Printed Pages: 02 **Sub Code: KCA-024**

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MCA
(SEM III) THEORY EXAMINATION 2022-23
SOFTWARE TESTING & QUALITY ASSURANCE

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

(a) Discuss error, fault & failure with respect to Software testing.
(b) Give steps involved in Test Case Design?
(c) There are some limitations of boundary value analysis technique and Equivalence class partition. Discuss.
(d) Differentiate between Verification and Validation.
(e) Determine the reasons which are responsible for changes in the software.
(f) Summarize in brief about object oriented testing.
(g) Explain at least ten major points for good code writing practices.
(h) Summarize web Testing Checklist.
(i) Write different popular debugging approaches.
(j) Determine the role of risk matrix for the reduction of test cases?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

(a) Describe the following verification methods:
(b) Explain the followings:
  (i) Peer views
  (ii) Walkthroughs
  (iii) Inspections
(c) What is the cause-effect graphing technique? What are basic notations used in a cause effect graph? Why and how are constraints used in such a graph?
(d) Outline the differences between regression testing and development testing. Do we perform regression testing before the release of the software?
(e) Zero Defect Software is dependent on the definition of test adequacy criteria. Comment and illustrate your view.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain various means for quality of software and explain the concept of SQA in detail.
(b) Explain various "features and characteristics" of software that define its quality?

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Consider a program to multiply and divide two numbers. The inputs may be two valid integers (say a and b) in the range of [0, 100].

(i) Create equivalence class and generate test cases
(ii) Develop a decision table and generate test cases
(iii)Design a cause-effect graph and write test cases accordingly.

(b) Describe each phase of SDLC & STLC in detail with diagram.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the following:
(i) Modification traversing test cases
(ii) Modification revealing test cases

(b) Explain the various steps of the regression testing process. Which step is the most important and why?

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Illustrate the SQA architecture with its components. Should QA's resolve production issues?

(b) Calculate to maximize the function f(X)=X2. Using Genetic algorithm, where X varies between 1 and 32. Consider initial population of size 4.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Demonstrate various levels of testing? Which testing level is easy to test and why?

(b) Illustrate all necessary steps of withdrawing cash from an ATM machine. Generate test cases using class testing.