SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517 583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : Software Testing (9F00502) **Course & Branch :** MCA

Year & Sem : III & I **Regulation:** R9

Question Bank (Descriptive)

UNIT–I: Introduction

1. Define the software testing. Also discuss the consequences of bugs. 10M
2. Explain about taxonomy of bugs. 10M
3. Write answers for the following:
   a. What are the consequences of bugs? 5M
   b. Explain model for testing. 5M
4. a. Why we do testing? Explain the goals of testing. 5M
   b. Explain briefly about the four factors used to find the importance of bugs. 5M
5. a. What are the different kinds of bugs? 5M
   b. Classify the different kinds of bugs and explain. 5M

6. Explain about the following:
   a. Testing Versus Debugging 2M
   b. Function Versus Structure 2M
   c. The Designer Versus the Tester 2M
   d. Modularity Versus Efficiency 2M
   e. Small Versus Large 2M

7. State and explain various dichotomies in software testing? 10M
8. Discuss about requirements, features and functionality bugs. 10M
9. What are the control and sequence bugs? How they can be caught? 10M
10. Why is it impossible for a tester to find all the bugs in a system? Why might it not be necessary for a program to be completely free of defects before it is delivered to its customers? 10M

UNIT–II : Flow graphs and Path testing

1. What are the differences between control flow graph and flow chart? Explain in detail 10M
2. Define the following:
   a. Path testing 3M

b. Predicates in path 3M
c. Path sensitizing 4M

3. Define path instrument. Explain single link markers with examples 10M
4. Explain various loops with an example. How the loop can be tested? Explain. 10M
5. State and explain various kinds of predicate blindness with examples. 10M
6. What is meant by program's control flow? How is it useful for path testing? 10M
7. Discuss various flow graph elements with their notations. 10M
8. What is meant by statement testing and branch testing with an example? 10M
9. Write about the following:
   a. Define statement testing 3M
   b. Define Branch testing 4M
   c. Define path testing 3M
10. State and explain various path selection rules.

UNIT–III: Transaction Flow Testing

1. Explain transaction flow testing with an example. 10M
2. Explain the following:
   a. Explain about basics of dataflow testing. 5M
   b. Explain the applications of dataflow testing. 5M
3. What is meant by transaction flow testing? Discuss its significance. 10M
4. What are data – flow anomalies? How data flow testing can explore them? 10M
5. Compare data flow and path flow testing strategies? 10M
6. Explain the following which related to transaction:
   a. Births 5M
   b. Merger 5M
7. a. Explain data-flow testing with an example. 5M
   b. Explain its generalizations and limitations. 5M
8. What is meant by data flow model? Discuss various components of it? 10M
9. Explain about slicing, dicing, dataflow and debugging. 10M
10. What is meant by a program slice? Discuss about static and dynamic program slicing. 10M

UNIT–IV: Domain Testing

1. What is domain testing? Explain about the schematic representation of domain testing? 10M
2. Discuss the following with an example:
   a. Nice domains 5M
   b. Ugly domains 5M
3. Discuss about the testing of one dimensional and two dimensional domains. 10M
4. Explain about different types of domain errors in detail. 10M
5. Discuss the following:
   a. Linear domain boundaries 2M
   b. Non linear domain boundaries 2M

c. Complete domain boundaries 3M
d. Incomplete domain boundaries 3M

6. State and explain various restrictions at domain testing processes. 10M
7. With a neat diagram, explain the schematic representation of domain testing. 10M
8. Discuss in detail the domains and interface testing. 10M
9. Discuss the following:
   a. Domain dimensionality 5M
   b. Properties related to ugly-domains 5M
10. Explain how one-dimensional domains are tested? 10M

UNIT–V: Paths, path products and Regular expressions

1. Explain about path product and path expression in detail. 10M
2. Discuss the path reduction procedure with a suitable example. 10M
3. Explain Regular Expressions and Flow Anomaly detection. 10M
4. Write short notes on:
   a. Distributive Laws 3M
   b. Absorption Rules 3M
   c. Loops 2M
   d. Identity elements 2M
5. Discuss the following:
   a. Path Product 3M
   b. Path Sum 3M
   c. Path Expression 4M
6. Explain the applications of regular expression. 10M
7. Explain the generic flow anomaly detection problem with a suitable example 10M

UNIT–VI: Logic Based Testing

1. Explain about logical based testing in detail. 10M
2. Simplify the Boolean function using Karnaugh Map method:
   $F(W,X,Y,Z)= \sum m(0,1,2,4,5,6,8,9,12,13,14)$ 10M
3. What is a decision table and how it is useful in testing? Explain in detail. 10M
4. Explain about the KV chart & their applications. 10M
5. a. How the Boolean expression can be used in test case design. 5M
   b. Flow graphs are abstract representation of programs. Justify? 5M
6. How can determine paths in domains in Logic based testing? Explain in detail. 10M
7. What are decision tables? Illustrate the applications of decision tables. How is a decision table useful in testing? Explain with an example. 10M

UNIT–VII: State, State Graphs and Transition Testing

1. What are the principles of state testing? Explain its advantages and disadvantages. 10M
2. Write short notes on:
   a. Transition bugs 2M
   b. Dead states 2M
   c. State bugs 3M
   d. Encoding bugs 3M
3. What is state graph? What are the good and bad state graphs? 10M
4. Explain with an example how to convert specification into state-graph. Also discuss how contradictions can come out. 10M
5. Write the design guidelines for building finite state machine into code. 10M
6. What are the principles of state testing? Discuss advantages and disadvantages. 10M
7. The behavior of a finite state machine is invariant under all encodings. Justify. 10M
8. a. Write testers comments about state graphs. 5M
   b. What are the types of bugs that can cause state graph? 5M

UNIT–VIII: Graph Matrices and Application

1. Write short notes on:
   a. Node reduction algorithm 3M
   b. Matrix of graph relation 3M
   c. JMeter 2M
   d. Win-runner. 2M
2. Explain the power of matrix and node reduction algorithm in detail. 10M
3. Discuss about matrix graph and relations. 10M
4. a. Write a partitioning algorithm. 5M
   b. write an algorithm for all pairs paths using matrix operations. 5M
5. a. How can a graph be represented in Matrix form? 5M
   b. how can a node reduction optimization be done? 5M
6. Discuss the algorithm for finding set of all paths. 10M
7. How can a relation matrix be represented and what are the properties of relations? 10M
8. Explain cross-term reduction and node term reduction optimization. 10M
9. What are the advantages and disadvantages of array representations? 10M
10. Discuss the linked list representation. 10M

Prepared by

R.E. Hari haran

(Dept. of MCA)