A10.2/B2.52/BE7-R4 : SOFTWARE TESTING AND QUALITY MANAGEMENT

अवधि : 03 घंटे **अधिकतम अंक : 100**
DURATION : 03 Hours **MAXIMUM MARKS : 100**

ओएमआर शीट सं. : OMR Sheet No. :						

रोल नं. : **Roll No. :** | | | | | | |

उत्तर-पुस्तिका सं. : **Answer Sheet No. :** | | | | | | |

परीक्षार्थी का नाम : **परीक्षार्थी के हस्ताक्षर :**
Name of Candidate : _____; **Signature of Candidate :** _____

परीक्षार्थियों के लिए निर्देश :	**Instructions for Candidate :**
कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक पढ़ें।	Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
प्रश्न-पुस्तिका की भाषा अंग्रेजी है। परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकते हैं।	Question Paper is in English language. Candidate can answer in English language only.
इस मॉड्यूल/पेपर के **दो भाग** हैं। **भाग एक** में **चार** प्रश्न और **भाग दो** में **पाँच** प्रश्न हैं।	There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
भाग एक ''वैकल्पिक'' प्रकार का है जिसके कुल अंक 40 हैं तथा **भाग दो** ''व्यक्तिपरक'' प्रकार का है और इसके कुल अंक 60 हैं।	**PART ONE** is Objective type and carries 40 Marks. **PART TWO** is Subjective type and carries 60 Marks.
भाग एक के उत्तर, इस प्रश्न-पत्र के साथ दी गई **ओएमआर उत्तर-पुस्तिका** पर, उसमें दिये गए अनुदेशों के अनुसार ही दिये जाने हैं। **भाग दो** की उत्तर-पुस्तिका में **भाग एक** के उत्तर **नहीं** दिये जाने चाहिए।	**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**.
भाग एक के लिए अधिकतम समय सीमा **एक घण्टा** निर्धारित की गई है। **भाग दो** की उत्तर-पुस्तिका, **भाग एक** की उत्तर-पुस्तिका जमा कराने के पश्चात् दी जाएगी। तथापि, निर्धारित एक घंटे से पहले **भाग एक** पूरा करने वाले परीक्षार्थी **भाग एक** की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, **भाग दो** की उत्तर-पुस्तिका ले सकते हैं।	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.
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। ऐसा नहीं करने पर, परीक्षार्थी को इस मॉड्यूल/पेपर में अयोग्य घोषित कर दिया जाएगा।	**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.**
प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार यह जाँच कर यह सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before starting to answer the questions, the candidate should ensure that the Question Booklet is complete in all respect.

जब तक आपसे कहा न जाए, तब तक प्रश्न-पुस्तिका न खोलें।
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 supplied with the question paper, following instructions therein. (1x10=10)

1.1 Regression testing should be performed :

(v) Every week
(w) After the software has changed
(x) As often as possible
(y) When the environment has changed
(z) When the project manager says

(A) (v) & (w) are true, (x), (y) & (z) are false

(B) (w), (x) & (y) are true, (v) & (z) are false

(C) (w) & (y) are true, (v), (x) & (z) are false

(D) (w) is true, (v), (x), (y) & (z) are false

1.2 IEEE 829 test plan documentation standard contains all of the following except :

(A) Test items

(B) Test deliverables

(C) Test specifications

(D) Test tasks

1.3 When should testing be stopped ?

(A) When all the planned tests have been run

(B) When all faults have been fixed correctly

(C) When time has run out

(D) It depends on the risks for the system being tested

1.4 Which of the following statements is **not** true ?

(A) Test environments should be as similar to production environments as possible

(B) The acceptance test does not necessarily include a regression test

(C) Verification activities should not involve testers (reviews, inspections etc.)

(D) Performance testing can be done during unit testing as well as during the testing of whole system

1.5 In which order should tests be run ?

(A) The most important tests first

(B) The order they are thought of

(C) The easiest tests first (to give initial confidence)

(D) The most difficult tests first (to allow maximum time for fixing)

1.6 FAST stands for :

(A) Functional Application Specification Technique

(B) Fast Application Specification Technique

(C) Formal Application Specification Technique

(D) None of the above

1.7 Which of the following is true ?

(A) Component testing should be black box, system testing should be white box.

(B) The more tests you run, the more bugs you will find.

