**Question Bank software Engineering**

**UNIT 1**

1. What is software Engineering?

2. What are the characteristics of the software?

3. Explain in detail following software myths

a. Management myths b.Practioner’sMyt

4. What is importance of documentation in successful solution development and maintenance?

5. Explain in detail process patterns? What is relationship between process and product?

6. Explain in detail personal and team process model.

7. Explain in detail software engineering layers? What is the role of modeling and construction in software process?

8. What are umbrella and framework activities?

9. Explain Waterfall model with block diagram.

10. Explain Evolutionary process models.

11. Explain different artifacts in SCRUM.

12. Explain different Roles in SCRUM.

13. Explain SCRUM with block diagram.

14. Explain XP programming with it’s advantage.

15. Explain Clean room engineering process with block diagram.

**UNIT 2**

1. Identify and write a number of problems that are encountered as elicitation occurs
2. What are the approaches for requirements gathering in an organised manner?
3. Discuss the steps required to establish the ground work for understanding requirement.
4. List the different approaches to collaborative requirements gathering.
5. Write three types of QFD requirements.
6. What is negotiating requirements and validating the requirements
7. List the different types of modelling for requirement
8. What are the rules of thumb that should be followed when creating the analysis model?
9. What is scenario based modelling and UML models that supplement the use cases?
10. What is data modelling? Define the data attributes and relationships?
11. What is structured analysis? Explain flow oriented modelling ?
12. What is mean by behavioural model? Explain the state diagram with example.
13. List the factors of degree to which requirements modelling for WebApps are emphasized.
14. List the five main classes of models for WebApp

**UNIT 3**

1. What is Abstraction?
2. What is the importance of modularity?
3. What is Design Pattern?
4. How Patterns can be used in Design?
5. What is meant by Frameworks?
6. What is Information Hiding?
7. What is Stepwise Refinement?
8. What is Refactoring?
9. What is the relationship between analysis and design?
10. Which quality attributes design must satisfy?
11. What is the relationship between modularity and functional dependence?
12. How architecture can be mapped to components?
13. What is meant by instantiation of the system?
14. What is the relationship between architecture and design?
15. What is meant by design class?
16. What are the types of design class?
17. A cohesive design should have high cohesive and low coupling. Justify.
18. What are the categories of users?
19. What is the relationship between user model and design model?
20. The analysis and design process for user interfaces is iterative. Justify.
21. What is the relationship between analysis and design? Which quality attributes design must satisfy? What is the relationship between modularity and functional dependence?
22. How architecture can be mapped to components? What is meant by instantiation of the system? What is the relationship between architecture and design?
23. What is meant by design class? What are the types of design class?
24. A cohesive design should have high cohesive and low coupling. Justify.
25. What are the categories of users? What is the relationship between user model and design model?
26. The analysis and design process for user interfaces is iterative. Justify.
27. Explain the following design concepts

i) Modularity ii) Architecture

1. What are the different types of design classes?
2. Explain any two architectural styles with respect to program structure.
3. Explain the user interface design issues.
4. What do you mean by software architecture? Explain the system context

diagram elements with an example.

1. Explain the user interface design process.
2. Describe the design model with a neat diagram and give the traceability of each layer of design model to analysis model.
3. What do you understand by refactoring? Give the importance of refactoring in improving the quality of software.
4. What are the deployment level design elements?
5. Explain data cantered and layered architectures with neat diagrams.
6. Explain any four Webapp design principles.
7. What do you mean by archetypes?
8. Explain in detail following Architectural Styles:

a) Data-Centered Architecture

b) Data-Flow Architecture

c) Call and Return Architecture.

**UNIT 4**

1. What is a Real time system?

2. What is SCM?

3. What is SCI?

4. Define software testing?

5. Define Smoke Testing ?

6. What are the objectives of testing?

7. What are the testing principles the software engineer must apply while

performing the software testing?

8. Define White Box Testing?

9. What are the two levels of testing?

10.What are the various testing activities?

11.Write short note on black box testing.

12.What is equivalence partitioning?

13.What is Regression Testing?

14.What is a boundary value analysis?

15.What are the reasons behind to perform white box testing?

16.What is cyclomatic complexity?

17.How to compute the cyclomatic complexity?

18.Distinguish between verification and validation.

19.What are the various testing strategies for conventional software?

20.Write about drivers and stubs.

21.What are the approaches of integration testing?

