UNIT-I-SOFTWARE PROCESS AND PROJECT MANAGEMENT

PART -A

1. What is the prime objective of software engineering?
2. Define software engineering paradigm.
3. What do you mean by spiral model?
4. Write a brief note on waterfall model.
5. Distinguish between process and methods.
6. Give the importance of software engineering.
7. Define software process. State the important features of a process.
8. Write any two characteristics of software as a product.
9. List the process maturity levels in SEI’s CMM.
10. Distinguish clearly between verification & validation.
11. What are the functions of data architecture?
13. State the System Engineering Hierarchy.
14. Mention some of the factors to be considered during System Modeling.
15. What are the different architectures developed during BPE?
16. Define Verification & Validation.
17. What are the characteristics of the software?
18. What are the categories of software?
19. What are the challenges in software?
20. What are the umbrella activities of a software process?
21. What are the merits of incremental model?
22. Define the computer based system.

PART -B

1. Explain iterative waterfall and spiral model for software life cycle and discuss various activities in each phase. (16)
2. List several software process paradigms. Explain how both waterfall model and prototyping model can be accommodated in the spiral process model. (16)
3. Explain in detail Boehm's spiral model for software life cycle and discuss various activities in each phase. (16)
4. a) Which is more important-the product or process? Justify your answer. (4)
   b) Identify the umbrella activities in software engineering process. (4)
   c) With suitable illustration explain SPIRAL model evolutionary software development. (8)
5. Explain iterative waterfall and Prototyping model for software life cycle and various activities in each phase. (16)
6. Explain about the generic process model with neat diagram. (16)
7. Explain in detail about the software process paradigms. (16)
8. Explain Spiral model and win-win spiral model in detail? (16)
9. Explain in detail about incremental and Rapid application development Model (RAD) and mention its advantages and disadvantages. (16)
10. Distinguish between verification and validation process. (8)
11. Draw the system engineering hierarchy diagram and explain in detail. (8)
12. Explain the concept of Business process engineering with neat sketch. (16)
13. Explain the concept of Business process engineering with neat sketch. (8)
14. Discuss about the layers of software engineering. (8)

UNIT II- REQUIREMENTS ANALYSIS AND SPECIFICATION
PART -A
1. What is requirement engineering?
2. What are the various types of traceability in software engineering?
3. Define software prototyping.
4. What are the benefits of 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 is data modeling?
11. What is a data object?
12. What are attributes?
13. What is cardinality in data modeling?
14. What does modality in data modeling indicates?
15. What is ERD?
16. What is DFD?
17. What does Level0 DFD represent?
18. What is a state transition diagram?
20. What are the elements of Analysis model?
21. What are functional requirements?
22. What are non functional requirements?
23. What is the outcome of feasibility study?
24. What is meant by structural analysis?

PART -B
1. Explain in detail about Functional Modeling. (16)
2. Explain in detail about Structural Modeling and data modeling. (16)
3. Explain in detail about Rapid prototyping techniques. (16)
4. Explain the prototyping model. How do we select appropriate Prototyping approach? (16)
5. Explain the prototyping approaches in software process. (16)
6. Explain briefly about functional and non functional requirements. (16)
7. Explain the concept of Requirements engineering process. (16)
8. Discuss about a) Elicitation (4) b)Validation (4) c)Management (4) d)Documents. (4)
9. How do u prepare the Software documents for the following applications
   a. Bank management systems. (8) b. Railway Ticket Reservation. (8)
10. Describe about the requirements managements and classical analysis.
11. Explain briefly about structured analysis & Petri nets?
12. Write elaborates about the data dictionary.
UNIT III- SOFTWARE DESIGN

PART -A

1. What are the elements of design model?
2. Define design process.
3. List the principles of a software design.
4. What is the benefit of modular design?
5. What is a cohesive module?
6. What are the different types of Cohesion?
7. What is coupling?
8. What are the various types of coupling?
9. What are the common activities in design process?
10. What are the benefits of horizontal partitioning?
11. What is vertical partitioning?
12. What are the advantages of vertical partitioning?
13. What are the various elements of data design?
14. List the guidelines for data design.
15. Name the commonly used architectural styles.
16. What is Transform mapping?
17. What is a Real time system?
18. What are the objectives of Analysis modeling?
19. What is an Architectural design?
20. What is data design?
21. What is interface design?
22. What is component level design?
23. What is software design?
24. What is user interface design?
25. What is system design?
26. What are data acquisition systems?

