Assignment 4

The due date for submitting this assignment has passed.

Submitted assignment

This assignment is on design integration testing and graph coverage criteria as applied to design, sequencing constraints and finite state machines. It also includes problems on data flow coverage criteria over source code.

1) Integration testing begins immediately after . . . . . . . . .

Accepted Answers:
(Type: String) Unit testing

2) . . . . . . . and . . . . . . . are two common types of scaffolding.

Accepted Answers:
(Type: String) Test driver and test stub

3) State true or false: Last-def can be only from the caller to the callee.

- True
- False

Accepted Answers:
False

4) State true or false: Default and implicit initialization of global variables are considered as definitions while defining data flow criteria.

- True
- False
5) While testing for sequencing constraints, we write test requirements to . . . . . . . . . the constraints.

Accepted Answers:
True

6) Consider the following program for the questions below. The program computes $q \sqrt{p}$, $0 \leq p \leq 1$, to accuracy $c$, $0 \leq c \leq 1$.

1. start
2. read p,e
3. d := 1
4. x := 0
5. c := 2*p
6. if c >= 2 then goto 18
7. if d <= e then goto 16
8. d := d/2
9. t := c-(2*x+d)
10. if (t < 0) then goto 14
11. x := x+d
12. c := 2*(c-(2*x+d))
13. goto 7
14. c := 2*c
15. goto 7
16. print x
17. stop
18. print 'error'
19. stop

Answer the following questions related to data flow criteria in the above program. It will help if you can draw the CFG for the above program as per the following convention. Node 1 in the CFG is one node for the statements 2,3,4 and 5 above. Node 1 in the CFG is also the first decision in statement 6, node 2 in the CFG is the second decision in statement 7, node 3 in the CFG is the node for statements 8, 9, and decision 10 in the above program, node 5 is for statements 11 and 12. Nodes 6, 7 and 4 in the CFG are the then branches of the decision statements in statements 6, 7 and 10 respectively.

Does this program have an error? Manually investigate the program and say yes/no.

- Yes
- No

Accepted Answers:
Yes

7) Does the set of test paths $[[1, 6], [1, 2, 3, 4, 2, 3, 5, 2, 7]]$ satisfy edge coverage?

- Yes
- No

Accepted Answers:
Yes
8) Which of the following criteria does the set of paths \{[1, 6], [1, 2, 3, 5, 2, 3, 5, 2, 7], [1, 2, 7], [1, 2, 3, 4, 2, 3, 5, 2, 7], [1, 2, 3, 4, 2, 3, 4, 2, 7], [1, 2, 3, 5, 2, 3, 4, 2, 7]\}?

- All-defs coverage.
- All-uses coverage.
- All du-paths coverage.

Accepted Answers:
All-uses coverage.

9) There is a definition of c in node 5. This definition will be used if the path . . . . . . . . . is included.

Accepted Answers:
(Type: String) [5,2,3]

10) The set of paths \{[1, 6], [1, 2, 3, 5, 2, 3, 5, 2, 7], [1, 2, 7], [1, 2, 3, 4, 2, 3, 5, 2, 7], [1, 2, 3, 4, 2, 3, 4, 2, 7], [1, 2, 3, 5, 2, 3, 4, 2, 7]\} also satisfies . . . . . . . . . coverage criterion.

Accepted Answers:
(Type: String) Branch
(Type: String) Decision