1.what do you mean by software testing?

Software testing is an activity conducted in the software development life-cycle to verify that the software is accurate and works according to the requirements. Testing plays an integral part in any software development project.

2.explain white and black box testing?

The Black Box Test is a test that only considers the external behavior of the system; the internal workings of the software is not taken into account.It is carried out by testers.It is the least time consuming.This method is used in system testing or Acceptance testing.It is also known as data-driven testing, **functional testing,** and closed box testing.Black Box Test is not considered for algorithm testing.

The White Box Test is a method used to test a software taking into consideration its internal f nctioning.It is carried out by software developers.This method is used in <u>Unit Testing or Integration Testing</u>.It is most time consuming.It is the logic testing of the software.It is also known as clear box testing, code-based testing, structural testing, and transparent testing.White Box Test is well suitable for algorithm testing.

3. what do you mean by regression testing?

Regression testing is a type of software testing conducted after a code update to ensure that the update introduced no new bugs.

short notes:
unit testing:
Unit testing, a testing technique using which individual modules are tested to determine if there are any issues by the developer himself. It is concerned with functional correctness of the standalone modules. The main aim is to isolate each unit of the system to identify, analyze and fix the defects.
integration testing:
Integration testing is done to test the modules/components when integrated to verify that they work as expected i.e. to test the modules which are working fine individually does not have issues when integrated.
system testing:
System Testing (ST) is a black box testing technique performed to evaluate the complete system the system's compliance against specified requirements. In System testing, the functionalities of the system are tested from an end-to-end perspective.
System Testing is usually carried out by a team that is independent of the development team in order to measure the quality of the system unbiased. It includes both functional and Non-Functional testing.

functional testing:
Functional testing is a type of software testing that verifies the software against the functional requirements and specifications of the end user. The goal of functional testing is to validate if the system's features, capabilities, and interactions match the requirements specified for/by the end user.

In functional testing, each individual function is tested with suitable inputs, and the outputs are validated to ensure that they align with the predefined functional requirements. Functional Testing can either be automated or performed manually.

Non-functional testing is testing designed to check a software application's non-functional aspects such as performance, reliability, utility, etc. In addition, this testing is designed to test a system's readiness related to non-functional parameters typically never addressed by the functional testing process.

acceptance testing:
Acceptance Testing is the last phase of software testing performed after System Testing and before making the system available for actual use.

smoke testing:

Smoke Testing is a software testing process that determines whether the deployed software build is stable or not. Smoke testing is a confirmation for QA team to proceed with further software testing. It consists of a minimal set of tests run on each build to test software functionalities. Smoke testing is also known as "Build Verification Testing" or "Confidence Testing."

performance testing:
Performance testing, a non-functional testing technique performed to determine the system parameters in terms of responsiveness and stability under various workload. Performance testing measures the quality attributes of the system, such as scalability, reliability and resource usage.

security testing:
Security Testing is a type of Software Testing that uncovers vulnerabilities, threats, risks in a software application and prevents malicious attacks from intruders. The purpose of Security Tests is to identify all possible loopholes and weaknesses of the software system which might result in a loss of information, revenue, repute at the hands of the employees or outsiders of the Organization.

user acceptance testing:
User Acceptance Testing (UAT) checks whether a product is the right one for the end users. The word testing makes many people think it's the same as QA, but that's not exactly correct. Let's see what these and other related terms mean and how they are different.

what are different types of manual testing ?explain
Manual testing is the process of manually testing the software for defects. It requires a tester to play the role of an end-user whereby they use most of the application features to ensure the correct behavior.

 TYPES OF MANUAL TESTING:
- Black-Box Testing.
- White-Box Testing.
- Unit Testing.
- Integration Testing.
- System Testing.

- User Acceptance Testing.

what do you mean by functional and non functional test explain different types?

Functional testing checks the application's processes against a set of requirements or specifications.

Examples:

1. Unit Testing

2. Smoke Testing

3. Integration Testing

4. Regression Testing

Non-functional testing assesses application properties that aren't critical to functionality but contribute to the end-user experience, like performance and reliability under load.

Examples:

1. Performance Testing

2. Load Testing

3. Stress Testing

4. Scalability Testing

what do you mean by cyclomatic complexity ?with example

Cyclomatic complexity is a metric that indicates the possible number of paths inside a code artifact, e.g., a function, class, or whole program.

Calculate cyclomatic complexity for the given code-

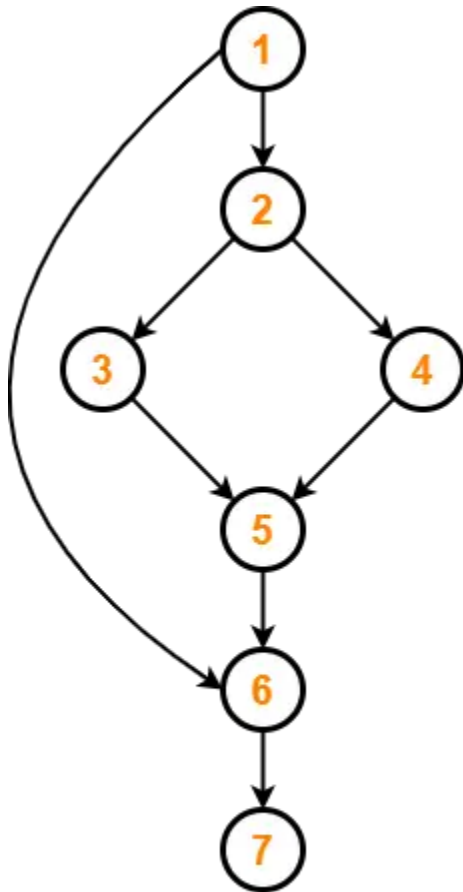**IF** A = 354

THEN IF B > C

THEN A = B

ELSE A = C

END IF

END IF

PRINT A

Solution-

We draw the following control flow graph for the given code-

Control Flow Graph

Using the above control flow graph, the cyclomatic complexity may be calculated as-

Method-01:

Cyclomatic Complexity

= Total number of closed regions in the control flow graph + 1

= 2 + 1

= 3

Method-02:

Cyclomatic Complexity

= E – N + 2

= 8 – 7 + 2

= 3

Method-03:

Cyclomatic Complexity

= P + 1

= 2 + 1

= 3