Software Engineering Most Important Questions [(ShiningStudy.com)]

Answer the following questions briefly and logically .

1. List any three characterstistics of reactive risk management ?
   - Project team reacts to risks when they occur.
   - More commonly, the software team does nothing about risks until something goes wrong.
   - When this fails, “crisis management” takes over and the project is in real jeopardy.
2. What is risk Exposure ?
   Ans: Risk exposure is a quantified loss potential of business. Risk exposure is usually calculated by multiplying the probability of an incident occurring by its potential losses.

3. Name few categories of risk ?
   - Project Risks
   - Technical Risks
   - Business Risks
   - Known Risks.
   - Predictable Risks
   - Unpredictable Risks
4. Differentiate between project risk and Technical risks ?

Project Risk	**Technical Risk**
• Project risks make threats the project plan.	• *Technical risks* threaten the quality and correctness of the software to be produced.
• Project risks identify potential budgetary, schedule, personnel (staffing and organization), resource, customer, and requirements problems and their impact on a software project.	• Technical risks identify potential design, implementation, interface, verification, and maintenance problems.

5. Provide few examples of business risk ?

Ans: **Examples of business risks include:**

   - Loss of customers.
   - Increase in production costs.
   - Cash flow problems.
   - Decline in product demand.
   - Litigations and claims.
   - Technological obsolescence.
   - Increase in market competition.
   - Decrease in profitability.

6. How predicable risks are different from un-pridicable risks ?

Predictable risk	***Un-predictable risk***
• *Predictable risks* are generalized from past project experience (e.g., staff turnover, poor communication with the customer, etc).	• *Unpredictable risks* are the joker in the deck. They can and do occur, but they are extremely difficult to identify in advance.

7. Define quality achievement criteria for a software ?

   Ans: The quality criteria presented are not peculiar to application protocol design, but are applicable to design in many other areas, including data transfer protocol design.

8. Which factors influence the cost of quality ?

   Ans:

9. Differentiate between internal failure cost and external failure cost ?

Internal failure cost	***External failure cost***
• Rework	• Complain resolution
• Repair	• Product return and replacement
	• warranty work

10. In quality assurance activities what different factors are ensured from a developing software ?

Ans:

11. Differentiate b/w formal and informal reviews ***?***

Formal reviews	***Infromal reviews***
• Formal presentation of software design to an audience of customers, management, and technical staff.	• Meeting around the coffee machine and discussing technical problems.

12. Which points a review summary report reveals ?

    Ans: A *review summary report* reveals the following points :

    - What was reviewed?
    - Who reviewed it?
    - What were the findings and conclusions?

13. What is software reliability ?

    Ans: *Software reliability* is defined in statistical terms as "the probability of failure-free operation of a computer program in a specified environment for a specified time“.

14. What is 'Business Risk'

    Ans:Business risk is the possibility a company will have lower than anticipated profits or experience a loss rather than taking a profit. Business risk is influenced by numerous factors, including sales volume, per-unit price, input costs, competition, the overall economic climate and government regulations.

15. “Software engineer reconciles the conflicts in negotiation”, elaborate this sentence ?

- Ans: Requirements are ranked (i.e., prioritized) by the customers, users, and other stakeholders

16. State any five principles that should be followed during negotiation ?

Ans:

- Recognize that it is not competition
- Map out a strategy
- Listen actively
- Focus on the other party's interests
- Don't let it get personal
- Be creative
- Be ready to commit

17. Define a software specification with an example ?

Ans: A specification is the final work product produced by the requirements engineer. It formalizes the informational, functional, and behavioral requirements of the proposed software in both a graphical and textual format.

18. What factors should be checked during the activity of validation ?

- all software requirements have been stated unambiguously
- inconsistencies, omissions, and errors have been detected and corrected
- the work products conform to the standards established for the process, the project, and the product

19. State the key task that may be performed during requirement management ?

- The project team performs a set of activities to identify, control, and track requirements and changes to the requirements at any time as the project proceeds
- Each requirement is assigned a unique identifier
- The requirements are then placed into one or more traceability tables
- These tables may be stored in a database that relate features, sources, dependencies, subsystems, and interfaces to the requirements

20. What three core outcomes are achieved in requirement analysis ?

Ans:

21. Differentiate b/w structure analysis and OO analysis ?

Ans:

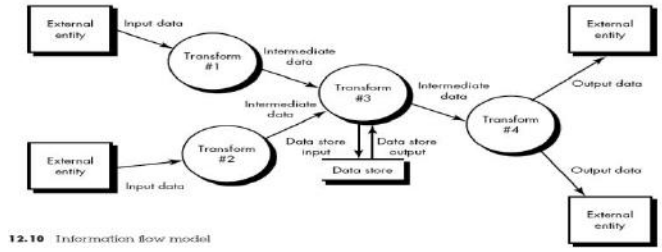
22. Elaborate Data modeling ?

- Ans: Data model consists of three interrelated pieces of information:
  - The data object,
  - The attributes that describe the data object, and
  - The relationships that connect data objects to one another.

