



SHRI ANGALAMMAN COLLEGE OF ENGINEERING & TECHNOLOGY
(An ISO 9001:2008 Certified Institution)
SIRUGANOOR, TRICHY-621105.



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CS1301- SOFTWARE ENGINEERING

UNIT I SOFTWARE PROCESS

PART-A

1. What is Software Engineering? (or) State the IEEE's definition of software engineering.
2. What are the characteristics of the software?
3. What are the umbrella activities of a software process?
4. What are the merits and demerits of life cycle models (Waterfall, Incremental, spiral, WIN/WIN spiral, Evolutionary, prototyping and object oriented)
5. What is System Engineering?
6. List the process maturity levels in SEIs CMM.
7. Define Verification and Validation
8. Define Computer Based System
9. List the advantages of using Waterfall model instead of adhoc build and fix model.
10. How does "Project Risk" factor affect the spiral model of software development?
11. Why do we go for System Simulation Tools?
12. Which process model follows realistic approach and more suitable to large scale system? Why?
13. Differentiate between system and Computer Based system.
14. You have been hired by Olde Fashioned Software developers to improve their productivity and profitability. You quickly discover that the company is undoubtedly at maturity level 1. What is the first step that you will take?

PART-B

1. Which process model leads to software Reuse? Explain. (8)
2. Explain the process model which is useful when staffing is unavailable for complete implementation. (8)
3. Why is it important to adhere to the life cycle model while developing a large software product? (8)
4. Which process model having realistic approach and used in large scale system? Explain
(OR) Explain the process model that combines the elements of waterfall and iterative fashion.
(OR) Explain the function of Spiral model. (16)
5. Why the “First system” is throw away system? Explain the concept with advantages and disadvantages. (8)
6. What is CMMI? Describe its levels. (8)
7. Discuss in detail various Evolutionary process models (16)
8. What is verification and validation? Give suitable examples (8)
9. What are the system elements that make a computer based system to accomplish its goal and explain the system engineering Hierarchy. (16)
10. Explain iterative waterfall and spiral model for software life cycle and various activities in each phase.(16)
11. Explain in detail about the software process. (8)
12. Explain in detail about the life cycle process.(8)

UNIT II SOFTWARE REQUIREMENTS

PART-A

1. What is requirement engineering?
2. List some of the guidelines for requirement elicitation
3. What are functional and non-functional requirements (Or) Distinguish between Functional and non-functional requirements?
4. Define software prototyping
5. What are the prototyping approaches in software process?

6. What are the advantages of evolutionary prototyping?
7. What are the various Rapid prototyping techniques?
8. What is the use of User Interface prototyping?
9. What are the characteristics of SRS?
10. What are the objectives of Analysis modeling?
11. What is data modeling?
12. What is a data object?
13. Define attributes?
14. Define Cardinality and Modality in Data Modeling.
15. What is meant by ERD, DFD and STD?
16. Define the Level 0 DFD (Context Level).
17. Define Data dictionary.
18. List out the requirements engineering
(OR) What are the 5 steps in requirement engineering tasks?
19. What are the linkages between data flow and ER diagrams
20. What are context free questions? How it differ from Meta questions?
21. Specify at least four questionnaire which supports to select the prototyping approach
22. Why is Elicitation difficult in requirement engineering tasks?
23. Specify at least 4 Meta questions
24. What is the purpose of domain analysis?

PART-B

1. Prepare a SRS document for Hospital Management System.(16)
2. Why customer interaction is a difficult process? Explain one formal procedure for customer interaction. (16)
3. Draw an ER diagram for Video Rental System(8)
4. Develop a DFD for Burglar alarm system along with the entity relationship diagram. (8)
5. Draw an ER diagram for Railway Reservation System(8)
6. Explain the relationship between data and control models with diagram. (8)

7. With suitable example explain the various Requirements Engineering Tasks and discuss about how requirements are elicited. (16)
8. Write a note on Data Dictionary and Software prototyping(16)
9. How to select the appropriate prototyping approach? Explain (8)
10. What is prototyping? Explain the types of prototyping.
(OR) Explain the prototyping approaches in software process. (8)
11. What is the use of Context diagram? Draw a Level-1 DFD and STD for ATM machine(16)
12. Describe about control specification and Process specification (16)
13. Explain in detail Data, Functional and Structured Modeling.(16)

UNIT III - DESIGN CONCEPTS AND PRINCIPLES

PART-A

1. List the design activities for designing large scale systems.
2. What is the goal of User Interface Design?
3. Define Archetype with an example.
4. What are the elements of Analysis model?
5. What are the elements of design model?
6. How the Architecture Design can be represented?
7. Define design process.
8. List the principles of a software design.
9. Draw ACD for safehome security system.
10. What is the benefit of modular design? (or) Why modularity is important in software projects?
11. What is a cohesive module?
12. What are the different types of Cohesion?
13. What is coupling?
14. What are the various types of coupling?
15. What are the common activities in design process?
16. What are the benefits of horizontal partitioning?
17. What is vertical partitioning?

