

1. What is Software Cohesion and Software Coupling?
2. Name and define all the different kinds of SW Prototyping?
3. What is the difference between fault avoidance and fault tolerance?
4. What is the difference between black box testing and white box testing?
5. Explain the terms structural, random testing and equivalence partitioning.
6. What is *Cleanroom* software development?
7. Describe in your own words, defensive programming.

8. Name two subsections of the paragraph named “Specific Requirements” in an SRS based on the IEEE Standard.

9. Name the two main characteristics and/or purposes for the requirements traceability matrix.

10. What are the major components of a context diagram (give an example if you need to)?

11. Define the terms (a) Verification and (b) Validation.

12. Define what is a process (name three things and what are they).

13. What are standards and why are they important in software engineering?

14. What are the three sections of a progress report. Why are progress reports important in software engineering?

15. Fill in the blanks of the following sentences:

Software Engineering is concerned with theories, _____ and tools which are needed to develop the _____ for computer systems (e.g., aerospace, avionics, telecommunications, government, health care, etc.). Different from other engineering disciplines because it is not constrained by materials governed by _____ laws or by manufacturing processes. Software Engineers model parts of the _____ world in software. The goal is to produce practical software solutions in a _____ effective way. Products that are reliable, robust, _____, flexible and maintainable.

16. What are the four major partitions in the Spiral model of the Software Life Cycle?

17. Name three strategies that are used for risk resolution?

18. Describe the five Process models reviewed in Sommerville (Chap 1) and their relation to process visibility?

19. What are the three major facets (influences) in system reliability engineering?

20. Name the seven steps in System Engineering, and identify the step that uses the 'Big Bang' approach.

21. In project management, what are five examples of outputs from project planning?

22. What is an important output from developing a activity network?

23. Define what is a project milestones.

24. What is the critical distinction between a project milestone and a deliverable?

25. What can testing demonstrate?

26. Name five different testing strategies described in Sommerville (Chap 22)?

27. What is the distinction between alpha and beta testing?

28. Structural testing relies on what...?

29. What do test coverage measurements potentially ensure?

30. Give a diagram that has the input and output space shown in relation to the system (its processing), valid/invalid inputs and outputs.

31. Name four different types of interfaces (where errors could lurk) between program components?

32. There are three main types of notation used in design documents. Name them....

33. What do you understand by the terms cohesion, coupling and adaptability?

34. Discuss the differences between object oriented and function oriented design.

35. Explain the relation between maintainability, cohesion and coupling.

- 36. Explain why it may be necessary to design the system architecture before the specifications are written.

- 37. Explain why adopting a design approach based on information hiding should lead to a design which may be readily modified?

- 38. Data flow diagrams are a means of documenting end-to-end flow through a system. They do not include what?

- 39. Structure charts are a way of representing the hierarchical organization of a system. Give a structure chart for Figure 15.3.