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| **North Campus** |
| **Mid Term Summer - 2021** |

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**Subject: Software Quality Assurance Submission Day/Date: Saturday/07-08-2021**

**Instructor: Naseer Ahmed Submission Duration: 2 Hours**

**Program: BS Max. Marks: 25**

**Department of Computer Science**

**Please follow the instructions carefully:**

1. Write your answers in a Word file and upload the file before the due time on BlackBoard.
2. Write your name and registration ID on the first page of your Word file.
3. **Answer scripts can be uploaded on BlackBoard within or before its deadline. Therefore, do not wait for the last hour to avoid any unforeseen problems.**
4. **Submission of answer copy(ies) will be considered acceptable through BlackBoard only. Therefore, do not submit your document through email or any other medium.**
5. Use 12 pt. font size and Times New Roman font style along with 1-inch page margins.
6. Follow the requirements of the word limit and the marking criteria while writing your answers.
7. Provide relevant, original and conceptual answers, as this exam aims to test your ability to examine, explain, modify or develop concepts discussed in class.
8. Do not copy answers from the internet or other sources. The plagiarism of your answers may be checked through Turnitin.
9. Recheck your answers before the submission on BlackBoard to correct any content or language related errors.
10. Double check your word file before uploading it on BlackBoard to ensure that you have uploaded the correct file with your answers.

**Q.No.1 (Max Marks: 05)**

Differentiate between the QA and software testing?

**QA:**

1. QA includes activities that ensure the implementation of processes, procedures and standards in context to verification of developed software and intended requirements.
2. Focuses on processes and procedures rather than conducting actual testing on the system.
3. Process-oriented activities.
4. Preventive activities.
5. QA teams have responsibility to start verification right from beginning phase of the application for example. requirement analysis) to ensure the software application meets the industry standards and is being developed as per its requirements and specifications.

**Software testing:**

1. It includes activities that ensure the identification of bugs/error/defects in a software.
2. Focuses on actual testing.
3. Product-oriented activities.
4. It is a preventive process.
5. Software testing basically deals with verification of application functionality as per requirements and specifications. Software testing teams create/executes the test cases and reports bugs in case any unexpected behavior is exhibited by application.

**Q.No.2 (Max Marks: 05)**

What is the difference between build and release?

**Build:**

1. Build is Executable file.
2. Build is handed over to the tester to test the developed part of the project.
3. Build refers to the S/W part which still in testing. or which is not tested yet.
4. Build can be rejected by test team if defect found or it does not meet the certain requirement.
5. Build is nothing but a part of the application.

example: Componet

1. The number provided to software that is installed is handed over to the testing team by the team of the developers(Development team), that number is known as the build number.

**release**

1. Release means which ready to use it.
2. Release hand it over to Client/Customer after completion of development and testing phase.
3. Release refers to the S/W which is no longer in testing.
4. One Release can have several builds associated with it.
5. Release is noting but the application.

Eg: Apple released new iphone 12pro max.

1. The number provided or mentioned on the software that is installable and that is handed over to the customers by the testing team or the development team.

**Q.No.3 (Max Marks: 05)**

Mention the different types of software testing?

The software testing mainly divided into two parts, which are as follows:

**Manual Testing:**

Manual testing is a software testing process in which test cases are executed manually without using any automated tool.

Test cases are planned and implemented to complete almost 100 percent of the software application.

Manual testing is mandatory for every newly developed software before automated testing.

**Types of Manual Testing:**

There are various methods used for manual testing.

White Box Testing

Black Box Testing

Gray Box Testing

**Black box testing types:**

**Functional testing**

In the simplest words, functional testing checks an application, website, or system to ensure that it is doing exactly what it is meant to.

Non functional testing

**Functional testing types:**

Unit testing

Integration testing

System testing

**Integration testing Types:**

Top down

Bottom up

**Nonfunctional testing types**

Performance testing

Usability testing

Compatibility Testing

**Performance testing types:**

Load testing

Stress testing

Scalability testing

Stability testing

**Automation testing**

Another software testing method is automation testing, which is used some specific tools to execute the test scripts without any human interference. It is the most acceptable way to enhance the efficiency, productivity, and test coverage of Software testing.

automation testing provides

Reusability

Consistency

Running tests anytime

Early Bug detection

Less Human Resources

**Q.No.4 (Max Marks: 05)**

Elaborate traceability matrix?

Traceability Matrix (RTM) is a document that maps and traces user requirement with test cases. It captures all requirements proposed by the client and requirement traceability in a single document, delivered at the conclusion of the Software developement life cycle.

Traceability Matrix is to validate that all requirements are checked via test cases such that no functionality is unchecked during Software testing.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Requirement Report | meeting | Developed | Test | UAT |
| 1 | yes | yes | yes | No |
|  |  |  |  |  |
|  |  |  |  |  |

Show the requirement coverage in the number of test cases

Design status as well as execution status for the specific test case

It confirms 100% test coverage

It highlights any requirements missing or document inconsistencies

Meeting Goals

Running the Right Tests

Making Decisions

Managing Projects

**Q.No.5 (Max Marks: 05)**

Explain the strategy for Automation Test Plan?

Automated Testing Detail Test Plan will identify specific tests that are to be performed to ensure the quality of the delivered product. System/Integration Test ensures the product functions as designed and all parts work together. Automated testing during the System/Integration Phase of the project and will map to the specification or requirements documentation for the project. It provides clear entry and exit criteria, and roles and responsibilities of the Automated Test Team are identified such that they can execute the test. The automation testing process is a time-saving process as it spends less time in exploratory testing and more time in keeping the test scripts whereas enhancing the complete test coverage.

1. Describe the test to be executed.
2. Identify and assign a unique number for each specific test.
3. Describe the scope of the testing.
4. List what is and is not to be tested.
5. Describe the test approach detailing methods, techniques, and tools.
6. Outline the Test Design including:
7. Functionality to be tested.
8. Test Case Definition.
9. Test Data Requirements.
10. Identify all specifications for preparation.