

Software Testing VTU CBCS Question Paper Set 2018



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10CS842

Eighth Semester B.E. Degree Examination, June / July 2014
Software Testing

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Explain errors, faults and failures in the process of programming and testing with a flow diagram. (08 Marks)
b. Briefly explain about functional testing and structural testing. (08 Marks)
c. Draw the dataflow diagram for a structured triangle program implementation. (04 Marks)
- 2 a. With example, explain about boundary value analysis and mention its limitation. (04 Marks)
b. With neat figure, explain about i) Robustness testing ii) Worst case testing. (06 Marks)
c. Explain about,
i) Strong normal equivalence class testing.
ii) Strong Robust equivalence class testing. (04 Marks)
d. Write equivalence class test cases for the triangle problem. (06 Marks)
- 3 a. Write a structured triangle program draw the program graph and find the DD paths, DD path graph for the triangle program. (08 Marks)
b. For the program graph G(P) and a set of program variable V define the following :
i) Defining node of variable.
ii) Usage node of variable.
iii) Definition use path with respect to variable.
iv) Definition clear path with respect to variable. (04 Marks)
c. Explain about,
i) du-path test coverage metrics with data flow diagram.
ii) Style and technique to find slice of program. (08 Marks)
- 4 a. Explain about specification - based life cycle model. (06 Marks)
b. Briefly explain about SATM system, draw the context diagram, ER model and decomposition tree for SATM system. (08 Marks)
c. Explain about path-based integration. (06 Marks)

PART – B

- 5 a. Briefly explain about functional strategies for thread testing. (10 Marks)
b. Explain about client / server testing. (10 Marks)
- 6 a. With a neat diagram, explain the relation of verification and validation activities with respect to artifact produced in software development project. (08 Marks)
b. Explain the six principles that characterize various approaches and technique for analysis and testing. (12 Marks)
- 7 a. Define Scaffolding Distinguish between Generic versus specific Scaffolding briefly. (08 Marks)
b. Explain about:
i) Test oracles ii) Capture and Relay iii) Test cases (12 Marks)
- 8 Write a short note on the following:
a. Quality and processes.
b. Risk planning.
c. Test and analysis strategies & plan.
d. Quality goal. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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Eighth Semester B.E. Degree Examination, June/July 2015

Software Testing

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. With neat diagram, explain the SATM system. (10 Marks)
b. Briefly explain about functional testing and structural testing. (10 Marks)
- 2 a. Explain about decision tables, construct decision table of triangle problem, it accepts three integer a, b and c as three sides inputs equilateral, scalene, isocelis or not a triangle and satisfy the following conditions $a < b + c$, $b < a + c$ and $c < a + b$. (10 Marks)
b. With example, explain boundary value analysis and mention its limitations. (04 Marks)
c. Differentiate between weak robust equivalence class testing and strong robust equivalence class testing. (06 Marks)
- 3 a. Explain about du-path test coverage matrices with data flow diagram. (05 Marks)
b. Explain about test coverage matrices. (10 Marks)
c. Explain McCabe's basis path method. (05 Marks)
- 4 a. With neat diagram, explain the traditional view of testing levels of waterfall life cycle and rapid prototyping life cycle. (10 Marks)
b. Explain TOP – DOWN integration and bottom – up integration with suitable example. (10 Marks)

PART – B

- 5 a. Explain about client /server testing. (10 Marks)
b. Explain about functional strategies for thread testing. (10 Marks)
- 6 a. With neat diagram, explain the validation and verification activities check work product against actual user requirements. (10 Marks)
b. Explain the following :
i) Sensitivity
ii) Redundancy
iii) Visibility
iv) Restriction
v) Partition. (10 Marks)
- 7 a. Describe the test oracles with a neat diagram. (10 Marks)
b. Explain the fault based adequacy criteria. (10 Marks)
- 8 Write a note on :
a. Quality goal
b. Test and analysis strategies and plan
c. Risk management
d. Monitoring the process. (20 Marks)

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10CS842

Eighth Semester B.E. Degree Examination, June/July 2016
Software Testing

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. With a neat diagram of a testing life cycle explain following :
i) Fault ii) Failure iii) Incident iv) Test case
b. With a neat sketch, explain the features of 'The SATM' system. (10 Marks)
(10 Marks)
- 2 a. Explain the following :
i) Robustness testing ii) Worst – case testing. (08 Marks)
b. Describe the equivalence class test cases for 'The triangle problem'. (12 Marks)
- 3 a. Define the program graph. Write a structured triangle program and the program graph. (10 Marks)
b. For the program graph G(P) and a set of program variable, define the terms 'Defining node of a variable', 'Definition use path with respect to a variable 'All-Defs criterion', 'All C-uses/some p-used and 'All du-paths criterion'. (10 Marks)
- 4 a. Briefly explain the specification – based life – cycle models in levels of testing. (10 Marks)
b. What is decomposition based integration? Define the different types of decomposition based integration. (10 Marks)

