

Name - Rakib Hasan

ID - 2216080021

Batch - 08

Department - B.Sc in CSE

Course title - Software Engineering Course code - CSI 321 ①

Ans. to the Ques. No - 01 (a)

Software engineering is the branch of computer science that deals with the design, development, testing, and maintenance of software applications. Software engineers apply engineering principles and knowledge of programming languages to build software solutions for end users.

Ans to the Ques. No - (b)

The traditional waterfall model is a sequential design process in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Analysis, Design, Implementation, Testing and Maintenance.

Waterfall development is a linear and sequential approach, where each stage depends on the completion and approach of the previous one.

Therefore, It is essential to validate and verify the requirements before moving to the next stage.

The Waterfall methodology - also known as the Waterfall model - is a sequential development process that flows like a waterfall through all phases of a project.

Both the waterfall model and the V-model are quite widely used development methodologies in the software industry. Both of these models help the development of applications in a systematic way. The basic difference between V-Model and waterfall model is that, in the V-Model, defects are identified in the testing phase, while in the waterfall model, defects are identified from the beginning.

(c) An SRS should have following characteristics

Unambiguous - The SRS should be clear and specific, and should avoid using vague or imprecise language.

Traceable - The SRS should be traceable to other documents and artifacts, such as use cases and user stories to ensure that all requirements are

(3)

being met. A user class is a set of developer-defined attributes and methods that you can use to refer to multiple data items as a single entity.

Ans to the Ques. No-2(a)

There are four types of software maintenance - Corrective Software Maintenance - Adaptive Software Maintenance, Adaptive Software Maintenance. Perfective Software Maintenance.

Ans to the Ques. No-2(b)

Typically, Black box models such as neural networks, fuzzy modeling, and gradient boosting provide better predictive accuracy while sacrificing interpretability.

The white box Test is a method used to test a software taking into consideration its internal functioning.



Difference Black box testing and white box testing.

Black Box Testing

White Box Testing

① It is also called Specification Based Technique.

① It is also called Structural Testing Technique.

② Internal structure and coding knowledge is not required.

② Internal structure and coding knowledge is required.

③ Main concentrate on functionality of system.

③ Main concentrate on code structure, branches, loops, conditions etc.

④ Implementation knowledge is not required.

④ Implementation knowledge is required.

⑤ Black Box testing means functional test on external testing.

⑤ Testing is application on lower level of testing like Unit testing, integration testing.

Ans/ to the Ques. No- 2(e)

According to practice Test's research, the most popular testing documentation files are test reports, plans and checklists.

These documents are used to outline the team's workload and keep track of the process. Let's take a look at the key requirements for these files and see how they contribute to the

Process.

Quality Documentation means all documentation required in accordance with Schedule 7 [Quality Management] which together constitutes and describes the Quality Management system, including the Quality Manual, Quality Management Plans, work Method statements and Quality Audit Plans.

(6)

Ans to the Ques. No- 3 (a)

Software project management is the process of planning and leading software projects.

It is a sub-discipline of project management in which software projects are planned, implemented, monitored, and controlled.

Ans to the Ques. No- 3 (b)

Direct, manage and motivate the project team, develop and maintain an agreed project plan and detailed stage plans. Understand and apply business case and risk management processes, tailor expert knowledge to meet specific circumstances.

Work instructions or like documentation, as appropriate, which describe and define a Quality Management System.

A common approach is to use the following sections: a title page with the name of your



(5)

Organization, the name of the document, its number, version number, date of issue, and approval status, a table of contents listing all sections and sub-sections.

Requirement Document —

☐ Test Metrics

☐ Test cases and Test plan.

☐ Task distribution flow chart

☐ Transaction Mix.

☐ User profiles.

☐ Test log.

☐ Test incident report.

(c)

Even though, iterative model is extremely beneficial, there are few drawbacks and disadvantages attached to it, such as, each phase of an iteration is rigid with no overlaps. Also, system architecture or design issues may

arise because not all requirements are gathered in the beginning of the entire life cycle.

In essence, the iterative model breaks down the software development process of a very big application into smaller pieces. The benefit of this model is that it is employed during the earlier stages of SDLC.

Advantages of Iterative model -

More flexible - less costly to change scope and requirements. Easier to test and debug during a smaller iteration. Easier to manage risk because risky pieces are identified and handled during its iteration.

The iterative process model is a software development life cycle (SDLC) approach in which the initial development work is conducted based on initial requirements that are clearly defined.



(1)

Ans to the Ques. No-4(a)

Quality refers to a set of characteristics expected from products or services. It is a combination of various factors such as design, performance, reliability, safety, efficiency, effectiveness, economy and timeliness. In other words, quality means conformance with specific standards.

Quality management ensures high quality products and services by eliminating defects and incorporating continuous changes and improvements in the system.

High quality products in turn lead to loyal and satisfied customers, who bring ten new customers who bring ten new customers along with them.

(10)

(b) SQA is a set of activities that verifies that everyone involved with the project has correctly implemented all procedures and processes. SQA work parallel to software development, an ongoing activities applied throughout the software development life cycle.

Quality assurance (QA) is the term used in both manufacturing and service industries to describe the systematic efforts taken to assure that the products delivered to customers meet with the contractual and other agreed upon performance, design, reliability, and maintainability expectations of that customers.

(11)

The SQA group audits designated software work product. are evaluated before they are delivered to the customer. The software work products are evaluated against the designated software standards, procedures, and contractual requirements.