23. Provide an example to justif cardinality and modality ?

Ans:

24. Provide a suitable example of DFD for understand the flow of information ?



12.10 Information flow model

25. Write down five steps necessary for behavioral modeling ?

☐ Ans: For behavioral modeling –

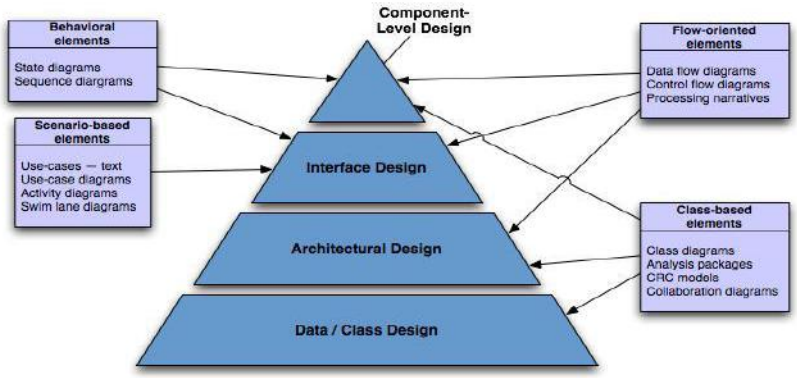
- Evaluate all use cases to understand the sequence of interaction within the system.
- Identify events
- Create sequence for each use-case
- Build a state diagram for the system.
- Review the behavioral model to verify accuracy or consistency

26. What goals of design engineering can be achieved by producing a model ?

■ Ans: Goal of design engineering is to produce a model or representation that depict:

- ☐ Firmness – program should not have any bug that inhibits its functions.
- ☐ Commodity – suitable to its intended use.
- ☐ Delight - pleasurable to use

27. Translating analysis to design, what hierarchy of designs may be followed ?



28. Why design is important ?

■ It is place where quality is fostered.
■ It provides us with representation of software that can be assessed for quality.
■ It serves as foundation for all software engineering activities.

Without design difficult to assess:

- Risk
- Test
- Quality

29. Differentiate b/w abstraction and refinement ?

    Ans: **Abstraction** is an activity in which detail description of the solution is provided .

    Refinement is actually a process of *elaboration. Abstraction and refinement are complementary concepts.*

30. Differentiate b/w Cohesion and coupling ?

Ans:

31. What are the major concerns of a project manager ?

Ans: Manager concerns about following issues:

- Product quality
- Risk Assessment
- Measurement
- Cost Estimation
- Project Schedule
- Staffing
- Other Resources
- Customer Communication
- Project Monitoring

32. Name any three reasons which you consider are strong enough, to drag a project failure ?

- Changing customer requirement
- Ambiguous/Incomplete requirement
- Predictable and/or unpredictable risks
- Technical difficulties

33. Who are the player of the project ?

- The Stakeholders
- Team leaders
  - The Software Team
    - Coordination and Communication Issues.
- Implementer are the player of the project .

34. What is a difference b/w a customer and end-user ?

- **Customers** who specify the requirements for the software to be engineered and other stakeholders who have a marginal interest in the outcome.
- **End-users** who interact with the software once it is released for production use.

35. Why a team leader follows MOI model for leadership ?

- **Motivation** The ability to encourage (by "push or pull") technical people to produce to their best ability.
- **Organization** The ability to mold existing processes (or invent new ones) that will enable the initial concept to be translated into a final product.
- **Ideas or Innovation.** The ability to encourage people to create and feel creative even when they must work within bounds established for a particular software product or application.

36. Define Organizational paradigm?

Ans:

37. What factors are count while defining a product scope ?

Ans: There are three factors that are count defining a product scope:

- Context
- Information objectives
- Function and performance

38. Elaborate problem decomposition ?

- ☐ Sometimes called partitioning or problem elaboration
- ☐ Decomposition process continues until a problem classes can be defined in small amout of pieces.

39. What characteristics should be fulfilled by software testing strategies ?

- Generic characteristics of strategic software testing:
  - ☐ To perform effective testing, a software team should conduct effective **formal technical reviews**.
  - ☐ Testing begins at the component level and works "outward" toward the integration.
  - ☐ Different testing techniques are appropriate at different points.
  - ☐ Testing is conducted by the developer of the software and (for large projects) an independent test group.

40. How validation is differ from verification ?

- **Verification** refers to the set of activities that ensure that software correctly implements a specific function.
- **Validation** refers to a different set of activities that ensure that the software that has been built is traceable to customer requirements.

41. A software testing strategy may also be viewed in the context of the spiral …….

Ans:

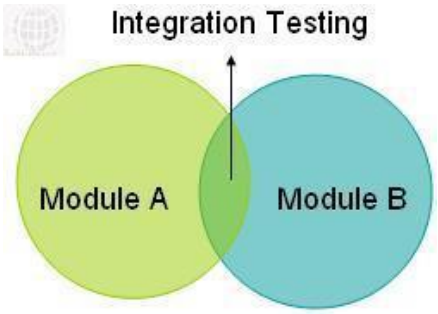
42. What is unit testing and what type of errors it reveals ?

Ans: In **unit testing** focus verification effort on the smallest unit of the software design, component and module.

- More common errors in computation are
  - ☐ misunderstood or incorrect arithmetic precedence
  - ☐ mixed mode operations,
  - ☐ incorrect initialization,
  - ☐ precision inaccuracy,

43. Briefly describe the purpose of integration and regression testing ?

- Ans: The purpose of regression is when a bug is fixed by the development team than testing the other features of the applications which might be affected to the bug fix is Known as **Regression testing**. **Integration testing** tests integration or interfaces between components, interactions to different parts of the system such as an operating system, file system and hardware or interfaces between systems.e.g
- Also after integrating two different components together we do the integration testing. As displayed in the image below when two different modules 'Module A' and 'Module B' are integrated then the integration testing is done.



44. What is criteria to be completed for validation testing ?

Ans:

45. Differentiate b/w Alpha and Beta testing ?

- The **Alpha** *test* is conducted at the developer's site by a customer.
- The **Beta** *test* is conducted at one or more customer sites by the end-user of the software.
- **Alpha** tests are conducted in a controlled environment.
- **Beta** test is a "live" application of the software in an environment that cannot be controlled by the developer.