(C) The fewer bugs you find, the better your testing was

(D) If you find a lot of bugs in testing, you should not be very confident about the quality of software

1.8 Which of the following is NOT a type of non-functional test ?

(A) Performance

(B) Usability

(C) State-Transition

(D) Security

1.9 Which of the following tools would you use to detect a memory leak ?

(A) State analysis

(B) Coverage analysis

(C) Memory analysis

(D) Dynamic analysis

1.10 Which of the following statement is true ?

(A) Faults in program specifications are the most expensive to fix.

(B) Faults in code are the most expensive to fix.

(C) Faults in designs are the most expensive to fix.

(D) Faults in requirements are the most expensive to fix.

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1x10=10)

2.1 Equivalence testing divides the input domain into classes of data from which test cases can be derived to reduce the total number of test cases that must be developed.

2.2 Use cases helps to test functional requirements of a system.

2.3 Configuration and compatibility testing are typically good choices for outsourcing.

2.4 The goal of a software tester is to find bugs, find them as early as possible and make sure they get fixed.

2.5 Beta testing is performed at developing organization's site whereas Alpha testing is performed by people at their own locations.

2.6 A test case specification document is used to keep track of each test run.

2.7 Business process-based testing is used in system testing and acceptance testing.

2.8 The requirements document identifies all system components and requirements to be tested, as well as detailed approaches to be followed, so that the testing of components and requirements is effective.

2.9 Quality control and quality assurance are different names for the same activity.

2.10 Cause and effect diagrams can be used to view attempts to solving quality issues that have not worked in the past.

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 supplied with the question paper, following instructions therein.** **(1x10=10)**

	X		Y
3.1	Who identifies, documents, and verifies that corrections have been made to the software ?	**A.**	White Box
3.2	The primary objective of formal technical reviews is to find _____ during the process so that they do not become defects after release of the software.	**B.**	Process
3.3	_____ test the source code of a program during testing.	**C.**	Equivalence Partition
3.4	_____ comes before Design phase in SDLC.	**D.**	SQA group
3.5	Verification is focused on _____ .	**E.**	Latent defect
3.6	An input or output range of values such that each value in the range becomes a test case is the process applied in _____.	**F.**	Project Plan
3.7	To verify that interfaces between different parts of system is the objective of _____.	**G.**	errors
3.8	Test plans are based on _____.	**H.**	Integration Testing
3.9	_____ testing is done without Planning and Documentation.	**I.**	Requirement Analysis
3.10	_____ is an existing defect that has not yet caused a failure because the conditions that is required to invoke the defect is not meet.	**J.**	Ad hoc Testing
		K.	Unit Testing
		L.	Validation
		M.	Process Plan

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10=10)

(A)	Fuzz	**(B)**	Author	**(C)**	Loop-invariants
(D)	Unit Testing	**(E)**	Ad hoc testing	**(F)**	Walkthrough
(G)	Black-box Testing	**(H)**	Tester	**(I)**	White box Testing
(J)	Bottom up Integration Testing	**(K)**	Process	**(L)**	Verification
(M)	Validation				

4.1 A tester is executing a test to evaluate and it complies with the user requirement for a certain field be populated by using a dropdown box containing a list of values, at that time tester is performing _____.

4.2 _____ leads a walkthrough.

4.3 _____ Review Technique is not time bound.

4.4 Top-down Design does not require _____.

4.5 _____ testing is performed by QA Team.

4.6 If a software testing team is doing testing without Planning and Documentation, then this type of testing is called as, _____.

4.7 Validation is the responsibility of _____.

4.8 Defects can be found more easily in _____.

4.9 Verifying that whether software components are functioning correctly and identifying the defects in them is objective of _____ level of testing.

4.10 Component Testing is a _____.

PART TWO

(Answer ANY FOUR questions.)

5. (a) What are different test levels ? Explain.

(b) What is the KEY difference between preventative and reactive approaches to testing ?

(10+5=15)

6. (a) Should testing be done only after the build and execution phases are complete ? Explain with example.

(b) Could reviews or inspections be considered part of testing ?

(10+5=15)

7. (a) What is the difference between verification and validation ?

(b) What is black box testing ? What are the different black box testing techniques ?

(5+10=15)

8. (a) What are the attributes of good test case ?

(b) Describe Cyclomatic complexity with example.

(5+10=15)

9. (a) What is the difference between Quality Assurance (QA) and Quality Control (QC) ?

(b) What is configuration management ?

(c) Describe different levels of Capability Maturity Model.

(5+5+5=15)

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SPACE FOR ROUGH WORK

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