**Module–2(Manual Testing)**

* What is Exploratory Testing?
* What is traceability matrix?
* What is Boundary value testing?
* What is Equivalence partitioning testing?
* What is Integration testing?
* What determines the level of risk?
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* What is black box testing?
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* What is Error, Defect, Bug and failure?
* Difference between Priority and Severity
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* Explain the difference between Functional testing and Non Functional testing

**1] What is Exploratory Testing?**

Exploratory testing is an approach to software testing that is often described as simultaneous learning, test design, and execution.

**2] What is traceability matrix?**

Traceability Matrix also known as Requirement Traceability Matrix[RTM].

It can be used for forward tracing [ from Requirements to Design or Coding] or backward [from Coding to Requirements].

Types of Traceability Matrix:-

Forward Traceability – Mapping of Requirements to Test cases

Backward Traceability – Mapping of Test Cases to Requirements

**3] What is Boundary value testing?**

Software testing technique in which tests are designed to include representatives of boundary values. It is performed by the QA testing teams.

**4] What is Equivalence partitioning testing?**

Software testing technique that divides the input data of a software unit into partitions of data from which test cases can be derived.

It is usually performed by the QA teams.

**5] What is Integration testing?**

Integration Testing is a level of the software testing process where individual units are combined and tested as a group.

The purpose of this level of testing is to expose faults in the interaction between integrated units.

Test drivers and test stubs are used to assist in Integration Testing.

**6] What determines the level of risk?**

A properly designed test that passes, reduces the overall level of Risk in a system. Risks are of two types.

1] Project Risks 2] Product Risk

Risks should be evaluated at the Business Level, Technological Level, Project Level and Testing Level.

**7] What is Alpha testing?**

It is always performed by the developers at the software development site. Sometimes it is also performed by Independent Testing Team.

Alpha Testing is not open to the market and public.

It is conducted for the software application.

**8] What is beta testing?**

It is always performed by the customers at their own site.

It is not performed by Independent Testing Team.

Beta Testing is always open to the market and public.

It is usually conducted for software product.

It is performed in Real Time Environment.

**9] What is component testing?**

A minimal software item that can be tested in isolation. It means A unit is the smallest testable part of software.

The testing of individual software components.

**10] What is functional system testing?**

A requirement that specifies a function that a system or system component must perform A Requirement may exist as a text document and a model There is two types of techniques

1] Requirement Based Functional Testing 2] Process Based Testing

**11] What is Non-Functional Testing?**

Testing the attributes of a component or system that do not relate to functionality.

e.g. reliability, efficiency, usability, interoperability, maintainability and portability

**12] What is GUI Testing?**

Graphical User Interface (GUI) testing is the process of testing the system’s GUI of the System under Test.

GUI testing involves checking the screens with the controls like menus, buttons, icons, and all types of bars – tool bar, menu bar, dialog boxes and windows etc.

**13] What is Adhoc testing?**

Adhoc testing is an informal testing type with an aim to break the system.

It does not follow any test design techniques to create test cases.

Adhoc Testing does not follow any structured way of testing and it is randomly done on any part of application.

**14] What is load testing?**

Its a performance testing to check system behavior under load. Testing an application under heavy loads.

**15] What is stress Testing?**

Stress testing is to test the system behavior under extreme conditions and is carried out till the system failure.

Stress testing determines the breaking point of the system to reveal the maximum point after which it breaks.

Stress testing tries to break the system by testing with overwhelming data or resources.

**16] What is white box testing and list the types of white box testing?**

Testing based on an analysis of the internal structure of the component or system.

Structure-based testing technique is also known as white-box & glass-box testing.

White box testing is also called glass testing or open box testing.

**17] What is black box testing?**

Testing, either functional or non-functional, without reference to the internal structure of the component or system.

Specification-based testing technique is also known as black-box or input/output testing .

**18] What are the different black box testing techniques?**

Equivalence partitioning

Boundary value analysis

Decision tables

State transition testing

Use-case Testing

Other Black Box Testing

**19] Mention what are the categories of defects?**

A flaw in a component or system that can cause the component or system to fail to perform its required function.

Time pressure

Complex code

Complex infrastructure

Changed technologies

Many system interactions

**20] Mention what big bang testing is?**

In Big Bang integration testing all components or modules is integrated simultaneously.

Big Bang testing has the advantage that everything is finished before integration testing starts.

all component are integrated together at once, and then tested.

**21] What is the purpose of exit criteria?**

Successful Testing of Integrated Application.

Executed Test Cases are documented

All High prioritized bugs fixed and closed

Technical documents to be submitted followed by release Notes.

**22] When should "Regression Testing" be performed?**

Regression testing is to confirm that a recent program or code change has not adversely affected existing features.

It is performed when the software or its environment is changed.

When the system is stable and the system or the environment changes

When testing bug-fix releases as part of the maintenance phase

It should be applied at all Test Levels

**23] What is 7 key principles? Explain in detail?**

* **Testing shows presence of Defects**

Testing can show that defects are present, but cannot prove that there are no defects.

