



JSPM's
**Bhivrabai Sawant Institute of Technology
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Department of Computer Engineering
WORKBOOK

BE COMPUTER SEM I
A.Y. 2020-2021

Software Testing and Quality Assurance

SUBJECT CODE: 410245(B)

UNIT NO: 1 INTRODUCTION

Designed By: Prof. Adsure S.S.

Syllabus Covered

UNIT 1	INTRODUCTION
<p>Introduction, historical perspective, Definition, Core Components, Quality View, Financial Aspect, Customers suppliers and process, Total Quality Management(TQM), Quality practices of TQM, Quality Management through- Statistical process Control, Cultural Changes, Continual Improvement cycle, quality in different areas, Benchmarking and metrics, Problem Solving Techniques, Problem Solving Software Tools.</p> <p>Software Quality- Introduction, Constraints of Software product Quality assessment, Customer is a King, Quality and Productivity Relationship, Requirements of Product, Organization Culture, Characteristics of Software, Software Development Process, Types of Product, Criticality Definitions, Problematic areas of SDLC, Software Quality Management, Why Software has defects, Processes related to Software Quality, Quality Management System's Structure, Pillars of Quality Management System, Important aspects of quality management.</p>	

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Roll No: BE B - 20

1] Fill in blanks:

- a) Software is a set of instruction or computer program that when executed provide desired function and performance.
- b) RAD stands for Rapid Application Development.
- c) The incremental model method is also known as the iterative enhancement model.
- d) Software engineering is a process of evaluating a software product to find whether the current software product meets the required conditions or not & Software testing is defined as method to check whether the actual software product matches expected requirements and to ensure that software product is Defect free.
- e) Waterfall Model is one of the models is not suitable for accommodating any change.

2] Select correct option. (Click right tick on correct answer)

i) Total Quality Management (TQM) focuses on

- a. Employee
- b. Customer
- c. Both (a) and (b)**
- d. None of the above

ii) Which of the following is responsible for quality objective?

- a. Top level management**
- b. Middle level management
- c. Frontline management
- d. All of the above

iii) While setting Quality objective, _____ to be considered.

- a. Material quality
- b. Customer need**
- c. Market demand
- d. All of the above

iv) _____ helps organization reduce employee turnover and absenteeism.

- a. Job design
- b. Training & development**
- c. Wage revision
- d. All of the above

v) Malcolm Baldrige national quality award is for (MBNQA)

- a. Total Quality Management**
- b. International Standard Organization
- c. Total Productive Maintenance
- d. Total Quality Control

vi) In which order should tests be run?

- a. The most important tests first**
- b. The most difficult tests first(to allow maximum time for fixing)
- c. The easiest tests first (to give initial confidence)
- d. The order they are thought of

3]Answer the given questions in two to three lines:

a) What is Software, List out the important characteristics of software.:

Software is a set of instructions, data or programs used to operate computers and execute specific tasks. Primarily, software has six main quality characteristics:

- Functionality.
- Reliability.
- Usability.
- Efficiency.
- Maintainability.
- Portability.

b) Problem Solving Software Tools:

- Tools are an organizations analytical asset that assist in understanding a problem through data and try to indicate possible solutions.
- Quality tools applied for solving problems face by projects and functional terms while improving quality in organization.
- Tools may be hardware/software and physical/logical tools.

c) Pillars of Quality Management System

The ISO 9000:2015 and ISO 9001:2015 standard is based on the following Seven principles of Quality management.

1. Customer Focus.
2. Leadership.
3. Engagement of People.
4. Process Approach.
5. Improvement.
6. Evidence-based Decision Making.
7. Relationship Management.

d) Define Total Quality Management (TQM) :

Total Quality Management (TQM) describes a management approach to long-term success through customer satisfaction. In a TQM effort, all members of an organization participate in improving processes, products, services, and the culture in which they work.

4] Explain why Customer is a King

“Customer is King” is an age-old business mantra accentuating the importance of customers (and would-be customers) in every business. Traditionally, this rule usually entails a company’s promise to provide good customer services. But with the current evolution on work and business settings coupled with technological advancement, ‘customer is king’ means more than just good customer service.

5] Why Software has defects

The most common reason is human mistakes in software design and coding. Once you know the causes for Software Defects it will be easier for you to take corrective actions to minimize these defects.

6] Discuss " Quality and Productivity Relationship"

Quality experts such as W. Edwards Deming have stated that quality is positively associated with productivity because as the quality of a product or service increases, there is less need for correcting work or fixing mistakes, so productivity improves. The main difference is that the focus of the productivity definitions is efficiency (or as many outputs as possible for a given unit of inputs), while for quality the main focus is service or output quality and customer satisfaction.

7] Define:**a. Verification**

Verification is the process of evaluating work-products of a development phase to determine whether they meet the specified requirements.

b. Defects

A Defect in Software Testing is a variation or deviation of the software application from end user's requirements or original business requirements. A software defect is an error in coding which causes incorrect or unexpected results from a software program which does not meet actual requirements.

c. Failure

A failure is the inability of a software system or component to perform its required functions within specified performance requirements. When a defect reaches the end customer it is called a Failure. During development Failures are usually observed by testers.

9] What is Continual Improvement cycle:

Continuous improvement is an ongoing effort to improve products, services or processes. ... Among the most widely used tools for continuous improvement is a four-step quality model—the plan-do-check-act (PDCA) cycle, also known as Deming Cycle or Shewhart Cycle.

10] What are Problematic areas of SDLC

- No time allocated for good design and architecture
- Code becomes unreadable and unmaintainable
- Code is disorganized limiting amount of software engineers and/or changes to be active at any time.
- Makes full and patch releases difficult or impossible without severe downtime or refactoring of code.
- Simple configuration or system administration requires a code change not variable/parameter change.

-----EVALUATION SHEET -----

Ques.no	Max.Marks	Marks Obtained	Remark
1	5		
2	6		
3	10		
4	5		
5	5		
6	5		
7	6		
8	4		
9	4		
TOTAL	50		

SUBJECT INCHARGE

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