

Unit V — Development, Implementation, Security Control & Auditing

Software Engineering and Management | BMB IT 01

Unit V: Business System Development, Implementation, Security Control and Auditing

Syllabus: System testing and quality assurance; documentation for systems; implementation and development processes; hardware and software selection criteria; system maintenance and support. Security control and auditing: security and auditing of information systems; objectives and techniques of information system controls; auditing information systems; disaster recovery and business process continuity planning.

Exam Blueprint (2025-26 paper)

Topic	2025-26 paper	Marks
Types of systems testing	Section C	7
Software testing vs Quality Assurance	Section C	7
System testing — concept	Section B	7
Software Quality Assurance	Section A	2
Types of maintenance	Section A	2

YE QUESTION BAAR-BAAR AAYA HAI

Testing aur QA se 2025-26 me **chaar questions** aaye. "*Difference between software testing and quality assurance*" aur "*types of system testing*" — dono Section C me the. Section 1 aur 2 me detail me hain.

1. System Testing

DEFINITION - RATTA MAARO

Software testing is the process of executing a program or system with the intent of **finding errors (defects)** and verifying that it meets its specified requirements. It answers: "*Are we building the product right?*"

1.1 Objectives of Testing

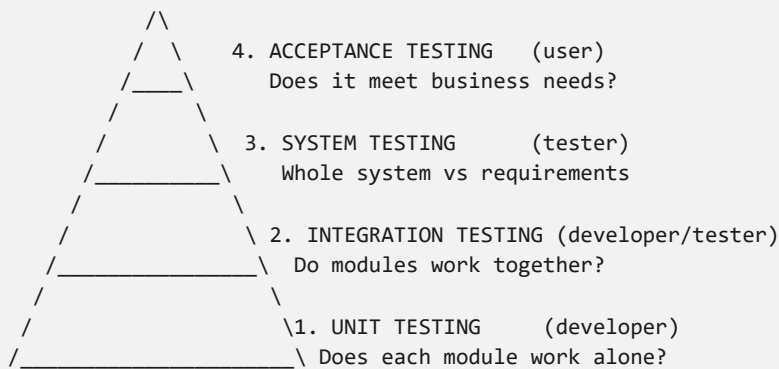
- To **find defects** before the users do
- To verify the system **meets its requirements** (verification and validation)
- To build **confidence** in the quality of the system
- To **prevent** defects by early involvement
- To provide information for **go/no-go** decisions

- To reduce the **cost of failure** — a defect found in requirements costs a fraction of one found in production

DEFINITION - RATTA MAARO

Verification = "Are we building the product right?" — checking against the specification (reviews, inspections, static testing). **Validation** = "Are we building the right product?" — checking against the user's actual need (dynamic testing, UAT).

1.2 Levels of Testing — the 7-mark question



Level	What is tested	By whom	Focus
1. Unit testing	Each individual module or program in isolation	Developer	Internal logic, boundary values
2. Integration testing	The interfaces between modules	Developer / tester	Data passing, interface errors. <i>Approaches: big-bang, top-down (uses stubs), bottom-up (uses drivers), sandwich</i>
3. System testing	The complete, integrated system against the requirement specification	Independent testers	End-to-end behaviour, non-functional qualities
4. Acceptance testing (UAT)	The system in the user's environment against business needs	Users / customer	Fitness for actual business use. <i>Types: alpha (in-house, at developer site), beta (at real user sites)</i>

1.3 Types of System Testing — learn this list

Type	What it checks
Functional testing	Each function behaves per the specification
Performance testing	Speed and response time under expected load
Load testing	Behaviour under expected peak load
Stress testing	Behaviour beyond normal limits — where and how it breaks
Volume testing	Handling of large volumes of data
Security testing	Resistance to unauthorised access and attacks
Usability testing	How easily real users can operate it