PART – B

- 5 a. Briefly explain the basic concepts for requirements specification in system testing. (10 Marks)
b. Write a short note on: 'taxonomy of interactions' and 'Client/ Server testing'. (10 Marks)
- 6 a. List and explain any four principles that characterize various approaches and techniques for analysis and testing. (10 Marks)
b. Explain how does the goals of quality process improvement can be accomplished for analysis and testing of a software. (10 Marks)
- 7 a. What is fault – based testing? Define the terminologies 'Program location' and 'Alternate expression'. (06 Marks)
b. Define scaffolding? Mention the purposes of scaffolding. (04 Marks)
c. What is a test oracle? With a neat diagram explain the comparison based test oracle. (10 Marks)
- 8 a. Discuss the risks generic to process management and risks specific to quality management with a suitable example. (10 Marks)
b. Discuss the basic elements of analysis and test plan. (10 Marks)

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Eighth Semester B.E. Degree Examination, June/July 2017
Software Testing

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain the perspective testing definitions of the following:
 i) Errors ii) Fault iii) Failure
 iv) Incident v) Test vi) Test case
 and draw the flow diagram of a testing life cycle. (10 Marks)
 b. Explain in details about functional testing and structural testing. (10 Marks)
- 2 a. Explain about equivalence class testing with respect to:
 i) Weak normal ii) Strong normal
 iii) Weak robust iv) Strong robust (04 Marks)
 b. With examples, explain boundary value analysis with respect to:
 i) Generalizing boundary value (08 Marks)
 ii) Limitations of boundary value (08 Marks)
 c. Explain test cases for the triangle problem with respect to decision table based testing with examples. (08 Marks)
- 3 a. Explain in details about McCabe's basis path method using graph theory. (10 Marks)
 b. Explain about slice based testing in a data flow testing. (10 Marks)
- 4 a. Draw the display screens of both Simple Automatic Teller Machine (SATM) terminal and built with fifteen screens for the SATM system. (10 Marks)
 b. Explain about decomposition based integration with respect to integration testing. (10 Marks)

PART – B

- 5 a. Explain about three basic concept are derived from functional strategies for thread testing in a system testing. (10 Marks)
 b. Explain about client/server testing with respect to interaction testing. (10 Marks)
- 6 a. Draw the block diagram of relation of verification and validation activities with respect to artifacts produced in a software development project. (10 Marks)
 b. Illustrate the relation among dependability properties in a test analysis within a software process. (10 Marks)
- 7 a. Explain about assumptions in fault-based testing and mutation analysis terminology. (10 Marks)
 b. Explain in details about: i) Scaffolding, ii) Test oracles. (10 Marks)
- 8 Write short notes on the following:
 a. Quality and process
 b. The quality team
 c. Organizing documents
 d. Test design specification documents. (20 Marks)

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2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8=50, will be treated as malpractice.

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10IS65

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
Software Testing

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Explain error, faults and failures in the process of programming and testing with a flow diagram. (08 Marks)
b. Explain the SATM (Simple Automatic Teller Machine) problem. (08 Marks)
c. What are the differences between structural and functional testing? (04 Marks)
- 2 a. Explain with an example the process of boundary value analysis. (08 Marks)
b. Explain decision table and its technique to solve triangle problem. (08 Marks)
c. Write short note on equivalence class testing. (04 Marks)
- 3 a. Define Control Flow Graph (CFG) for x to the power of G and write algorithm, basic block and complete path. (12 Marks)
b. Define various data flow testing criteria. (08 Marks)
- 4 a. Explain SATM system in brief. Draw and explain context diagram and data flow diagram of SATM system. (15 Marks)
b. Explain the difference between Top Down integration and bottom up integration. (05 Marks)

