

A10.2-R4: SOFTWARE TESTING AND QUALITY MANAGEMENT

अवधि: 03 घंटे
DURATION: 03 Hours

अधिकतम अंक: 100
MAXIMUM MARKS: 100

ओएमआर शीट सं.:					
OMR Sheet No.:					

रोल नं.:

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Roll No.:

उत्तर-पुस्तिका सं.:

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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 ध्यान पूर्वक 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 सकता है।	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 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 पश्चात 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 .
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना एवं अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हाल नहीं छोड़ सकता है। 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 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 पश्चात एवं उत्तर देने से पहले उम्मीदवार यह जाँच कर यह सुनिश्चित कर ले कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	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 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)

- 1.1 Testing should be stopped when:
A) All the planned tests have been run
B) Time has run out
C) All faults have been fixed correctly
D) It depends on the risks for the system being tested
- 1.2 Test are prioritized so that
A) You shorten the time required for testing
B) You do the best testing in the time available
C) You do more effective testing
D) You find more faults
- 1.3 A Verification is
A) Checking that we are building the right system
B) Checking that we are building the system right
C) Performed by an independent test team
D) Making sure that it is what the user really wants
- 1.4 Data collected during testing should include
A) Test Factors
B) Functions/subroutines
C) Platforms
D) All of the above
- 1.5 Acceptance testing is be done by
A) User B) Quality control
C) Quality assurance D) Senior management
- 1.6 Classes, Instances, Methods, Abstraction are part of
A) Object oriented programming
B) Modular programming
C) Structure programming
D) All of the above
- 1.7 Integration will come under
A) CMM Level 1 B) CMM Level 2
C) CMM Level 3 D) None of the above
- 1.8 Choose the correct from those given below:
A) Compliance Testing – Business rules.
B) Black Box Testing – Path Coverage.
C) Regression Testing – End users.
D) File Integrity – Control Totals
- 1.9 Quality Assurance methods are usually considered
A) Detective B) Preventive
C) Corrective D) Protective

- 1.10 Static analysis is best described as
A) The analysis of batch programs.
B) The reviewing of test plans.
C) The analysis of program code.
D) The use of black box testing.
- 2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)**
- 2.1 In software quality assurance work, there is no difference between software verification and software validation.
- 2.2 One of the features of Object Oriented programming is: Emphasis on procedure rather than data.
- 2.3 Class testing of object-oriented software is equivalent to unit testing for traditional software.
- 2.4 By collecting software metrics and making use of existing software reliability models, it is possible to develop meaningful guidelines for determining when software testing is to be finished.
- 2.5 When testing object-oriented software, it is important to test each class operation separately as part of the unit testing process.
- 2.6 The focus of validation testing is to uncover places that a user will be able to observe failure of the software to conform to its requirements.
- 2.7 Software validation is achieved through a series of tests performed by the user once the software is deployed in his or her work environment.
- 2.8 Recovery testing is a system test that forces the software to fail in a variety of ways and verifies that software is able to continue execution without interruption.
- 2.9 Security testing attempts to verify that protection mechanisms built into a system protect it from improper penetration.
- 2.10 Debugging is not testing, but always occurs as a consequence of 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 supplied with the question paper, following instructions therein. (1x10)

X		Y	
3.1	Software debugging	A.	Will help ensure unchanged areas of the software have not been affected
3.2	A regression test	B.	Based on structural aspects of the system
3.3	A quality attribute is	C.	Oracle
3.4	White box tests are	D.	Meta Data
3.5	A structured repository of data about data is called	E.	Steps to detect and correct errors
3.6	A test plan defines	F.	An aspect of a system that can be measured on a scale
3.7	Data Base	G.	Software attempts to guess the associated password by trying to login again and again
3.8	A software development process combining elements of both design and prototyping-in-stages, in an effort to combine advantages of top-down and bottom-up concepts	H.	Objectives and results
3.9	SQL Injection	I.	Spiral Model
3.10	Brute Force Attack	J.	A malicious user could provide unexpected inputs to the application
		K.	Malicious user could provide unexpected input to the application
		L.	Management and Measurement
		M.	Stress Testing

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.	Logic error & typographical error	B.	Flexibility	C.	A failure
D.	Increase	E.	Black box	F.	Validation
G.	test management tool	H.	Top down approach	I.	before
J.	standard	K.	Driver	L.	Strengthening security.
M.	Bottom-up integration				

- 4.1 To test a function, the programmer has to write a _____, which calls the function and passes it test data.
- 4.2 Alpha testing must be performed _____ Beta testing.
- 4.3 The measure used to evaluate the correctness of a product is called the product _____.
- 4.4 White Box Testing focuses primarily on _____.
- 4.5 _____ testing is a technique appropriate for all levels of testing.
- 4.6 A tool that supports traceability, recording of incidents or scheduling of tests is called _____.
- 4.7 The strategy where design begins by specifying complex pieces and then dividing them into successively smaller pieces is called _____.
- 4.8 _____ types of errors are missed by black-box testing and can be uncovered by white-box testing.
- 4.9 The process starting with the terminal modules is called _____.
- 4.10 When what is visible to end-users is a deviation from the specific or expected behavior, this is called _____.

PART TWO
(Answer any FOUR questions)

- 5.**
- a) Define the terms Software Testing and Software Quality with suitable examples?
 - b) Differentiate between Software Verification and Validation?
 - c) Describe various benefits of Automated testing?
(5+5+5)

- 6.**
- a) What is Integrated Development Environment (IDE)?
 - b) Explain unreachable code? What are the various factors for its existence?
 - c) What is the difference between Event logging and Tracing.
(5+5+5)

- 7.**
- a) What is the difference between priority and severity?
 - b) What is the purpose of Software Test Plans? Describe process of preparing software test plan. Describe contents of various Test document.
 - c) What is the importance of Software Quality Management Models? Give comparison of ISO and CMM models.
(5+5+5)

- 8.**
- a) What is the Software Quality and what are the various attributes for the software Quality?
 - b) What do you understand by a symbolic debugger? What are the other popular techniques for debugging? Briefly outline how debugging is performed by using a symbolic debugger.
(10+5)

- 9.** Describe the differences between:
- i) Smoke & Sanity testing
 - ii) Validation & Verification
 - iii) Test Effectiveness & Test efficiency
(3x5)

