A10.2-R4 : SOFTWARE TESTING & QUALITY MANAGEMENT

अवधि : 03 घंटे
DURATION : 03 Hours

अधिकतम अंक : 100
MAXIMUM MARKS : 100

ओएमआर शीट सं. :
OMR Sheet No. :

रोल नं. :
Roll No. :

उत्तर-पुस्तिका सं. :
Answer Sheet No. :

परीक्षार्थी का नाम :
Name of Candidate : _____

परीक्षार्थी के हस्ताक्षर :
;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 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 है तथा **भाग दो** ''व्यक्तिपरक'' प्रकार का है और इसके कुल अंक 60 है।	**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 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)

1.1   Requirement Analysis purpose is :

   (A)   to find bugs

   (B)   to find test cases

   (C)   to understand user needs

   (D)   to understand test cases

1.2   Which of the following is not included in External failure costs ?

   (A)   testing

   (B)   help line support

   (C)   warranty work

   (D)   complaint resolution

1.3   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 above

1.4   Equivalence partioning is done for :

   (A)   Test cases

   (B)   Classes

   (C)   Objects

   (D)   Users

1.5   Beta Testing is done by :

   (A)   Developers

   (B)   Testers

   (C)   Users

   (D)   All of the above

1.6   Which of the following is a people-intensive activity ?

   (A)   Problem solving

   (B)   Organization

   (C)   Motivation

   (D)   Project management

1.7   CMM stands for :

   (A)   Capability Management Module

   (B)   Conservative Maturity Model

   (C)   Capability Maturity Module

   (D)   Capability Maturity Model

1.8 Who controls the FAST (Facilitated Application Specification Techniques) meeting ?

(A) System Analyst

(B) Scribe

(C) Facilitator

(D) Manager

1.9 A data model contains :

(A) data object

(B) attributes

(C) relationships

(D) all of the above

1.10 The SRS is said to be consistent if and only if :

(A) its structure and style are such that any changes to the requirements can be made easily while retaining the style and structure

(B) every requirement stated therein is one that the software shall meet

(C) every requirement stated therein is verifiable

(D) no subset of individual requirements described in it conflict with each other

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.**

(1 x 10)

2.1 A systems analyst needs to understand people and the way they work.

2.2 The most important activity of project planning is to define precisely the business problem and the scope of the required solution.

2.3 A model is a representation of an important aspect of the real world.

2.4 Feasibility analysis investigates economic, organizational, technical, resource, and schedule feasibility.

2.5 Implementation is the actual construction, testing, and installation of a functioning information system.

2.6 ISO standards are used to control quality in software.

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

2.8 Project Risk affects the Schedule or Resources.

2.9 The ISO 9000 series of standards is a program that can be used for external quality assurance purposes.

2.10 Flow charts are best ways to describe test logic.

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	Formal Review or Inspection	A.	focuses on the performance, load and stress testing of the application.
3.2	White Box Techniques	B.	test artifacts like test cases, test data, test plans needed to design and execute a test.
3.3	Non-functional testing	C.	process to check if the product design fulfills the client's need
3.4	Boundary Value Analysis	D.	Deliverables are created
3.5	Validation	E.	Work activities are done once, then again, and yet again
3.6	Test-ware	F.	divides more complex programs into a hierarchy of program modules
3.7	Quality Assurance	G.	CMMI & ISO
3.8	Agile modeling	H.	Structural Testing
3.9	Top-down Programming	I.	Maintenance
3.10	Quality management System	J.	Check the behavior of the system at the boundaries of allowed data.
		K.	Objective is to find defects
		L.	Project Planning
		M.	Data object

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.	CMM	B.	Equivalent partitioning testing	C.	Test case
D.	Verification	E.	Maintenance	F.	Bugs
G.	Henry Gantt	H.	UAT	I.	Formal Technical Review (FTR)
J.	Beta Testing	K.	Classes	L.	Structural Testing
M.	Developers				

4.1 _____ stands for User Acceptance Testing.

4.2 _____is a review without actually executing the process.

4.3 _____is a software testing technique which divides the application input test data into each partition at least once of equivalent data from which test cases can be derived.

4.4 _____emphasizes the need to record information.

4.5 A set of inputs, execution preconditions and expected outcomes is known as a_____.

4.6 A project usually has a timeline chart which was developed by_____.

4.7 Software mistakes during coding are known as_____.

4.8 Effective testing will reduce _____ cost.

4.9 Software Testing with real data in real environment is known as_____.

4.10 A _____ guideline is for quality walkthrough or inspection.

PART TWO

(Answer ANY FOUR questions)

5. (a) What is Boundary Value Analysis & Equivalent Class Partitioning ? Why Equivalence & Boundary Value Analysis Testing is required ?

   (b) What is a test plan ? Discuss a test plan template and briefly explain each item in your test plan template. **(8+7)**

6. (a) What are the six steps for requirements engineering ?

   (b) How do software process metrics differ from software project metrics ?

   (c) What do you understand by test coverage ? Why is it necessary to perform test coverage ? Differentiate between code coverage and test coverage. **(5+5+5)**

7. (a) Describe Software testing along with its importance.

   (b) Enlist all Quality management models and explain any 2 in detail. **(5+10)**

8. (a) What is the difference between code inspection and code walkthrough ? Give an example of at least two types of errors detected during code inspection and at least two types of errors detected during code walkthrough ?

   (b) What is the difference between Error, Mistake, Fault, Bug & Defect ?

   (c) Differentiate between Software Development Life Cycle (SDLC) and Software Testing Life Cycle (STLC). **(5+5+5)**

9. (a) Describe the top-down and the bottom-up approach 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. **(10+5)**

SPACE FOR ROUGH WORK