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Gradiance Online Accelerated Learning

Zayd

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Help

Homework Assignment Submitted Successfully.

You obtained a score of 20.0 points, out of a possible 20.0 points.
You have answered all the questions correctly.

Congratulations, you have achieved the maximum possible score.

Submission number:	75305
Submission certificate:	JB934972
Submission time:	2014-04-07 18:21:22 PST (GMT - 8:00)

Number of questions:	5
Positive points per question:	4.0
Negative points per question:	0.0
Your score:	20

Exam-4_CS154-03

1. Consider the grammar G and the language L:

G: S → AB | a | abC, A → b, C → abC | c

L: {w | w a string of a's, b's, and c's with an equal number of a's and b's}.

Grammar G does not define language L. To prove, we use a string that either is produced by G and not contained in L or is contained in L but is not produced by G. Which string can be used to prove it?

a) abababc
b) abacccc
c) cacaba
d) abba

Answer submitted: **d)**

You have answered the question correctly.

2. Consider the following languages and grammars. G_1: S → aA|aS, A → ab
G_2: S → abS|aA, A → a
G_3: S → Sa|AB, A → aA|a, B → b
G_4: S → aS|b
L_1: {a^ib| i=1,2,...}
L_2: {$(ab)^iaa$| i=0,1,...}
L_3: {a^ib| i=2,3,...}
L_4: {a^iba^j| i=1,2,..., j=0,1,...}
L_5: {a^ib| i=0,1,...}

Match each grammar with the language it defines. Then, identify a correct match from the list below

Match each grammar with the language it defines. Then, identify a correct match from the list below.

a) G_2 defines L_2.

b) G_4 defines L_3.

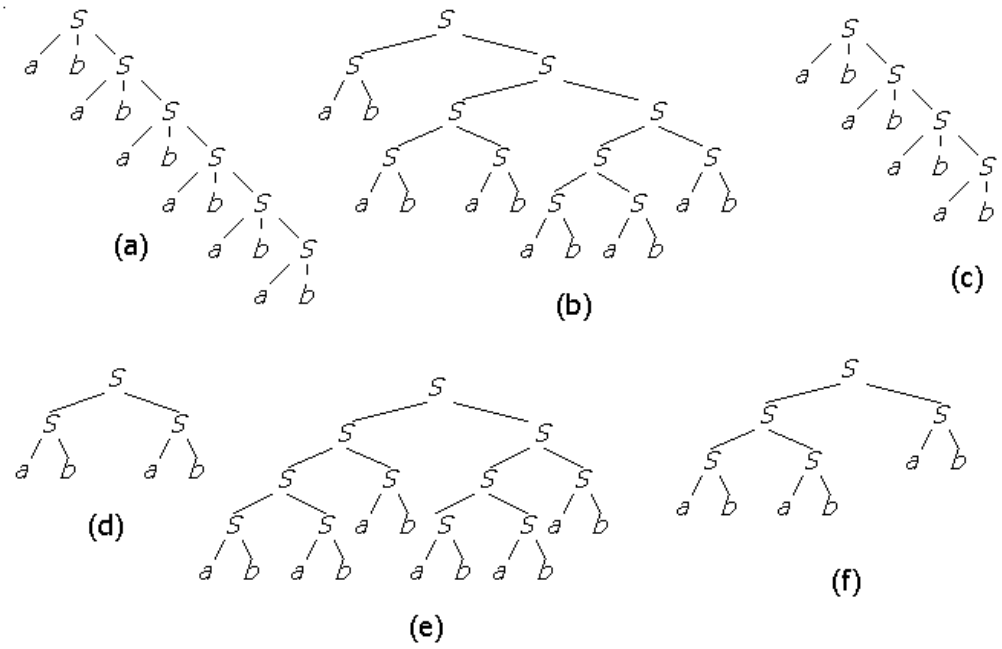
c) G_4 defines L_4.

d) G_3 defines L_5.

Answer submitted: **a)**

You have answered the question correctly.

3. Consider the grammar: S → SS, S → ab. Identify in the list below the one set of parse trees which includes a tree that is NOT a parse tree of this grammar?



a) {(d)}

b) {(e)}

c) {(a),(e)}

d) {(b),(d),(e)}

Answer submitted: **c)**

You have answered the question correctly.

4. In the following expressions, - represents negation of a variable. For example, -x stands for "NOT x"). +

4. In the following expressions, - represents negation of a variable. For example, -x stands for "NOT x"; + represents logical OR, and juxtaposition represents logical AND (e.g., (x+y)(y+z) represents (x OR y) AND (y OR z).

Identify the expression that is satisfiable, from the list below.

a) (z)(-z+-y)(-y+x)(-x+-z)

b) (z+y)(-z)(z+-y)(y+x)

c) (-z+y)(-z+-y)(y+x)(z)

d) (-z+y)(-z+-y)(z+y)(z+-y)

Answer submitted: **a)**

You have answered the question correctly.

5. Here are eight simple grammars, each of which generates an infinite language of strings. These strings tend to look like alternating *a*'s and *b*'s, although there are some exceptions, and not all grammars generate all such strings.

1. S → abS | ab
2. S → SS | ab
3. S → aB; B → bS | a
4. S → aB; B → bS | b
5. S → aB; B → bS | ab
6. S → aB | b; B → bS
7. S → aB | a; B → bS
8. S → aB | ab; B → bS

The initial symbol is S in all cases. Determine the language of each of these grammars. Then, find, in the list below, the pair of grammars that define the same language.

a) G1: S → abS, S → ab
G2: S → SS, S → ab

b) G1: S → aB, B → bS, B → a
G2: S → aB, B → bS, B → b

c) G1: S → aB, B → bS, B → b
G2: S → aB, B → bS, S → a

d) G1: S → abS, S → ab
G2: S → aB, B → bS, B → ab

Answer submitted: **a)**

You have answered the question correctly.