2018-2		4차 과제물: 8장 4절, 11(10)장
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※ 문제 자체는 생략하고 문항번호와 답안만 작성하여 제출하기 바랍니다.

※(1~5) 다음 문장의 내용이 맞으면 ○표, 틀리면 ×표를 답하시오.

1. All the regular grammars and regular languages can be recognized by a finite state machine. ○

2. The Backus-Naur From (BNF) notation is for type 1 grammars. ×

3. The syntax diagram corresponding to a grammar is unique. ×

4. In a Finite State Machine (FSM), every state must process every input. ○

5. There must be only one acceptance state in a Moore machine. ×

※(6~10) 다음 괄호에 알맞은 값이나 용어를 채워 넣으시오.

6. A(n) (*Cut*) is a set K of edges having the property that every path from the source to sink contains at least one edge from K in a transport network.

7. A maximum flow F in a network has value equal to the capacity of a minimum (*Cut*) of the network.

8. The process involves taking a sentence and verifying that it is syntactically correct in some grammar G is called (*Parsing*).

9. A phrase structure grammar G is defined to be 4-tuple (V, S, v_0, →) where V is a set of nonterminal and terminal symbols, S is a set of terminal symbols, v_0 is starting point, and w → w' is a (*Production*) of G.

10. Let I be a set and let $L \subseteq I^*$. Then $L = L(M)$ for some Moore machine M if and only if L is a (   ) set.

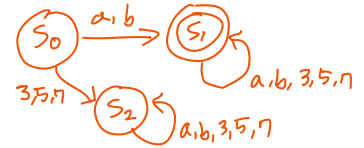
11. Let N be a transport network shown as below :
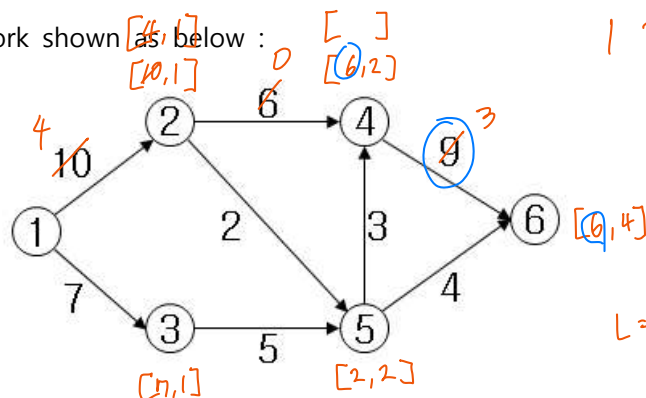
(1) If we use the labeling algorithm, list every path from the source to the sink when the algorithm found a flow.

(2) Find the maximum flow for this network.

12. An identifier must be composed of letters and digits in $S=\{$a, b, 3, 5, 7$\}$ and must begin with a letter. give the BNF representation for the productions of the grammar.

$\langle w \rangle ::= a\langle S_0 \rangle \mid b\langle S_0 \rangle \mid a \mid b$

$\langle S_0 \rangle ::= 3 \mid 5 \mid 7 \mid 3\langle S_0 \rangle \mid 5\langle S_0 \rangle \mid 7\langle S_0 \rangle \mid a\langle S_0 \rangle \mid b\langle S_0 \rangle \mid a \mid b$

13. Let M be the finite-state machine whose state transition table is shown in the table. Then $S = s_0, s_1, s_2, s_3, s_4, s_5$. Let R be the equivalence relation on S where $S/R = s_0, s_2, s_1, s_3, s_5, s_4$. Draw the digraph of the quotient machine M/R.

	0	1
s_0	s_0	s_4
s_1	s_1	s_0
s_2	s_2	s_4
s_3	s_5	s_2
s_4	s_4	s_3
s_5	s_3	s_2

14. Consider the Moore machine M shown in the figure. Give the BNF representation for the productions of the grammar.
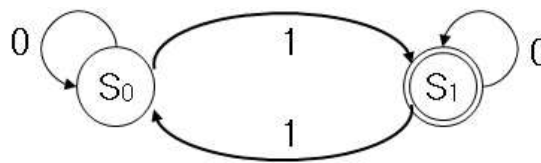
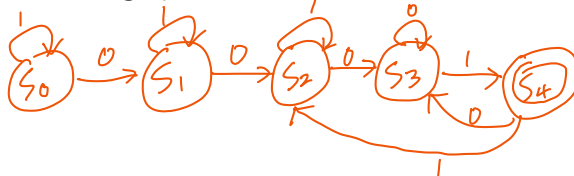$\langle S_0 \rangle ::= 0\langle S_0 \rangle \mid 1\langle S_1 \rangle \mid 1$
$\langle S_1 \rangle ::= 0\langle S_1 \rangle \mid 1\langle S_0 \rangle \mid 0$

☆ acceptance로 동기는 값은 다소 생성 수 있는 문자.

15. Consider the regular expression $1*01*0(0 \vee 1)*01$ corresponds to the language $L(G)$ of a regular grammar G.

(1) Give the BNF notation for the productions of G.

(2) Construct the digraph of a Moore machine that accepts $L(G)$.

*** 문제를 제외하고 답안만 작성하며, 뒷면을 사용하여 가급적 한 장으로 제출하기 바랍니다. ***