Theory of Computer Science
Tutorial IV

1) Find the equivalent Minimum state DFA from given DFA whose transition function is as follows.

	0	1
→ q0	q1	q2
q1	q3	q4
q2	q5	q6
q3	q3	q4
q4	q5	q6
*q5	q3	q4
q6	q5	q6
q7	q4	q5

2) Design Moore machine to generate 1's complement of given binary number.
3) Design Moore machine for ∑={0,1,2}, print the residue modulo 5 of input treated as a ternary number.
4) Construct Moore machine which adds binary numbers.
5) Design a Mealy machine that scans sequence of inputs of 0 and 1 and generates output 'A' if the input string terminates in 00, output 'B' if the string terminates in 11 and output 'C' otherwise.
6) Construct equivalent Moore machine.

	0	output	1	output
→ q0	q0	n	q1	n
q1	q1	y	q2	n
q2	q1	n	q2	y

7) Construct given Moore machine to mealy machine.

	0	1	Δ
→ p	p	q	0
q	p	r	0
r	p	r	1

8) Design Moore and Mealy machine that will read sequence made up of letters a,e,i,o,u and will give same output as that of character except when 'i' followed by 'e' will change to 'u'.
10) Design Moore machine that will convert every occurrence of substring 121 to 122 over ∑={0,1,2}.
11) Design Mealy machine to add two binary numbers of equal length.
∑={(0,0),(0,1),(1,0),(1,1)} Δ={0,1}