

Code: 9A05702

1

B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

**SOFTWARE TESTING**

(Computer Science and Systems Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain the importance of bugs.  
(b) Explain the phase in a tester's mental life.
- 2 What is meant by statement coverage (c1) and branch coverage (c2)? Explain with an example, how to select enough paths to achieve  $c1+c2$ .
- 3 What is transaction flow and neatly explain its implementation?
- 4 Explain the following:
  - (a) Linear domain boundaries.
  - (b) Non-linear domain boundaries.
  - (c) Complete domain boundaries.
  - (d) Incomplete domain boundaries.
- 5 (a) Explain about comments, identities and Node-removal of path expression.  
(b) Explain about the data flow testing with example.
- 6 (a) Write Boolean algebra rules illustrate the rules with path expression.  
(b) Use Karnaugh map to reduce  $F = (A,B,C,D) = \sum(0,2,5,7,8,10,11,15)$ .
- 7 (a) Explain about the state graphs.  
(b) Write short notes on state bugs.
- 8 Explain the partitioning algorithm with an example.

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**2**

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- 1 (a) To what extent can testing be used to validate that the program is fit for its purpose. Discuss.  
(b) Explain the integration and system bugs.
- 2 Explain:  
(a) Predicate coverage.  
(b) Test blindness.  
(c) Paths.
- 3 Write about data flow testing basics.
- 4 (a) What is a nice domain? Give an example for nice two-dimensional domains.  
(b) Explain nice and ugly domains.
- 5 (a) Explain the reduction procedure for converting a flowgraph into a path expression.  
(b) How you find the path expression for any loop? Explain with example.
- 6 Reduce the following functions using Karnaugh map method:  
 $F(A,B,C,D) = \pi (4,5,6,7,8,12,13) + d (1,15)$ .
- 7 (a) Define state and explain state graphs.  
(b) Explain about the encoding bugs.
- 8 (a) Write the principles of powers of a matrix.  
(b) Explain matrix powers and products.

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- 1 What is environment? How it is useful in testing? Explain the beliefs about bugs.
- 2 Discuss the:
  - (a) Effectiveness of path testing.
  - (b) Limitations of path testing.
- 3 Write the different stages in data object state and its usage in detail.
- 4
  - (a) Differentiate equality and inequality predicates.
  - (b) Classify what can go wrong with boundaries.
- 5
  - (a) Explain the usage of regular expression in flow anomaly detection.
  - (b) Briefly explain about lower oath count arithmetic.
- 6 Reduce the following function using Karnaugh method:  
 $F(A,B,C,D) = \pi (0,5,7,8,10,13) +d (2,15)$ .
- 7
  - (a) What is meant by finite state machine? Explain briefly about the state graphs.
  - (b) Write short notes on transition bugs.
- 8
  - (a) What are relations? Give the properties of relations.
  - (b) What are partial ordering relations?

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- 1 (a) Explain what we do in testing?  
(b) Explain the beliefs about bugs.
- 2 (a) Explain the linear predicates with the help of an example.  
(b) Discuss correlated predicate.
- 3 Explain in detail on data flow graphs and data flow anomalies.
- 4 (a) Write the differences between specified and implemented domain.  
(b) Differentiate equality and inequality predicates.
- 5 Write about any two applications of regular expressions.
- 6 (a) Minimize the following function using KV map  
 $F(A,B,C,D) = \sum(3,4,5,6,8,9,10,11,14) + d(7,5)$ .  
(b) What is need of don't-care values in KV map and give advantages of it?
- 7 (a) Explain the motivation of finite state machine. Explain state graphs.  
(b) Explain about the dead states.
- 8 Give the basic principles of a graph matrix. Give some examples of graphs and their matrices.

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