Department of Computer Science

Theory of Automata

Activity #1

Deterministic Finite Automata & Regular Expressions.

Question 1: Write the output for the following regular expressions. Mentioned 5 accepted and 5 rejected strings for each case using transition function delta.

01*	(1+0) (1+0)	a(a+b)b(aa+ab)	[(aa)*+a(a+b)*(a+b)b*]*
0(10)*	(1*0)(1*0)	b(a+b)*(a+b)b^+	1(1+0)(01)*(10)(11)(0+1)*
11+(01)	(a(a*(a+b)b)a)	b(ba+ab)$^+$+(a+b)	a(a+b)*[(a+ $b)^+$b + (a+b)]
1*01*(11)	aa(a*(a+b)b)(a+b)	a*+a(a+b)*(a+bb)*	[01+11+(1+0)]*+10+11*
a+b	a(a*(a+b)a*)b*(a+b)*	a*(aa+b)ba(a+b)b)*	(101+110)*

Question 2: Write few examples in which we need to create regular expressions and write the regular expressions to support your answer.

Question 3: Draw automata to show that how you can design tower of Hanoi problem using knowledge of automata. Express the tuple of automata for Tower of Hanoi.

Question 4: Draw DFA for the logical comparisons in programming such as equal to, not equal to, less than, greater than, less than equal to, greater that equal to.

Question 5: Write the output for the following given FA. Write 5 accepted, 5 rejected strings. What will be the main 5 main components of each FA.