

X


<https://swayam.gov.in>

[https://swayam.gov.in/nc\\_details/NPTEL](https://swayam.gov.in/nc_details/NPTEL)

sneha18157@cse.ssn.edu.in ▾

**NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Software Testing (course)**


## Course outline

How does an NPTEL online course work?

### Pre-requisite Assignment

#### Week 1

#### Week 2

- Lecture 5 - Basics of Graphs: As used in testing (unit? unit=12&lesson=13)
- Lecture 6 - Structural Graph Coverage Criteria (unit? unit=12&lesson=14)
- Lecture 7 - Elementary Graph Algorithms (unit? unit=12&lesson=15)
- Lecture 8 - Elementary Graph

# Assignment 2

The due date for submitting this assignment has passed.

**Due on 2020-09-30, 23:59 IST.**

Assignment submitted on 2020-09-30, 22:13 IST

1) Given a graph corresponding to control graph of a method, which of the options below define a reachable node? **1 point**

- ☐ A node is said to be reachable if there is a path from any other node to that node in the graph.
- ☒ A node is said to be reachable if there is a path from the initial node to that node in the graph.

Yes, the answer is correct.

Score: 1

Accepted Answers:

*A node is said to be reachable if there is a path from the initial node to that node in the graph.*

2) When do we say that a test path  $p$  tours a path  $q$  **1 point**

- ☒ We say that a test path  $p$  tours a path  $q$  if  $q$  is a sub-path of  $p$ .
- ☐ We say that a test path  $p$  tours a path  $q$  if  $p$  is a sub-path of  $q$ .

Yes, the answer is correct.

Score: 1

Accepted Answers:

*We say that a test path  $p$  tours a path  $q$  if  $q$  is a sub-path of  $p$ .*

3) State true or false: In control flow graphs corresponding to functions or methods, strongly connected components correspond loops in the control flow. **1 point**

- ☒ True.
- ☐ False.

Algorithms -  
Part 2 (unit?  
unit=12&lesson=16)

● Lecture 9 -  
Algorithms:  
Structural  
Graph  
Coverage  
Criteria (unit?  
unit=12&lesson=17)

● Week 2  
Feedback :  
Software  
testing (unit?  
unit=12&lesson=19)

● Quiz:  
Assignment 2  
(assessment?  
name=115)

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

DOWNLOAD  
VIDEOS

Text Transcripts

Live sessions

Yes, the answer is correct.  
Score: 1  
Accepted Answers:  
*True.*

The following graph will be used for the remaining seven questions of this section, on structural graph coverage criteria. Please draw the graph. Consider a graph  $G = (V, E)$  where the set of nodes  $V = \{1, 2, 3, 4, 5, 6, 7\}$ , initial node is 1, final node is 7 and the set of edges  $E$  is  $\{(1, 2), (1, 7), (2, 3), (2, 4), (3, 2), (4, 5), (4, 6), (5, 6), (6, 1)\}$ .

4) How many requirements are there for edge pair coverage? **1 point**

- ☐ 10 requirements.  
☒ 12 requirements.

Yes, the answer is correct.  
Score: 1  
Accepted Answers:  
*12 requirements.*

5) Consider the test paths  $t_0 = [1, 2, 4, 5, 6, 1, 7]$  and  $t_1 = [1, 2, 3, 2, 4, 6, 1, 7]$ . Do the test paths  $t_0$  and  $t_1$  satisfy edge pair coverage? **1 point**

- ☐ Yes, it covers all the edge pairs.  
☒ No, they leave out edge pairs  $[3, 2, 3]$  and  $[6, 1, 2]$ .

Yes, the answer is correct.  
Score: 1  
Accepted Answers:  
*No, they leave out edge pairs  $[3, 2, 3]$  and  $[6, 1, 2]$ .*

6) Which of the following test paths satisfy node coverage but not edge coverage on the graph? **1 point**

- ☐ Test path  $[1, 2, 4, 6, 1, 7]$ .  
☐ Test path  $[1, 2, 4, 5, 6, 1, 7]$ .  
☐ Test path  $[1, 2, 3, 2, 4, 6, 1, 7]$ .  
☒ Test path  $[1, 2, 3, 2, 4, 5, 6, 1, 7]$ .

Yes, the answer is correct.  
Score: 1  
Accepted Answers:  
*Test path  $[1, 2, 3, 2, 4, 5, 6, 1, 7]$ .*

7) How many test requirements are there for prime path coverage in this graph? **1 point**

- ☐ 16 requirements.  
☐ 14 requirements.  
☐ 12 requirements.  
☒ 15 requirements.

Yes, the answer is correct.  
Score: 1  
Accepted Answers:  
*15 requirements.*

8) What do the prime paths  $[2, 3, 2]$  and  $[3, 2, 3]$  together represent? **1 point**

- ☐ They represent two ways of going around the loop between the vertices 2 and 3.
- ☒ They represent more than one iteration of the loop between the vertices 2 and 3.

Yes, the answer is correct.

Score: 1

Accepted Answers:

*They represent more than one iteration of the loop between the vertices 2 and 3.*

9) What is the longest length prime path that can be found in this graph G?

**1 point**

- ☒ Longest length prime path will have length (number of edges) 6.
- ☐ Longest length prime path will have length (number of edges) 7.

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Longest length prime path will have length (number of edges) 6.*

10) Consider the simple path [3, 2, 4, 5, 6] and test path [1, 2, 3, 2, 4, 6, 1, 2, 4, 5, 6, 1, 7]. Does the test path tour the simple path directly or with a sidetrip? **1 point**

- ☐ The test path tours the simple path directly.
- ☒ The test path tours the simple path with a side trip [4, 6, 1, 2, 4].

Yes, the answer is correct.

Score: 1

Accepted Answers:

*The test path tours the simple path with a side trip [4, 6, 1, 2, 4].*