PART – B

- 5 a. What is thread? Explain basic concepts used in requirement specification to identify threads to support tester process. (08 Marks)
b. What are difference between progression and regression testing? (06 Marks)
c. Explain taxonomy of interaction testing explain any one in brief. (06 Marks)
- 6 a. Define software quality. Explain different quality attributes of software. (08 Marks)
b. Discuss quality goals in software testing. (04 Marks)
c. Write short note on quality process. (08 Marks)
- 7 a. What is scaffolding? Describe generic and application specific scaffolding. (08 Marks)
b. Define the following terms:
i) Test case ii) Test case specification iii) Test obligation
iv) Test suite v) Test execution vi) Adequacy criteria. (06 Marks)
c. What is test oracle? What are its advantages over human oracle? (06 Marks)
- 8 a. Explain in brief clean room process model. (05 Marks)
b. Describe the dependability properties in detail. (10 Marks)
c. Write short note on walk through and inspection. (05 Marks)

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Eighth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
Software Testing

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1
 - a. Define the terms : error, fault, failure, test and test case. (05 Marks)
 - b. Draw a neat flowchart for the traditional triangle program implementation. (05 Marks)
 - c. Define the problem statement of the NextDate function and write its implementation program. (10 Marks)
- 2
 - a. Explain the following : Boundary Value Analysis, Robustness testing and special value testing. (06 Marks)
 - b. Explain the equivalence class test cases for the commission problem. (06 Marks)
 - c. What are decision tables? Explain the basic decision table terms and write a decision table for the triangle problem. (08 Marks)
- 3
 - a. Define basis path testing. Explain the McCabe's basis path method with suitable example. (10 Marks)
 - b. Design a program graph and DD – path graph for the commission program. (10 Marks)
- 4
 - a. Explain the simple Automatic Teller Machine (SATM) system with screens, context diagram and entity/relationship model. (10 Marks)
 - b. Explain Top-down, Bottom-up and sandwich integration, with a suitable example. (10 Marks)

PART – B

- 5
 - a. Explain the functional strategies for thread testing. (10 Marks)
 - b. Distinguish progression and regression testing methods. (05 Marks)
 - c. Write a note on client/server testing. (05 Marks)
- 6
 - a. Explain validation and verification activities, with suitable examples. (05 Marks)
 - b. Discuss various dependability properties used in software testing and analysis activities. (05 Marks)
 - c. Explain the following forms :sensitivity, redundancy, partition, visibility and feedback. (10 Marks)
- 7
 - a. What is meant by fault – based testing? Discuss the assumptions involved in fault – based testing. (05 Marks)
 - b. Explain the concept of self –based as oracles. (07 Marks)
 - c. Define scaffolding. With a suitable example, discuss generic versus specific scaffolding concepts. (08 Marks)
- 8
 - a. Write short notes on : cleanroom process model and the quality team. (10 Marks)
 - b. Explain the standard organization of an analysis and test plan, in detail. (10 Marks)

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10CS842

Eighth Semester B.E. Degree Examination, Dec.2015/Jan.2016
Software Testing

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. What are the two fundamental approaches used to identify test cases? Explain each of them. (06 Marks)
b. Discuss the traditional and structural implementation of triangle problem. (08 Marks)
c. What is random testing? Write the test cases for the next date function. (06 Marks)
- 2 a. Write the equivalence class test case for the commission problem. (06 Marks)
b. Enlist the guidelines and observations of equivalence class testing. (07 Marks)
c. Construct the decision tree for next date function for third try and write the test cases for the same. (07 Marks)
- 3 a. Discuss the DD – path for trainable program and write a table for the types of DD – paths with graph. (06 Marks)
b. Explain McCabe's basis path method with an illustrative example. (08 Marks)
c. With a suitable example, discuss slice – based testing. (06 Marks)
- 4 a. With regard to levels of testing, describe the decomposition tree for the SATM system. (06 Marks)
b. What is call – graph – based integration? Explain the two approaches employed in this strategy explicitly indicating the pros and cons of each. (06 Marks)
c. With an illustrative example like SATM system discuss the accomplishment of path – based integration. (08 Marks)

PART – B

- 5 a. Explain the basic concepts for requirements specification that support the tester's process of thread identification. (07 Marks)
b. Describe the following approaches used in functional strategies for thread testing :
i) Event – based thread testing
ii) Part – based thread testing
iii) Data – based thread testing. (07 Marks)
c. Discuss how the interaction testing is accomplished in client/server systems. (06 Marks)
- 6 a. With an aid of a neat functional schematic, explain the different verification trade-off dimensions (degrees of freedom). (06 Marks)
b. Discuss in brief, the six principles that characterize various approaches and techniques for analyzing and testing software projects. (06 Marks)
c. Enlist the dependability properties of a software product and further illustrate the relation among these dependability properties, with a suitable diagram. (08 Marks)

