BE7-R4: SOFTWARE TESTING AND QUALITY MANAGEMNET

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 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** है। **भाग एक** में चार प्रश्न और **भाग दो** में पाँच प्रश्न है।	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 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 है। **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 हैं। ऐसा नही 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 Which of the following is not a major task of Exit criteria?
A) Checking test logs against the exit criteria specified in test planning.
B) Logging the outcome of test execution.
C) Assessing if more tests are needed.
D) Writing a test summary report for stakeholders.

1.2 Testing activity which is performed to expose defects in the interfaces and in the interaction between integrated components is:-
A) System Level Testing
B) Integration Level Testing
C) Unit Level Testing
D) Component Testing

1.3 Reporting Discrepancies as incidents is a part of which phase:-
A) Test Analysis and Design
B) Test Implementation and execution
C) Test Closure Activities
D) Evaluating exit criteria and reporting

1.4 Which of the following items would not come under Configuration Management?
A) operating systems
B) test documentation
C) live data
D) user requirement document

1.5 Handover of Test-ware is a part of which Phase
A) Test Analysis and Design
B) Test Planning and control
C) Test Closure Activities
D) Evaluating exit criteria and reporting

1.6 The Switch is switched off once the temperature falls below 18 and then it is turned on when the temperature is more than 21. Identify the Equivalence values which belong to the same class.
A) 12,16,22
B) 24,27,17
C) 22,23,24
D) 14,15,19

1.7 The approach/document used to make sure all the requirements are covered when writing test cases
A) Test Matrix
B) Checklist
C) Test bed
D) Traceability Matrix

1.8 Executing the same test case by giving the number of inputs on same build called as
A) Regression Testing
B) ReTesting
C) Ad hoc Testing
D) Sanity Testing

1.9 To check whether we are developing the right product according to the customer requirements. This static process known as-
A) Validation
B) Verification
C) Quality Assurance
D) Quality Control

1.10 IEEE 830-1993 is a IEEE recommended standard for
A) Software requirement specification
B) Software design
C) Testing
D) Both A) and B)

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 Beta testing will be done at User place.

2.2 Cost of Production = Right The First time cost (RTF. + Cost of Quality).

2.3 Project Risk affects The Schedule or Resources.

2.4 (Checklist. is considered a simple, but powerful statistical tool because it differentiates between two extremes).

2.5 Clear Design and Flow of the application is needed for Automation testing.

2.6 Quality plan describes the quality procedures and standards that will be used in a project.

2.7 Types of quality tools are Problem Identification Tools and Problem Analysis Tools.

2.8 Maintenance Plan predicts the maintenance requirements of the system, maintenance costs and effort required.

2.9 One of the features of Object Oriented Programming is: Emphasis on procedure rather than data.

2.10 Validation plan describes the approach, resources and schedule used for system validation.

ROUGH WORK SPACE:

ROUGH WORK SPACE:

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	Verification	A.	Steps to detect and correct errors
3.2	boundary value analysis	B.	Boundary value analysis is helpful
3.3	Equivalence Class Testing	C.	Black Box
3.4	Cyclomatic complexity V(G)	D.	Determine at what point the system's response time degrades or fails
3.5	IEEE 830-1993	E.	20
3.6	SRD	F.	Quality assurance process
3.7	Number of clauses used in ISO 9001 to specify quality system requirements	G.	Software requirement specification
3.8	FAST	H.	start of that phase
3.9	WinRunner	I.	number of regions of the flow graph
3.10	Error guessing	J.	Input and Output Domain
		K.	Structured requirements definition
		L.	4n + 1 test cases
		M.	Facilitated Application Specification Technique

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.	Black Box Testing	B.	Test Plan Module	C.	Correctness.
D.	Branch coverage	E.	Testability	F.	ISO 9001
G.	Test Bed	H.	Access audit	I.	Deduction
J.	Top Down Approach	K.	Design document	L.	Beta Release
M.	Driver				

4.1 To test a function, the programmer has to write a _____, which calls the function and passes its test data.

4.2 The strategy where design begins by specifying complex pieces and then dividing them into successively smaller pieces is called _____.

4.3 _____ means under what test environment (Hardware, software set up) the application will run smooth.

4.4 The testing technique that requires devising test cases to demonstrate that each program function is operational is called _____.

4.5 The inputs for developing a test plan are taken from _____.

4.6 _____ is the extent to which a program satisfies its specifications and fulfills the user's mission objectives.

4.7 _____ ease with which software and data can be checked for compliance with standards or other requirements.

4.8 _____ document is about requirements.

4.9 _____ proceeds from some general theories or premises, using the processes of elimination and refinement, to arrive at a conclusion.

4.10 _____ is a very early build intended for limited distribution to a few key customers and to marketing for demonstration purposes only.

ROUGH WORK SPACE:

PART TWO
(Answer any FOUR questions)

5.
a) What are Memory leaks? Give an example.
b) Explain data flow testing. Highlight some issues that data flow testing can address.
c) What is SPICE? How SPICE standard is useful in software Industry?

(5+5+5)

6.
a) What is DLL Hell? Give causes for DLL incompatibility?
b) Explain the waterfall model. Explain why it is more advantageous than adhoc methods?
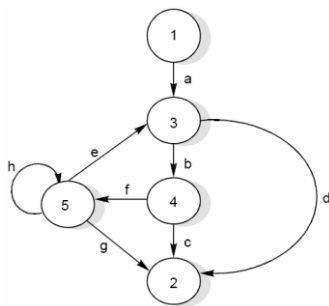c) Differentiate between Software Verification and Validation?

(5+5+5)

7.
a) What are Coding Conventions? Why are they useful in software Quality?
b) What are Software Inspections? Briefly explain the process of inspection.
c) Explain software configuration management.

(5+5+5)

8.
a) What is a Quality Factor? Briefly explain McCall's quality factors.
b) Briefly explain the CMM architecture. Briefly explain the five maturity levels in the CMM model.

(7+8)

9.
a) Consider a program for the determination of the nature of roots of a quadratic equation. Its input is a triple of positive integers (say a,b,c) and values may be from interval [0,100]. The program output may have one of the following words. [Not a quadratic equation; Real roots; Imaginary roots; Equal roots] Design the boundary value test cases.
b) Consider the flow graph shown below and draw the graph & connection matrices. Find out Cyclomatic complexity and two / three link paths from a node to any other node.

(7+8)

ROUGH WORK SPACE:

ROUGH WORK SPACE: