define SCM.
16. List the SCM Activities.
17. What is meant by software reusability?
18. What is CASE?
19. Write the distinction between SCM and software support.
20. What is the difference between basic objects and aggregate objects used in software configuration?
21. What is configuration Audit?
22. Define Web Engineering.
23. What are the various tools used in web engineering?

PART – B

1. Write short notes on (i). Version control and (ii). Change control.

2. Write short notes on (i). SCM process and (ii). Case Repository Features.
3. Discuss in detail the various software configuration management tasks in detail with suitable examples.
4. Explain various activities involved in SCM process.
5. Describe configuration management process and items covered under SCM. State the need.
6. Write short notes on the following:
   (i). Version control.
   (ii). Verification and Validation
   (iii). Design reuse
7. What are the CASE tools and their usage in software engineering? Discuss.
8. Discuss the various methods of identifying the objects in the software configuration.
9. Explain the various building blocks for CASE.
10. Describe in detail various mechanisms used in Web Engineering.