PART -B

1. a. Explain in detail about the user interface design activities. (8)
    b. Explain data, architectural and procedural design principles for the software. (8)
2. Describe the design procedures for the data acquisition system. (16)
3. Explain in detail about the real time systems. (16)
4. Explain in detail about Software Configuration Management (SCM). (16)
5. What are the different types of architectural styles exist in software and Explain any one software architecture in detail. (16)
6. a. Explain how the interrupts handled in real time systems? (8)
    b. Explain the interface design activities. What steps do we perform to accomplish Interface design? (8)
7. Describe Transform and Transactional mapping by applying design steps to an example system. (16)
8. a. Explain the two qualitative criteria – Coupling and Cohesion. (8)
    b. Explain what are the design considerations for real time systems (8)
9. Explain about the component level design.
10. Describe about the designing class based components & traditional components.
11. Write elaborates about architectural design.
UNIT IV-TSETING AND IMPLEMENTATION

PART -A

1. Define software testing?
2. What are the objectives of testing?
3. What are the testing principles the software engineer must apply while performing the software testing?
4. What are the two levels of testing?
5. What are the various testing activities?
6. Write short note on black box testing.
7. What is equivalence partitioning?
8. What is a boundary value analysis?
9. What are the reasons behind to perform white box testing?
10. What is cyclomatic complexity?
11. How to compute the cyclomatic complexity?
12. Distinguish between verification and validation.
13. What are the various testing strategies for conventional software?
14. Write about drivers and stubs.
15. What are the approaches of integration testing?
16. What are the advantages and disadvantages of big-bang?
17. What are the benefits of smoke testing?
18. What are the conditions exists after performing validation testing?
19. Distinguish between alpha and beta testing
20. What are the various types of system testing?
22. What are the common approaches in debugging?
23. What is meant by structural testing?
24. What is meant by regression testing?
25. What is meant by unit testing?

PART -B

1. Explain the various types of software testing strategies. (16)
2. Explain in detail about Black box testing and white box testing. (16)
3. Explain the Concept of unit testing testing strategy in detail. (16)
4. a. Explain in detail about Integration testing with neat diagram. (8)
b. Explain in detail about system testing. (8)
5. How to derive the test cases for the given project? Explain in detail (16)
6. Why testing is important? Narrate the path testing procedure in detail with a sample code. (16)
7. What are all the formulas available for calculating Cyclomatic complexity? Calculate cyclomatic complexity for greatest of three numbers. (16)
8. a. Explain in detail about the different types of Software Measures. (8)
b. Explain in detail about the test coverage criteria based on the data flow mechanisms. (8)
9. Explain about regression testing with real time example.
10. Discuss about software implementation technique & coding practices.
UNIT V-PROJECT MANAGEMENT

PART -A

1. Define measure.
2. Define metrics.
3. What are the types of metrics?
4. Write short note on the various estimation techniques.
5. What is COCOMO model?
7. What is the purpose of timeline chart?
8. What is EVA?
9. What are the metrics computed during error tracking activity?
10. What is software maintenance?
11. Define maintenance.
12. What are the types of software maintenance?
13. How the CASE tools are classified?
14. What are the types of static testing tools?
15. What is meant by Software project management?
16. What is meant by software measurement?
17. What is meant by software cost estimation?
18. What is meant by CASE tools?
19. What is meant by Delphi method?
20. What is meant by software evolution?
22. What is software configuration management (SCM)?
23. What is meant by risk management?
24. What is meant by software project scheduling?
25. Write about software change strategies.

PART -B

1. Explain the need for software measures and describe various metrics. (16)
2. Explain in detail about the various levels of Capability Maturity Model (CMM) (16)
3. Explain the salient features of COCOMO model for cost estimation. Bring out Different variant of this model. (16)
4. Explain in detail about Delphi Method. (16)
5. a. What are the different types of software Maintenance activities envisaged for an installed software. (8)
   b. Describe in detail about the standardization procedures of benchmarking (8)
6. Explain the features of a popular CASE tools that you are aware of. (16)
7. a. Give a detail note on SPICE. (8)
   b. Write detail notes on IS9000 series of quality management standards. (8)
8. a. What is an activity network? Explain. (8)
   b. Explain the scheduling of a software project. How are PERT and CPM useful in project scheduling? (8)
9. Discuss about the relationship between people and effort, task set network.
10. Explain about the EVA (Earned Value Analysis) and project metrics.