Solved Past Papers (Short Questions)

Course: Software Engineering (BS-IT 4rth Semester)

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1. **What is SWOT analysis?**
   SWOT analysis (strengths, weaknesses, opportunities and threats analysis) is a framework for identifying and analyzing the internal and external factors that can have an impact on the viability of a project, product, place or person.

2. **What is software refactoring?**
   Refactoring is the process of changing a software system in such a way that it does not alter the external behavior of the code yet improves its internal structure.

3. **What is embedded system?**
   An embedded system is a programmed controlling and operating system with a dedicated function within a larger mechanical or electrical system, often with real-time computing constraints.

4. **What is the diff. b/w cohesion and coupling?**
   Cohesion is the indication of the relationship within module. Coupling is the indication of the relationships between modules. Cohesion is a degree (quality) to which a component / module focuses on the single thing. Coupling is a degree to which a component / module is connected to the other modules.

5. **Define SQA?**
   Software Quality Assurance (SQA) consists of a means of monitoring the software engineering processes and methods used to ensure quality.

6. **What is gantt chart?**
   A Gantt chart is a type of bar chart that illustrates a project schedule. This chart lists the tasks to be performed on the vertical axis, and time intervals on the horizontal axis.

7. **Write down name of diff. phases of Rational Unified Process?**
   Rational unified process consists of following four phases:

i. Inception
ii. Elaboration
iii. Construction
iv. Transition

8. **What is diff. b/w testing and debugging?**

Testing activity is carried down by a team of testers, in order to find the defect in the Software while Debugging is the activity which is carried out by the development team (or developer), after getting the test report from the team. In this, developer find out bug and try to modify it by going through line of codes and After fixing software is sent back to testers.

9. **Differentiate b/w iterative model and incremental model?**

   In Incremental model, we deliver software in small but usable pieces, each piece builds on pieces already delivered while In the Iterative model, iterative process starts with a simple implementation of a small set of the software requirements and iteratively enhances the evolving versions until the complete system is implemented and ready to be deployed.

10. **What is extreme programming?**

    Extreme programming (XP) is a software development methodology which is intended to improve software quality and responsiveness to changing customer requirements.

11. **What is CMM?**

    CMM stands for "Capability Maturity Model". It is used to develop and refine an organization's software development process. The levels of CMM are:

i. Initial
ii. Repeatable/Managed
iii. Defined
iv. Quantitatively Managed
v. Optimizing

12. **What is system testing?**

    The purpose of system testing is to identify defects that will only surface when a complete system is assembled

13. **Differentiate b/w project, process and product?**

    A project is a temporary endeavor that is undertaken to create a unique product or service and steps used to complete project is known as process.

14. **Define Stakeholder?**

    A person, group, or organization that is actively involved in a project, is affected by its outcome.

15. **What is closed system?**

An open system is one that interacts with its environment and thus exchanges information, material, or energy with the environment, including random and undefined inputs however the systems that are relatively isolated from the environment but not completely closed are termed closed systems.

16. Define SCM?

Software configuration management (SCM) is a software engineering discipline consisting of standard processes and techniques often used by organizations to manage the changes introduced to its software products.

17. What is throwaway in prototype?

Throwaway or rapid prototyping refers to the creation of a model that will eventually be discarded rather than becoming part of the final delivered software.

18. What is Requirement elicitation?

Requirements elicitation is the practice of researching and discovering the requirements of a system from users, customers, and other stakeholders. Requirements elicitation is a part of the requirements engineering process, usually followed by analysis and specification of the requirements.

19. How we can define Non-functional requirements?

Non-functional requirements are about Constraints on the services or functions, Time constraints and Constraints on the development process.

20. Give the name of four elicitation techniques?

i. Surveys
ii. Questionnaire
iii. brainstorming sessions
iv. Interviews

21. Define Requirement creeping?

Scope creep (also called requirement creep, or kitchen sink syndrome) in project management refers to changes, continuous or uncontrolled growth in a project's scope, at any point after the project begins. Scope creep can be a result of: poor change control.

22. What is data granularity?

The granularity of data refers to the size in which data fields are sub-divided. For example, a postal address can be recorded, with coarse granularity, as a single field: address = 200 2nd Ave.

23. Write down any four characteristics of non-functional requirement?

i. Availability.
ii. Reliability.
iii. Recoverability.
iv. Maintainability.

24. Write fundamental activities that involve in software development process?

i. Planning
ii. Analysis
iii. Design
iv. Development & implementation
v. Testing
vi. maintenance

25. What are drawbacks of spiral model?

Following are the disadvantage.

i. This model is costly to use.
ii. Risk analysis requires high experts for the development of the project.
iii. Project's success is highly dependent on risk analysis.
iv. This model cannot work for smaller projects

26. Differentiate between Proactive and Reactive approaches to handle risk?

PROACTIVE APPROACH: A proactive approach focuses on eliminating problems before they have a chance to appear.

REACTIVE APPROACH: A reactive approach is based on responding to events after they have happened.

27. What are the properties of good requirements?

Software requirements are good if they contain following properties:

i. Verifiable
ii. Clear and concise
iii. Complete
iv. Consistent
v. Traceable
vi. Modifiable
vii. Unambiguous

28. Define Modularity?

Modularity is the principle which depicts the idea of splitting up the problem into series of self contained modules. According to this principle the software is separated into the components according to the functionalities and responsibilities.

29. Define functional requirements?

Statements of services that the system should provide, how the system should react to particular inputs and how the system should behave in particular situation are functional requirements.

30. What is Software Architectural Design?

Software Architectural Design represents the structure of data and program components that are required to build a computer based systems. It contain following processes:

i. Creation of data design

ii. Derivation of one or more representation of architectural structures

iii. Analysis

iv.Elaboration

31. Differentiate between refactoring and refinement?

REFACTORING: The processor changing the software system in such a way that is does no taller the external Behavior of code yet improve its internal Structure is called refactoring.

