

Software Testing Question Paper VTU Question Paper Set



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10IS65

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017

Software Testing

Time: 3 hrs.

Max. Marks:100

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

PART – A

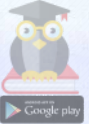
- 1 a. What are Test cases? Explain approaches used to identify test cases. (06 Marks)
b. Explain:
i) Currency converter
ii) Saturn wind shield wiper controller. (08 Marks)
c. Briefly explain testing using Venn Diagram. (06 Marks)
- 2 a. Explain Decision table testing and generate test cases for triangle problem using decision table. (08 Marks)
b. Develops test cases for commission problem using Boundary value testing. (06 Marks)
c. Give the Guidelines and observations for equivalence class testing. (06 Marks)
- 3 a. Explain in detail Basis path testing with respect to triangle problem. (10 Marks)
b. Define def/use pair and identify def/use paths for commission problem. (10 Marks)
- 4 a. Explain why it is essential to separate integration and system testing. (08 Marks)
b. Define MM path graph. Draw MM paths in SATM system. (12 Marks)

PART – B

- 5 a. Briefly explain process of generating system level SATM test Threads. (10 Marks)
b. Explain four basic types of interactions. (10 Marks)
- 6 a. Explain validation and verification. (06 Marks)
b. Explain : i) Visibility ii) Feedback iii) Dependability
iv) MTBF v) Availability. (10 Marks)
c. Write a short note on Software quality goals. (04 Marks)
- 7 a. What is fault based testing? What are assumptions in fault base testing? (06 Marks)
b. Explain : i) scaffolding ii) Test oracles
iii) Capture and Replay iv) Test case specification. (10 Marks)
c. Write a note on mock. (04 Marks)
- 8 a. Briefly explain test and Analysis strategies. (10 Marks)
b. Explain root cause analysis technique for improving the process. (10 Marks)

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



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Sixth Semester B.E. Degree Examination, June/July 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 is software testing? Why it is so important in software development life cycle? (06 Marks)
 - b. Define the following : i) Error ii) fault iii) failure iv) incident v) test vi) test case. (06 Marks)
 - c. Explain with a neat diagram the currency converter and Saturn wind shield wiper controller. (08 Marks)
- 2
 - a. Justify the usage of boundary value analysis with function of two variables and highlight the limitations of BVA. (08 Marks)
 - b. Briefly explain weak normal and strong robust equivalence class testing with an example. (08 Marks)
 - c. Write a short note on random testing. (04 Marks)
- 3
 - a. What is cyclomatic complexity? Explain how to calculate cyclomatic complexity of a given program by considering the biggest of three number logic. (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. With a neat diagram explain the waterfall life cycle and clearly show partial functional decomposition of the ATM system. (08 Marks)
 - b. List and explain pros and cons of the water fall model. (04 Marks)
 - c. With supporting diagrams and examples explain top-down and bottom-up integration. (08 Marks)

PART – B

- 5
 - a. Explain the basis concept for requirements specification. (12 Marks)
 - b. Explain with supporting diagram the client server testing. (08 Marks)
- 6
 - a. Define validation. With a neat sketch explain the relation of verification and validation activities with respect to artifacts produced in a software development project. (10 Marks)
 - b. Explain sensitivity and redundancy. (06 Marks)
 - c. Define the terms reliability and availability. (04 Marks)
- 7
 - a. Distinguish between :
 - i) Competent programmer hypothesis and coupling effect hypothesis
 - ii) Distinguished mutant and equivalent mutant. (04 Marks)
 - b. Explain the fault-based adequacy criteria. (08 Marks)
 - c. What is scaffolding? Explain briefly generic versus specific scaffolding. (08 Marks)
- 8
 - Write short notes on :
 - a. Clean room process. (06 Marks)
 - b. Different types of risks specific to the quality process. (06 Marks)
 - c. A standard organization of an analysis and test plan. (08 Marks)

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Sixth 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. Why do we test software? Discuss what a typical test case information should include. (07 Marks)
- b. Differentiate between black box testing and white box testing. (05 Marks)
- c. Explain the levels of abstraction and testing in the waterfall model. (08 Marks)
- 2 a. What is boundary value analysis? Write the test cases using boundary value analysis testing for triangle problem. (07 Marks)
- b. Define equivalence class testing. Write weak robust equivalence class testing for commission problem. (06 Marks)
- c. Write the decision table for triangle problem and discuss how well decision table testing deals with multiple fault assumption. (07 Marks)
- 3 a. Explain metric based testing. (08 Marks)
- b. Using Mc-Cabe's strongly connected graph, write the path/edge traversal. (09 Marks)
- c. Draw the lattice on sales and communication. (Hint slices on sales and commission). (03 Marks)
- 4 a. Define regression and progression testing. (04 Marks)
- b. Draw the context diagram of the SATM system and explain the same. (08 Marks)
- c. Draw the PIN entry finite machine, explain with corresponding screens. (08 Marks)

