**Q1. What is computer software?**

**A.** Computer software is a complete package, which includes software program, its documentation and user guide on how to use the software.

**Q2. Can you differentiate computer software and computer program?**

A computer program is piece of programming code which performs a well defined task where as software includes programming code, its documentation and user guide.

**Q3. What is software engineering?**

Software engineering is an engineering branch associated with software system development.

**Q4 .When you know programming, what is the need to learn software engineering concepts?**

A person who knows how to build a wall may not be good at building an entire house. Likewise, a person who can write programs may not have knowledge of other concepts of Software Engineering. The software engineering concepts guide programmers on how to assess requirements of end user, design the algorithms before actual coding starts, create programs by coding, testing the code and its documentation.

**Q5. What is software process or Software Development Life Cycle (SDLC)?**

Software Development Life Cycle, or software process is the systematic development of software by following every stage in the development process namely, Requirement Gathering, System Analysis, Design, Coding, Testing, Maintenance and Documentation in that order.

**Q6. What is software project management?**

Software project management is process of managing all activities like time, cost and quality management involved in software development.

**Q7. What does software project manager do?**

Software project manager is engaged with software management activities. He is responsible for project planning, monitoring the progress, communication among stakeholders, managing risks and resources, smooth execution of development and delivering the project within time, cost and quality contraints.

**Q8. What are software requirements?**

Software requirements are functional description of proposed software system. Requirements are assumed to be the description of target system, its functionalities and features. Requirements convey the expectations of users from the system.

**Q9. What is feasibility study?**

It is a measure to assess how practical and beneficial the software project development will be for an organization. The software analyzer conducts a thorough study to understand economic, technical and operational feasibility of the project.

* **Economic** - Resource transportation, cost for training, cost of additional utilities and tools and overall estimation of costs and benefits of the project.
* **Technical** - Is it possible to develop this system ? Assessing suitability of machine(s) and operating system(s) on which software will execute, existing developers’ knowledge and skills, training, utilities or tools for project.
* **Operational** - Can the organization adjust smoothly to the changes done as per the demand of project ? Is the problem worth solving ?

**Q10. How can you gather requirements?**

**A.** Requirements can be gathered from users via interviews, surveys, task analysis, brainstorming, domain analysis, prototyping, studying existing usable version of software, and by observation.

**Q11. What is SRS?**

SRS or Software Requirement Specification is a document produced at the time of requirement gathering process. It can be also seen as a process of refining requirements and documenting them.

**Q12. What are functional requirements?**

Functional requirements are functional features and specifications expected by users from the proposed software product.

**Q13. What are non-functional requirements?**

Non-functional requirements are implicit and are related to security, performance, look and feel of user interface, interoperability, cost etc.

**Q14. What is modularization?**

Modularization is a technique to divide a software system into multiple discreet modules, which are expected to carry out task(s) independently.

**Q15 .What is cohesion?**

Cohesion is a measure that defines the degree of intra-dependability among the elements of the module.

**Q16. What is coupling?**

Coupling is a measure that defines the level of inter-dependability among modules of a program.

**Q17. What is the difference between function oriented and object oriented design?**

Function-oriented design is comprised of many smaller sub-systems known as functions. Each function is capable of performing significant task in the system. Object oriented design works around the real world objects (entities), their classes (categories) and methods operating on objects (functions).

**Q18. Briefly define top-down and bottom-up design model.**

Top-down model starts with generalized view of system and decomposes it to more specific ones, whereas bottom-up model starts with most specific and basic components first and keeps composing the components to get higher level of abstraction.

**Q19. What is functional programming?**

Functional programming is style of programming language, which uses the concepts of mathematical function. It provides means of computation as mathematical functions, which produces results irrespective of program state.

**Q20. Differentiate validation and verification?**

**A.** Validation checks if the product is made as per user requirements whereas verification checks if proper steps are followed to develop the product.

Validation confirms the right product and verification confirms if the product is built in a right way.

**Q21. What is black-box and white-box testing?**

Black-box testing checks if the desired outputs are produced when valid input values are given. It does not verify the actual implementation of the program.

White-box testing not only checks for desired and valid output when valid input is provided but also it checks if the code is implemented correctly.

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Black Box Testing** | **White Box Testing** |
| Knowledge of software program, design and structure essential | No | Yes |
| Knowledge of Software Implementation essential | No | Yes |
| Who conducts this test on software | Software Testing Employee | Software Developer |
| baseline reference for tester | Requirements specifications | Design and structure details |

**Q22. System testing and User Acceptance testing?**

User acceptance testing is done by client or customer.It will take place in client place.They will check whether the application meeting the requirements or not.

system testing is the testing done on a particular application in different environments such as different OS, Browsers, browser versions etc.It is usually done in developer location only.

**Q23. What are various types of software maintenance?**

Maintenance types are: corrective, adaptive, perfective and preventive.

* **Corrective**

Removing errors spotted by users

* **Adaptive**

tackling the changes in the hardware and software environment where the software works

* **Perfective maintenance**

implementing changes in existing or new requirements of user

* **Preventive maintenance**

taking appropriate measures to avoid future problems

**Q24 .What are CASE tools?**

**A.** CASE stands for Computer Aided Software Engineering. CASE tools are set of automated software application programs, which are used to support, accelerate and smoothen the SDLC activities.