22.What are the advantages and disadvantages of big-bang?

23.What are the benefits of smoke testing?

24.What are the conditions exists after performing validation testing?

25.Distinguish between alpha and beta testing.

26.What are the various types of system testing?

27. Explain the types of software testing.

28. Explain in detail about Black box testing.

29. Explain about the software testing strategies.

30. Explain in detail about Integration testing.

31. Explain in detail about system testing.

**UNIT5**

Unit V: Project management Concepts

* + - 1. What are the four steps for Project Management? Explain each in detail. 6
      2. Write short note in Management spectrum. 6
      3. Explain four P’s in Project management in detail. 6
      4. Explain Project management activities. 5
      5. What options do we have when defining the structure of a software team? 5
      6. What are the signs that software project is in Jeopardy? Explain in detail. 6
      7. How do we define key project characteristics? 5
      8. What is the W5HH principle? 5
      9. What is the need for problem decomposition? Explain with suitable examples. 5
      10. Explain the team structure involved in the People activity. 5
      11. What are software process model(s)? 6
      12. How should we initiate communication between developer and customer to obtain the necessary information for scope? Give scooping example. 6
      13. What question needs to be answered in order to develop a project plan according to W5HH principle? 5
      14. What are the critical practices we have to follow for performance based management of software projects? 5
      15. What are the categories of stakeholders? What are the characteristics of Effective Project Manager? 8
      16. How do we define key project characteristics? 6
      17. What factors should be considered when the structure of the software team is chosen? 6
      18. What do we understand by problem decomposition and process decomposition? How do we perform process decomposition? 6
      19. Explain in detail software process and project metrics? 6
      20. What is the importance of software process and project metrics? 5
      21. Explain in detail guidelines applied when collecting a software Metrics? 6
      22. What are metrics involved in software measurement? Explain each in detail. 8
      23. What are software quality Metrics? 6
      24. What is Metrics baseline? How it is useful for a Software Engineer? 6
      25. Explain size oriented metric. What data should we collect to derive size oriented metrics? 6
      26. How do we measure the effectiveness of a software process? 5
      27. Explain how we compute a function point (FP). 5
      28. What are different metrics available for software quality control? How do they control the quality of the software? 6
      29. What is indirect measure and why are such measures common in software metrics? 6
      30. Describe the difference between process and project metrics. 5
      31. What is the relationship between People, Process, Product and Technology? What is Defect Removal Efficiency? What is the importance of Software Integrity? 8
      32. What is the need of project Estimation? What are the steps while estimation of software? 6
      33. Explain in detail Task Set for Project Planning. 8
      34. What is the need for defining a software scope? What are the categories of software engineering resources (Project Resources)? 6
      35. How are LOC and FP used during Project Estimation? Explain any one with suitable example. 6
      36. What are the difficulties that arise while developing an estimation using Use-case? How is it done? 6
      37. What is the problem with Make/Buy decision? How decision tree helps to solve these problems? 6
      38. What is the difference between COCOMO and COCOMO II Model? What is the use of object points in COCOMO II ? 8
      39. What is feasibility study? Develop checklist for attribute to be considered when a feasibility of a system or product is to be evaluated. Discuss the interplay among the attributes and attempt to provide a method for grading each so that a quantitative “feasibility number” may be developed. 10
      40. Explain in detail COCOMO II model. 8
      41. What is the necessity of Estimation? How estimation with Use-cases is performed? 6
      42. What are different Specialized Estimation Techniques? 6
      43. Discuss Estimation for Object Oriented Projects. 5

**UNIT 6**

1. Write a short note on Software Quality.
2. What do you mean by software reliabity? Explain the Measures of Software reliability and availability.
3. Explain the need of a formal specification language?
4. Explain following formal method concept with suitable example

i) Data invariant ii) state iii) Operation

1. What is distributed software engineering ?Explain the differ characteristic of distributed system
2. Explain different implementation issues of distributed software Engineering?
3. Explain OCL with an example.
4. Explain Z specification language with example.
5. What are major technical and nontechnical factor that hinder software reuse?
6. Explain service oriented architecture with suitable example.
7. Explain service engineering process.
8. What is the different standards of SOA.
9. What is embedded software? Explain hard and soft real time system with suitable example.
10. Explain real time system model with suitable diagram.
11. Explain the key concept of aspect oriented software engineering. Explain the need of aspect oriented software engineering.
12. Explain the different stakeholder’s concern.