REFINEMENT: The process of deriving the new version of the specification/program from old one, after deciding the change of data riper Sanitation is call refinement.

32. Why we use CMM?

CMM stands for "Capability Maturity Model". It is used to develop and refine an organization's software development process. CMM can be used to assess an organization against a scale of five process maturity levels based on certain Key Process Areas (KPAs).

33. :Differenciate between verification and validation?

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 the customer requirements.

Verification: Are we building the product right?

Validation: Are we building the right product?

34. How quality is related to standards?

Quality is the major factor in any software development process. The quality and standard has the direct relation. Highest the quality of the software highest will be the standard of the organization where the software is being developed. So quality is always related to the standards.

35. What is software engineering?

Software Engineering is defined as the application of systematic, disciplined, quantified approach to the development, operations, and maintenance of software.

36. Define component based development?

CBD has many characteristics of spiral model. It is evolutionary by nature and iterative approach to create software. CBD model creates applications from prepackaged software components (called classes).

37. Define legacy softwares?

A system is considered to be a legacy system if it has been in operation for many years. A legacy system has many components. These include business processes, business rules, application software, application data, support software, and system hardware.

38. What are umbrella activities?

The umbrella activities of a software process are:

- Software project tracking and control.
- Risk Management.
- Software Quality Assurance.
- Formal Technical Reviews.
- Software Configuration Management.
- Work product preparation and production.
- Reusability management, Measurement

39. Define requirements engineering?

Requirement engineering is the process of establishing to services that the customer required from the system and constraints under which it operates and is developed.

40. What is a process specification?

A process specification is a method used to document, analyze and explain the decision making logic and formulas used to create output data from process input data.

41. What is the purpose of configuration model?

The integration and configuration process model is based on reuse. In this software process model, systems are adapted from existing components as much as possible. The reused components may be configured to adapt their behavior and functionality to the requirements of the new software or system.

42. How do associations and dependencies differ from one another?

In general, you use an association to represent something like a field in a class. The link is always there, in that you can always ask an order for its customer. ... Associations also imply dependency, if there is an association between two classes, there is also a dependency.

43. Define unified process?

In this model, a software product is designed and built in a succession of incremental iterations. It incorporates early testing and validation of design ideas and early risk mitigation.

44. How the process model differ from one another?

Process Model differ from one another due to the following reasons:

- Based on flow of Activities.
- Interdependencies between Activities.
- Manner of Quality Assurance.
- Manner of Project Tracking.
- Tam Organization and Roles.
- Work Products identify a requirement Identifier.

45. What are drawbacks of prototyping model?

- Insufficient analysis
- User confusion
- Developer misunderstanding of user objectives
- Excessive Development Time

46. Why formal methods are not widely used?

Formal Methods are not widely used due to the following reasons :

- It is Quite Time Consuming and Expensive.
- Extensive expertise is needed for developers to apply formal methods.
- Difficult to use as their technically sophisticated maintenance may become risk.

47. What is SRS?

SRS stands for software requirement specifications. These include:

- Correct
- Complete
- Unambiguous
- Specific
- Traceable
- Consistent

48. What are various phases of SDLC?

These six steps include planning, analysis, design, development & implementation, testing & deployment and maintenance.

49. How can we derive the size of software product?

Size of software product can be calculated using either of two methods:

- Counting the lines of delivered code
- Counting delivered function points

50. Define difference between alpha testing and beta testing?

Alpha and Beta testing are the types of acceptance testing.

- Alpha test : The alpha testing is attesting in which the version of complete software is tested by the customer under the supervision of developer. This testing is performed at developer's site.
- Beta test : The beta testing is a testing in which the version of the software is tested by the customer without the developer being present. This testing is performed at customer's site.

51. What are various types of software maintenance?

Types of software maintenance are:

- Corrective Maintenance: Means the maintenance for correcting the software faults.

- Adaptive maintenance: Means maintenance for adapting the change in environment.
- Perfective maintenance: Means modifying or enhancing the system to meet the new requirements.
- Preventive maintenance: Means changes made to improve future maintainability.

52. How the architecture design can be represented?

Architectural Design can be represented by one or more different models. They are:

1. Structural Models 2. Framework Models 3. Dynamic Models 4. Process Models

53. Differentiate between structured analysis vs. object oriented analysis?

Structured analysis: the focus is only on process and procedures. Modeling techniques used in it are DFD (Data Flow Diagram), Flowcharts etc.

Object oriented analysis: the focus is more on capturing the real world objects in the current scenario that are of importance to the system. It stresses more on data structure and less on procedural structure. Modeling techniques used in it are UML(Unified modeling Language). UML includes Class Diagram, State Diagram, Use case diagram, Sequence Diagram, etc.

54. What are case tools?

CASE Tools stands for Computer Aided Software Engineering. It is a System software that provide automated support for software process activities. It Includes program used to support software process activities such as Requirement Analysis, System Modeling. Debugging and Testing.

55. What is software re-engineering?

In Software re-engineering, new feature can be added to existing system and then the system is reconstructed for better use of it in future.

56. What is RMMM?

RMMM stands for Risk Mitigation, Monitoring and Management Plan. It is also called Risk Aversion.

57. What is FDD diagram?

A data flow diagram (DFD) illustrates how data is processed by a system in terms of inputs and outputs. As its name indicates its focus is on the flow of information, where data comes from, where it goes and how it gets stored.

58. What is convention in DFD?

Conventions used when drawing DFD's. It should be pointed out that a DFD is not a flowchart. A DFD represents that flow of data, while flow chart shows the flow of control. A DFD does not represent procedural information.

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