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Week 8: Assignment 8

The due date for submitting this assignment has passed.

Due on 2021-09-22, 23:59 IST.

Assignment submitted on 2021-09-15, 16:53 IST

1) Consider the regular expression $(a+b)^* \cdot c$. Does the word $abbabc$ belong to the language of this regular expression? ***1 point***

- (●) Yes
- ( ) No

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

2) Consider the regular expression $(a+b)^* \cdot c$ once again. Which of the following describes the language corresponding to this regular expression? ***1 point***

- ( ) The language is the set of all words over a and b that have a's followed by b's and can optionally end with a c.
- ( ) The language is the set of all words over a and b that have a's and b's and can optionally end with a c.
- (●) The language is the set of all words over a and b ending with a c.
- ( ) The language is the set of all words over a and b that optionally end with a c.

Yes, the answer is correct.
Score: 1

Accepted Answers:
The language is the set of all words over a and b ending with a c.

3) In the syntax of a programming language, which of the following is used to define how tokens form phrases? ***1 point***

- Regular expressions.
- Context-free grammars.
- Context-sensitive grammars.
- Normal forms.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Context-free grammars.

4) Which of the following best defines a mutant? ***1 point***

- A mutant is the result of one application of a mutation operator to a ground string.
- A mutant is the result of at least one application of a mutation op- erator to a ground string.

Yes, the answer is correct.
Score: 1
Accepted Answers:
A mutant is the result of one application of a mutation operator to a ground string.

5) State true or false: Are mutants test cases? ***1 point***

- True
- False

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

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

- Stillborn mutant.
- Dead mutant.
- Equivalent mutant.
- Trivial mutant.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Trivial mutant.

7) With reference to the notion of killing a mutant, which of the following terms do not need propagation of the error? ***1 point***

- Weakly killing a mutant.
- Strongly killing a mutant.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Weakly killing a mutant.

8) When `bomb()` statement is used to replace a particular statement during mutation, ***1 point*** which of the following describes its use?

- (selected) Since it signals a failure as soon as it is executed, it can be used to test if the particular statement can be reached.
- Since it signals a potential failure, it can be used to check if the particular statement is erroneous.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Since it signals a failure as soon as it is executed, it can be used to test if the particular statement can be reached.

9) What is the result of applying the mutation operator `failOnZero()`? ***1 point***

- (selected) The mutant with this operator is considerd to be killed if the value of the resulting expression is zero.
- The mutant with this operator forces the value of the resulting ex- pression to be zero.

Yes, the answer is correct.
Score: 1
Accepted Answers:
The mutant with this operator is considerd to be killed if the value of the resulting expression is zero.

10) Replacing a statement of the form `x := a+b`; with `x:=a`; is an example of which ***1 point*** kind of mutation operator?

- Relational operator replacement.
- Assignment operator replacement.
- (selected) Arithmetic operator replacement.
- None of the above.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Arithmetic operator replacement.