18. What are the advantages of vertical partitioning?
19. What are the various elements of data design?
20. List the guidelines for data design.
21. Name the commonly used architectural styles.
22. What is Transform mapping?
23. Differentiate Version control and change control.
24. Differentiate Transaction flow and Transform flow

PART-B

1. Explain in detail the design concepts
2. Explain the design principles.
3. Discuss the design heuristics for effective modularity.
4. Discuss the taxonomy of software architectural styles.
5. Discuss the design issues of user interface design
6. Explain the design steps of the transform mapping.
7. Explain in detail about the real time systems.
8. Explain the characteristic of real time system design with example.
9. What are the various types of cohesion and coupling and differentiate between them.
10. Explain in detail about SCM.

UNIT IV TESTING

PART-A

1. Write the primary objective of testing software?
2. Define software testing?
3. Define Smoke Testing?
4. What are the testing principles the software engineer must apply while performing the software testing?
5. List the data structure errors identified during unit testing?
6. Define White Box Testing?
7. What are the two levels of testing?
8. What are the various testing activities?

9. Write short note on black box testing.
10. What is equivalence partitioning?
11. What is Regression Testing?
12. What is a boundary value analysis?
13. What are the reasons behind to perform white box testing?
14. What is cyclomatic complexity?
15. How to compute the cyclomatic complexity?
16. Distinguish between verification and validation.
17. What are the various testing strategies for conventional software?
18. Will the exhaustive testing guarantee that the program is 100% correct?
19. Write about drivers and stubs.
20. What are the approaches of integration testing?
21. What are the advantages and disadvantages of big-bang?
22. What are the benefits of smoke testing?
23. What is a test case and how it helps in testing?
24. What are the conditions exist after performing validation testing?
25. Distinguish between alpha and beta testing.
26. What are the various types of system testing?
27. Differentiate between defect and error.

PART-B

1. Explain any 2 functional testing techniques with example.
2. Explain verification and validation process in detail.
3. What is acceptance testing? Explain in detail
4. Explain the types of software testing.
5. Explain in detail about Black box testing.
6. Explain about the software testing strategies.
7. Explain in detail about Integration testing.
8. Explain in detail about system testing.

UNIT V SOFTWARE PROJECT MANAGEMENT

PART-A

1. Define Measure and Metrics
2. List the types of Metrics
3. Define COCOMO model
4. What is an Object point?
5. Give the procedure of the Delphi method.
6. Define a Task Network
7. What is the purpose of timeline chart?
8. What is EVA?
9. What are the metrics computed during error tracking activity?
10. Why software change occurs?
11. Write about software change strategies.
12. What is software maintenance?
13. What are the types of software maintenance?
14. What is architectural evolution?
15. How the CASE tools are classified?
16. Differentiate between metric and indicators
17. Who are Stakeholders of Software Projects?
18. What are the various cost estimation techniques?
19. What information does a software project plan provide?
20. Give the difference between Fuzzy logic sizing and function point sizing.
21. What are the classes of software projects in COCOMO model?
22. List out any 4 quality factors.
23. What are the various activities during software project planning?
24. What are the Risk Management activities

PART-B

1. Explain in detail different types of COCOMO model.
(or) Explain in detail about the COCOMO model. (16)
2. What is function point models (8)
3. Explain the taxonomy of CASE Tools(16)
4. Brief about 3D function point measures.(8)
5. How to measure quality and defect removal efficiency (DRE)? (8)
6. How to complete Task Set Selector (TSS) value? Explain with suitable illustration. (16)
7. What factors should be considered when the structure of a software team is chosen? Explain the team role in software projects. (8)
8. What is software project management? Elaborate on COCOMO and Delphi methods. (16)
9. What are the various cost estimation techniques? Explain any 3 methods. (16)
10. Derive the cyclomatic complexity of bubble sort technique. (16)