Testing reduces the probability of undiscovered defects remaining in the software but even if no defects are found, it is not a proof of correctness. We test to find Faults

As we find more defects, the probability of undiscovered defects remaining in a system reduces.

* **Exhaustive Testing is Impossible!**

Testing everything including all combinations of inputs and preconditions is not possible.

We can use risks and priorities to focus testing efforts.

* **Early Testing**

Testing activities should start as early as possible in the software or system development life cycle.

These activities should be focused on defined objectives.

Testing doesn’t start once the code has been written.

* **Defect Clustering**

A small number of modules contain most of the defects discovered during pre-release testing, or are responsible for the most operational failures.

Defects are not evenly spread in a system.

They are ‘clustered’.

* **The Pesticide Paradox**

If the same tests are repeated over and over again, eventually the same set of test cases will no longer find any new defects.

Test cases need to be regularly reviewed and revised, and new and different tests need to be written to exercise different parts of the software or system to potentially find more defects.

* **Testing is Context Dependent**

Testing is basically context dependent.

Testing is done differently in different contexts

Different kinds of sites are tested differently.

Also different industries impose different testing standards.

* **Absence of Errors Fallacy**

If the system built is unusable and does not fulfill the user’s needs and expectations then finding and fixing defects does not help.

If we build a system and, in doing so, find and fix defects.

It doesn’t make it a good system

Even after defects have been resolved it may still be unusable and does not fulfill the users.

**24] Difference between QA v/s QC v/s Tester**

**QA:-**

Activities which ensure the implementation of processes, procedures and standards in context to verification of developed software and intended requirements.

Process oriented activities.

Focuses on processes and procedures rather than conducting actual testing on the system.

Preventive activities.

**QC:-**

Activities which ensure the verification of developed software with respect to documented requirements.

Product oriented activities.

Focuses on actual testing by executing Software with intend to identify bug/defect through implementation of procedures and process.

It is a corrective process.

**Testing:-**

Activities which ensure the identification of bugs/error/defects in the Software.

Product oriented activities.

Focuses on actual testing.

Focuses on actual testing.

**25] Difference between Smoke and Sanity?**

**Smoke:**

It exercises entire application.

Required documentation part.

Test by tester and developer.

Objective:-stability of system.

Subset of Regression.

Check Stability of functionality.

Smoke is also called zero level testing.

**Sanity:**

It exercises entire particular part of application.

Does not required documentation part.

Test by tester.

Objective:-nationality of system.

Subset of Acceptance

Check Running functionality or new functionality added.

Sanity is also called N level testing.

**26] Difference between verification and Validation**

**Verification:**

The process of evaluating work-products of a development phase to determine whether they meet the specified requirements for that phase.

To ensure that the product is being built according to the requirements and design specifications.

In other words, to ensure that work products meet their specified requirements.

Plans, Requirement Specs, Design Specs, Code, Test Cases.

Reviews, Walkthroughs, Inspection.

**Validation:**

The process of evaluating software during or at the end of the development process to determine whether it satisfies specified business requirements.

To ensure that the product actually meets the user’s needs, and that the specifications were correct in the first place.

In other words, to demonstrate that the product fulfills its intended use when placed in its intended environment.

Testing

**27] Explain types of Performance testing.**

Load testing

Stress testing

Endurance testing

Spike testing

Volume testing

Scalability testing

**28] What is Error, Defect, Bug and failure?**

**Error:** A discrepancy between a computed, observed, or measured value or condition and the true, specified, or theoretically correct value or condition. This can be a misunderstanding of the internal state of the software, an oversight in terms of memory management, confusion about the proper way to calculate a value, etc.

**Failure:** The inability of a system or component to perform its required functions within specified performance requirements. See: bug, crash, exception, and fault.

**Bug:** A fault in a program which causes the program to perform in an unintended or unanticipated manner.

**Defect:** Commonly refers to several troubles with the software products, with its external behavior or with its internal features.

**29] Difference between Priority and Severity.**

**30] What is Bug Life Cycle?**

**31] Explain the difference between Functional testing and Non Functional testing.**

**Functional testing:**

Functional specification provided by the client and verifies the system against the functional requirements.

Functional testing is executed first.

Manual testing or automation tools can be used for functional testing

Functional testing describes what the product does.

Easy to do manual testing.

**Types of Functional testing are:-**

Unit Testing

Smoke Testing

Sanity Testing

Integration Testing

White box testing

Black Box testing

User Acceptance testing

Regression Testing

**Non Functional testing:**

Non-Functional testing checks the Performance, reliability, scalability and non-functional aspects of the software system.

Non functional testing should be performed after functional testing.

Using tools will be effective for this testing.

Nonfunctional testing describes how good the product works.

Tough to do manual testing.

**Types of Non functional testing are:-**

Performance Testing

Load Testing

Volume Testing

Stress Testing

Security Testing

Installation Testing

Penetration Testing

Compatibility Testing

Migration Testing