

Assessment sub  
X



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

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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 ()

Week 3 ()

Week 4 ()

Week 5 ()

Week 6 ()

Week 7 ()

Week 8 ()

Week 9 ()

Week 10 ()

Week 11 ()

● Symbolic  
Testing (unit?  
unit=86&lesson=87)

# Thank you for taking the Week 11 : Assignment 11.

## Week 11 : Assignment 11

Your last recorded submission was on 2022-10-12, 20:50 Due date: 2022-10-12, 23:59 IST. IST

- 1) State yes or no: Is concolic testing a white-box testing technique? **1 point**  
☒ Yes.  
☐ No.
- 2) Which of the following is true about concolic testing? **1 point**  
☐ Concolic testing is used instead of symbolic testing when the latter fails.  
☒ Concolic testing keeps concrete state and symbolic state.
- 3) What is the use of a SAT/SMT solver in symbolic testing? **1 point**  
☐ SAT/SMT solvers are used to collect path constraints in symbolic testing.  
☐ SAT/SMT solvers are used to solve path constraints and get values that can be used as test inputs.  
☒ Constraint solvers are not useful in symbolic testing as not all path constraints can be collected and solved.  
☐ Constraint solvers on predicates always return true or false values which helps to decide the execution paths.
- 4) State true or false: Symbolic execution can be used to detect non-termination in programs. **1 point**  
☒ True.  
☐ False.
- 5) Which of the following is a list of techniques used in the algorithm deployed by DART? **1 point**  
☐ Random testing, symbolic testing and constraint solvers.

## Assessment submitted.

X

Symbolic Testing 2  
(unit?  
unit=86&lesson=88)

DART:  
Directed  
Automated  
Random  
Testing (unit?  
unit=86&lesson=89)

DART:  
Directed  
Automated  
Random  
Testing - 2  
(unit?  
unit=86&lesson=90)

DART:  
Directed  
Automated  
Random  
Testing 3  
(unit?  
unit=86&lesson=91)

Practice: Week  
11 :  
Assignment 11  
(Non Graded)  
(assessment?  
name=121)

Quiz: Week 11  
: Assignment  
11  
(assessment?  
name=147)

Week 11  
Feedback  
Form:  
Software  
Testing (unit?  
unit=86&lesson=134)

Week 12 ()

DOWNLOAD  
VIDEOS ()

Text  
Transcripts ()

Live  
sessions ()

- ☐ Symbolic testing and automated testing.  
☒ Directed search, random testing and constraint solvers.  
☐ Concrete testing and symbolic testing.

6) Which of the following strategy is used for input search in concolic testing?

1 point

- ☐ Random search.  
☒ Systematic, random search interleaved with path-sensitive search.

### Common data for Q7-Q10:

Consider the code fragment given below. Answer the following questions related to symbolic execution of the given code fragment.

```
0: int x, y;
1: if (x > y) {
2:     x = x + y;
3:     y = x - y;
4:     x = x - y;
5:     if (x - y > 0)
6:         --- error ---;
}
```

7) What does the code fragment do?

1 point

- ☐ It checks if x is greater than y.  
☐ It checks if y is greater than x.  
☒ It swaps the values of x and y.  
☐ It swaps the values of x and y twice.

8) How many decision points and execution paths are there in the code fragment?

1 point

- ☒ Two decision points and three execution paths.  
☐ Three decision points and four execution paths.

9) What will be the path constraint at line 1 of the code fragment such that program exits without further execution?

1 point

- ☐  $x > y$ .  
☒  $x \leq y$ .

10) State yes or no: Is the error statement reachable in the given program fragment?

1 point

- ☐ Yes.  
☒ No.

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers