Sl. No.

BE7-R4 : SOFTWARE TESTING AND QUALITY MANAGEMENT

DURATION : 03 Hours   **MAXIMUM MARKS : 100**

OMR Sheet No. :

Roll No. :

Answer Sheet No. :

Name of Candidate : _____ **; Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.

- Question Paper is in English language. Candidate has to answer in English language only.

- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.

- **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.

- Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the Answer Sheet for **PART ONE** is returned. However, Candidates who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the Answer Sheet for **PART ONE** to the Invigilator.

- **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**

- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

PART ONE

(Answer all the questions)

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet attached to the question paper, following instructions therein.**

(1x10)

1.1 At the integration level, achieving the desired goal may be prevented in _____ testing if the test cases and results are not recorded properly.

(A) Bottom-Up (B) Big Bang

(C) Top-Down (D) System

1.2 Unit testing is to test the _____ of the units.

(A) Performance

(B) System issues

(C) Functionality

(D) Hardware failure

1.3 Which of the following defines the relationship between major structural elements of the software ?

(A) Data design

(B) Linked list

(C) Cohesion

(D) Architectural design

1.4 Which requirements are the foundation from which quality is measured ?

(A) Hardware

(B) Software

(C) Programmers

(D) None of the mentioned

1.5 Which of the following is not a SQA plan for a project ?

(A) amount of technical work

(B) evaluations to be performed

(C) audits and reviews to be performed

(D) documents to be produced by the SQA group

1.6 Who identifies, documents, and verifies that corrections have been made to the software?

(A) Project manager

(B) Project team

(C) SQA group

(D) All of the mentioned

1.7 What is not included in prevention costs ?

(A) quality planning

(B) formal technical reviews

(C) test equipment

(D) equipment calibration and maintenance

1.8 Quality Management in software engineering is also known as :

(A) SQA   (B) SQM

(C) SQI   (D) SQA and SQM

1.9 Which of the following is/are White box technique ?

(A) Statement Testing

(B) Decision Testing

(C) Condition Coverage

(D) All of the mentioned

1.10 Which of the following is black box testing ?

(A) Basic path testing

(B) Boundary value analysis

(C) Code path analysis

(D) None of the mentioned

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" sheet attached to the question paper, following instructions therein.** **(1x10)**

2.1 Validation refers to the set of tasks that ensure that software correctly implements a specific function.

2.2 Software quality assurance consists of the auditing and reporting functions of management.

2.3 Software safety is equivalent to software reliability.

2.4 Misinterpretation of customer communication is a sample of possible cause defects.

2.5 Quality of design encompasses requirements and specifications of the system.

2.6 Finding Defect is not a major goal of Acceptance Testing.

2.7 'Q' organizations are less quality conscious organizations.

2.8 Inventions may lead to major changes in technical way of doing work.

2.9 SDLC stands for Software Design Life Cycle.

2.10 Acceptance testing is also known as alpha testing.

3. Match words and phrases in column X with the closest related meaning/word(s)/phrase(s) in column Y. Enter your selection in the "OMR" answer sheet attached to the question paper, following instructions therein. (1x10)

	X		Y
3.1	CMM	A	The document is produced at the end of the requirements phase of the software development cycle.
3.2	Executable code	B	Software Quality Assurance
3.3	Black-Box Testing	C	Product Design Layout
3.4	Quality assurance	D	Program Design Language
3.5	SCM is an important element of	E	ISO 9001
3.6	Software Requirements Specification	F	Capability Maturity Model
3.7	COCOMO	G	Helps in code creation, debugging and testing
3.8	PERT	H	Constructive Capability Mode
3.9	PDL	I	Functional testing
3.10	The quality standard used in software engineering process is	J	An activity that consists of auditing and reporting functions of management.
		K	Product Evaluation and Review Testing
		L	Program Evaluation and Review Technique
		M	Constructive Cost Mode

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

A	Discipline	B	Linear Order	C	SQL Injection
D	Cyclomatic complexity	E	Integrity	F	Quality Assurance
G	Software reviews	H	Instructions or Computer programs	I	Technical risks
J	Product	K	reliability	L	Performance testing
M	TestDirector				

4.1 In Water fall model, the phases involved in the software development are organized in _____.

4.2 Software is a process and _____.

4.3 _____ threaten the quality and timeliness of the software to be built.

4.4 _____ is mainly used for testing real-time and embedded systems.

4.5 Software is a set of _____ that when executed provide desired function and performance.

4.6 _____ are a "filter" to software engineering processes.

4.7 _____ defines the extent to which access to software or data by unauthorized persons can be controlled.

4.8 _____ is a software measure, that provides a quantitative measure of logical complexity of a program.

4.9 The important metrics used during testing is _____.

4.10 Software engineering is a _____.

PART TWO

(Answer any FOUR questions)

5. (a) Explain Equivalence partitioning.

   (b) Difference between Software Verification & Validation.

   (c) Define the terms : Quality assurance and Quality control. **(5+5+5)**

6. (a) Describe the components and quality which is necessary for the documents of software specification.

   (b) What is black box testing ? What are the different black box testing techniques ? **(7+8)**

7. (a) Describe the top-down and the bottom-up software testing approach. Also enlist the advantages and disadvantages of the same.

   (b) Why quality of the software is important ? List out various software quality parameters. **(8+7)**

8. (a) Briefly explain the CMM architecture. Briefly explain the five maturity levels in the CMM model.

   (b) What is Total Quality Management (TQM) ? What is the difference between TQM and Total Quality Control (TQC) ? **(8+7)**

9. (a) What is Software Testing Metrics ? Explain its Importance and Types.

   (b) What is configuration management ?

   (c) What is Integrated Development Environment (IDE) ? **(5+5+5)**

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SPACE FOR ROUGH WORK

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