PART – B

- 5 a. What is decomposition-based integration? Explain any one of them with an example. (07 Marks)
- b. Define thread. How do we test them? (05 Marks)
- c. Explain atomic system function testing by taking an example of next date. (06 Marks)
- d. What is interaction testing? (02 Marks)
- 6 a. Validation activities check work product against actual user requirement while verification activities check consistency of work product – justify your answer with suitable diagram and explanation. (07 Marks)
- b. Write six principles which constitute the core of software testing. (06 Marks)
- c. List the goals of quality process. (04 Marks)
- d. Can a system be correct and yet unsafe? (03 Marks)
- 7 a. Write the fault based testing terminology and assumptions. (06 Marks)
- b. What is scaffolding? What purposes it serves, explain with an example. (06 Marks)
- c. What are test oracles? Explain comparison based oracle. (05 Marks)
- d. Write about a paragraph on any one : (03 Marks)
 - i) Self-checks on oracles
 - ii) Capture and replay.
- 8 a. Based on test and analysis strategies explain any one : (07 Marks)
 - i) Clean room
 - ii) Software reliability engineered testing
 - iii) Extreme programming.
- b. Explain risk management in the quality plan. (10 Marks)
- c. What is test and analysis report. (03 Marks)

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10IS65

Sixth 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. Define Error, Fault, Failure, Incident, Test and Test case. Explain testing life cycle, with neat diagram. (10 Marks)
b. Define all the faults classified by severity. (05 Marks)
c. Explain database diagram for a structural triangle program. (05 Marks)
- 2 a. Explain the limitations of boundary value analysis and develop a formula for the number of robust worst case test cases for a function of two variables. (08 Marks)
b. Describe weak and strong normal equivalence class testing, with a neat diagram. (06 Marks)
c. Explain the basic decision table terms. (06 Marks)
- 3 a. Explain Millers test coverage metrics which are based on program graphs. (10 Marks)
b. Explain Rapps – Weyuker dataflow coverage metrics with a neat diagram. (10 Marks)
- 4 a. With a neat sketches, briefly explain different alternative life cycle models. (14 Marks)
b. Describe top down and bottom up integration strategies. (06 Marks)

PART - B

- 5 a. Explain basic concepts for requirement specification with E – R model and modeling relationships among basic constructs. (10 Marks)
b. Explain different types of interactions with example. (10 Marks)
- 6 a. Discuss: i) Verification ii) Validation. (04 Marks)
b. Explain basic principles that characterize various approaches and techniques for analysis and testing. (10 Marks)
c. Explain dependability properties. (06 Marks)
- 7 a. Briefly explain the terminologies of fault based testing and mutation analysis. (10 Marks)
b. Discuss: i) Scaffolding ii) Test oracle. (10 Marks)
- 8 a. Explain clean room process, with neat diagram. (10 Marks)
b. Give the standard structure of an analysis and test plan. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
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Sixth Semester B.E. Degree Examination, June/July 2014
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 following :
 - i) Error
 - ii) fault
 - iii) failure
 - iv) incident
 - v) test
 - vi) test case. (06 Marks)
- b. Differentiate between functional testing and structural testing. (06 Marks)
- c. With a neat diagram, explain the SATM(Simple Auto Mated Teller Machine) system. (08 Marks)

- 2 a. What are the limitations of boundary value analysis? (04 Marks)
- b. Differentiate between weak robust equivalence class testing and strong robust equivalence class testing with an example. (08 Marks)
- c. Explain about 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)

- 3 a. Explain the different structural test coverage metrics. (08 Marks)
- b. Write a program of the commission problem, the statement of the problem : A rifle salesperson in the former Arizona Territory sold rifle locks, stocks and barrels made by a gunsmith in Missouri. Locks cost \$45, stocks cost \$30 and barrels cost \$25. The salesperson had to sell atleast one complete rifle per month and production limits were such that at the most the sales person could sell in a month was 70 locks, 80 stocks and 90 barrels. At the end of a month, the salesperson sent a very short telegram showing – 1 locks sold. The gunsmith then knew the sales for the month were complete and computed the salesperson's commission as follows : 10% on sales up to \$1000, 15% on the next \$800 and 20% on any sales in excess of \$1800. The commission program produced a monthly sales report that gave the total number of locks, stocks and barrels sold, the salesperson's total dollar sales, and finally, the commission. Construct the program graph and define /use nodes for variables in the above problem. (12 Marks)

- 4 a. With a neat diagram, explain the traditional view of testing levels of waterfall-life cycle and rapid prototyping life cycles. (10 Marks)
- b. With an example, explain the top-down integration and Bottom-up integration. (06 Marks)
- c. Explain the decomposition based integration with an example. (04 Marks)

