

Assessment sub  
X



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



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# Thank you for taking the Week 8 : Assignment 8.

## Course outline

How does an  
NPTEL  
online  
course  
work? ()

Pre-requisite  
Assignment  
()

Week 1 ()

Week 2 ()

Week 3 ()

Week 4 ()

Week 5 ()

Week 6 ()

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Week 8 ()

☒ Syntax-Based  
Testing (unit?  
unit=66&lesson=67)

## Week 8 : Assignment 8

Your last recorded submission was on 2022-09-21, 18:48 Due date: 2022-09-21, 23:59 IST.  
IST

1) Consider the regular expression  $(a + b) \cdot (a + b)^*$  over the alphabet  $\Sigma = \{a, b\}$ . **1 point**  
Which of the following options represents a list of words generated by this regular expression?

- ☐  $ab, a, aab.$
- ☐  $abab, babab.$
- ☐  $aaa, bbb.$
- ☒ All of the above.

2) For the same regular expression  $(a + b) \cdot (a + b)^*$ , which of the following options **1 point**  
represents the language corresponding to the regular expression?

- ☐ The language is the set of all words over  $a$  and  $b$  that have at least one  $a$  and at least one  $b$  in them.
- ☒ The language is the set of all words over  $a$  and  $b$  that have at least one  $a$  or at least one  $b$  in them.

3) While parsing a program to extract syntactic information, which of the following **1 point**  
defines how characters form tokens?

- ☒ Regular expressions.
- ☐ Context-free grammars.
- ☐ Context-sensitive grammars.
- ☐ The normal form of the grammar.

4) Consider the context-free grammar given by  $G = (N, T, P, S)$  where **1 point**  
 $N = \{S, X\}, T = \{a, b\}, P = \{S \rightarrow aXb, X \rightarrow ab\}$ . Which of the following is the

## Assessment submitted.

X

● Mutation Testing (unit? unit=66&lesson=68)

● Mutation Testing for Programs (unit? unit=66&lesson=69)

○ Mutation Testing: Mutation Operators for Source Code (unit? unit=66&lesson=70)

○ Mutation Testing Vs. Graphs and Logic Based Testing (unit? unit=66&lesson=71)

● Practice: Week 8 : Assignment 8 (Non Graded) (assessment? name=118)

● Quiz: Week 8 : Assignment 8 (assessment? name=143)

○ Week 8 Feedback Form: Software Testing (unit? unit=66&lesson=131)

Week 9 ()

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language generated by this grammar?



The language generated by  $G$  is  $\{w | w = aabb\}$ .



The language generated by  $G$  is  $\{w | w \text{ is of the form } a^n b^n, n \geq 1\}$

5) State yes or no: Is the ground string in mutation testing the same as the program under test? **1 point**



Yes.



No.

6) Which of the following is a mutant that can be killed by any test case? **1 point**



Dead mutant.



Equivalent mutant.



Trivial mutant.



Idempotent mutant.

7) Suppose a decision statement like if ( $x < 0$  &&  $z == 5$ ) is mutated to get if ( $x > 0$  &&  $z == 5$ ) then it is an example of which kind of mutation operator? **1 point**



Replacing a logical operator.



Replacing a relational operator.



Replacing a decision statement.



Replacing a condition statement.

8) As per the lectures, replacing a particular assignment statement with a statement like `failOnZero()` is an example of a mutation operator applied at which of the levels in testing? **1 point**



Program level.



Integration level.



Statement level.



De-bugging level.

9) A programmer decides to save time and apply two or three mutation operators together to increase the chances of finding many errors together. Is this considered to be a useful strategy in mutation testing? **1 point**



Yes, it will find many errors early.



No, mutation operators work best when applied one at a time.

10) State true or false: Mutation testing can be used to show that a program behaves identically when a particular operation is replaced or removed. **1 point**



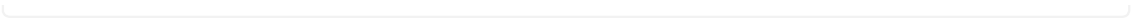
True.



False.

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

**Submit Answers**



Assessment submitted.  
X