- 7 a. With an example program, explain the steps to be followed in mutation analysis. (07 Marks)
- b. Write short notes on the followings :
- i) Mutation analysis Vs structural testing
 - ii) Hardware fault –based testing. (06 Marks)
- c. Discuss the significance of test oracles that are used as pass/fail criterion to program execution. (07 Marks)
- 8 a. Briefly describe the various factors considered in the selection of test and analysis strategies. (06 Marks)
- b. What is root cause analysis (RCA)? Explain the significant steps to be considered in RCA. (08 Marks)
- c. With regard to test design specification documents, indicate the standard organization of an analysis and test plan of a software product. (06 Marks)

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10CS842

Eighth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Software Testing

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. Explain life cycle model of software testing. (06 Marks)
b. Explain the IEEE error and fault taxonomy. (08 Marks)
c. With neat diagram, explain the currency converter system. (06 Marks)
- 2 a. Explain : i) boundary value testing ii) random testing iii) decision table based testing. (10 Marks)
b. What is a test case? Explain the equivalence class test cases for the triangle problem. (10 Marks)
- 3 a. Discuss test coverage metrics and basis path testing with example. (10 Marks)
b. With suitable example, explain use testing and slice based testing. (10 Marks)
- 4 a. What is water fall spin-off? Explain life cycle based model with build sequence. (10 Marks)
b. Briefly explain about :
i) Top-down integration
ii) Bottom-up integration
iii) Call graph-based integration. (10 Marks)

PART – B

- 5 a. Justify strongly the significance of thread based system testing with SATM as example. (10 Marks)
b. Distinguish between progression and regression testing. (04 Marks)
c. Explain interaction testing with client/server as a classical example. (06 Marks)
- 6 a. What are the work products generated by verification and validation process? Explain with suitable diagram. (10 Marks)
b. Explain the importance of dependability properties in process frame work with neat sketch. (10 Marks)
- 7 a. Explain below terminology in association with fault based testing :
i) original program ii) program location iii) alternative expression iv) distinct behavior of an alternate program. (10 Marks)
b. Explain the significance of capture and replay mechanism in software automation testing. (10 Marks)
- 8 Write short notes on the following :
a. System testing
b. Test case template
c. Clean room process model by IBM
d. Software reliability approach by AT & T. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
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10CS842

Eighth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Software Testing

Time: 3 hrs.

Max. Marks:100

Note: Answer any **FIVE** full questions, selecting atleast **TWO** questions from each part.

PART - A

- 1
 - a. What is Software testing? Explain the process involved in SDLC. (07 Marks)
 - b. Differentiate between black box testing and white box testing. (05 Marks)
 - c. With a neat diagram, explain the SATM (Simple Automated Teller Machine) system. (08 Marks)

- 2
 - a. Explain decision tables. Construct decision table of the triangle problem, it accepts three integers a, b, and c as 3 sides inputs : Equilateral, Scalene, Isosceles or not a triangle and satisfy the following conditions: $a < b + c$, $b < a + c$ and $c < a + b$. (08 Marks)
 - b. Explain Random testing with an example. (04 Marks)
 - c. Briefly explain i) Weak Normal Equivalence class testing ii) Strong Normal Equivalence class testing iii) Weak Robust Equivalence class testing iv) Strong Robust Equivalence class testing. (08 Marks)

- 3
 - a. Explain Metric based testing. (08 Marks)
 - b. Explain Slice – based testing guidelines and observations in detail. (08 Marks)
 - c. Write a short note on define/use testing. (04 Marks)

- 4
 - a. Describe Top – down and Bottom – up Integration strategies. (06 Marks)
 - b. Explain call graph based integration with the help of:
 - i) Pairwise Integration (06 Marks)
 - ii) Neighbourhood Integration (04 Marks)
 - c. Explain the decomposition based integration with an example. (04 Marks)
 - d. Define Regression and Progression testing.

PART - B

- 5
 - a. Define the below terms : i) Threads ii) MM – path iii) Data iv) Action v) Ports (10 Marks)
 - b. Explain different types of interactions with example. (10 Marks)

- 6
 - a. Explain in detail, Validation and Verification and their differences. (10 Marks)
 - b. Explain the dependability properties. (06 Marks)
 - c. List the goals of Quality process. (04 Marks)

- 7
 - a. Explain fault-based testing terminologies. (06 Marks)
 - b. Describe the test oracles with a neat diagram. (08 Marks)
 - c. What is Scaffolding? What purposes it serves? Explain with an example. (06 Marks)

- 8
 - a. Explain Risk Management in the quality plan. (10 Marks)
 - b. Give the standard structure of an analysis and test plan. (10 Marks)

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