**10IS65****PART – B**

- 5 a. Explain the basis concepts for requirements specifications. (08 Marks)
b. With a neat diagram, explain the transition probabilities for the SATM system. (08 Marks)
c. Write a note on client/server testing. (04 Marks)
- 6 a. With a neat diagram, explain the validation and verification activities check work product against actual user requirements. (10 Marks)
b. Explain the following:
i) Redundancy
ii) Partition. (04 Marks)
c. Explain the dependability properties. (06 Marks)
- 7 a. Explain the fault-based adequacy criteria. (08 Marks)
b. Describe the test oracles with a neat diagram. (08 Marks)
c. What is scaffolding? Explain. (04 Marks)
- 8 Write short notes on :
a. Quality process
b. Risk management
c. Organizing documents
d. Test and analysis reports. (20 Marks)

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Sixth Semester B.E. Degree Examination, Dec.2013/Jan.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. What is software testing? Why it is so important in SDLC? (05 Marks)
- b. Explain the triangle problem statement along with flow chart for traditional implementation. (07 Marks)
- c. Explain the IEEE error and fault taxonomy and IEEE standard anomaly process. (08 Marks)
2. a. Justify the usage of boundary value analysis with function of two variables and highlight the limitations of boundary value analysis. (05 Marks)
- b. Explain weak normal and strong robust equivalence class testing with next date problem as an example. (05 Marks)
- c. Discuss the usage of decision table method to device test cases with example of commission problem and triangle problem. (10 Marks)
3. a. Define DD-path. Draw DD graph for triangle problem. (04 Marks)
- b. Justify strongly connected graph is the number of linearly independent circuits in the graph using cyclomatic complexity metric. (04 Marks)
- c. Define predicate node, du-paths and dc-paths. Give du-paths for stocks, locks, total locks, sales and commission for commission sale problem. (12 Marks)
4. a. Explain the simple ATM application with the help of, (i) Level 1 data flow diagram. (ii) Upper level finite state machine. (10 Marks)
- b. Distinguish between top-down integration and bottom-up integration. (04 Marks)
- c. Explain call graph-based integration with the help of, (i) Pair-wise integration (ii) Neighborhood integration. (06 Marks)

PART – B

5. a. Define the below terms: (i) Threads (ii) MM-path (iii) Data (iv) Actions (v) Ports (10 Marks)
- b. Explain single-processor static interaction and single-processor dynamic interaction. (10 Marks)
6. a. Explain verification trade-off dimensions. (08 Marks)
- b. Briefly discuss the dependability properties in process framework. (08 Marks)
- c. List organizational factors are needed in process framework. (04 Marks)
7. a. Define below terms with respect to fault based-testing: (i) Original program (ii) Program location. (iii) Alternate expression (iv) Alternate program. (08 Marks)
- b. Explain mutation analysis software fault based testing. (04 Marks)
- c. List the Fault-based adequacy criterias. (03 Marks)
- d. Explain hardware fault-based testing. (05 Marks)
8. Write a short note on:
 - a. Quality and process.
 - b. Test planning.
 - c. Risk planning.
 - d. Organizing documents.
 - e. Test design specification document. (20 Marks)

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10IS65

Sixth Semester B.E. Degree Examination, June/July 2013

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 and fault taxonomies. (05 Marks)
b. Explain in detail various levels of software testing with embedded device like STAM (Simple Automatic Teller Machine) as an example. (15 Marks)
- 2 a. Explain : i) Boundary value testing ii) Equivalence class testing iii) Decision table based testing. (10 Marks)
b. Explain in detail, Worst-case testing, with an example. (10 Marks)
- 3 a. Explain test coverage metrics and Basis path testing, with an example. (10 Marks)
b. Explain slice-based testing guide lines and observation in detail. (10 Marks)
- 4 a. Explain traditional view of testing levels, alternative life-cycle models. (10 Marks)
b. Explain in detail, path-based, call graph based and path based interpretation, with an example. (10 Marks)

PART – B

- 5 a. Explain and discuss: Thread and Finding thread, Testing threads are important in software testing. (10 Marks)
b. Explain Taxonomy of interactions, interaction, composition and determinism. (10 Marks)
- 6 a. Explain in detail, validation and verification and their differences. (10 Marks)
b. Explain : i) Degrees of freedom ii) Sensitivity iii) Redundancy iv) Restriction v) Partition and explain in detail any of them. (10 Marks)
- 7 a. Explain overview of assumptions in fault-based testing. (04 Marks)
b. Explain in detail, Mutation analysis and variations on mutation testing. (10 Marks)
c. Explain the terms: oracle, scaffolding, self checks on oracles in software testing. (06 Marks)
- 8 a. Write a short note on: i) Quality ii) Process iii) Test and analysis iv) Risk planning v) Monitoring the process vi) Improving the process. (12 Marks)
b. Explain the features of test design specifications documents. (03 Marks)
c. What are processed quality and analysis strategies in a brief note? (05 Marks)

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