The Open University of Sri Lanka B. Sc. Degree program – Level 05 Open Book Test 2008/2009 CSU 3275/PMU 3293: Automata Theory

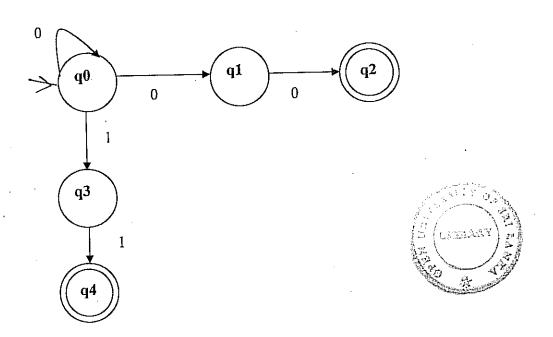


Duration: One and half hours
Date 19.03.2009

Time: 4.00 p.m. to 5.30 p.m.

## Answer All Questions.

1. Design the equivalent DFA for the following NDFA using the subset construction method.



- a) Differentiate DFAs and NDFAs.
- b) Construct the transition table.
- 2. Construct and define a DFA to accept strings that start and end with the same letter over an alphabet {a,b} and minimum length of the string is 2. The state transition table should also be provided.

Consider the DFA given by the following transition table M(A,S,I,  $\delta$ ,F), 3. where A is the initial state and F is the final state.

	0	1
A	B	D
В	C	D
B C D	F	D
D	В	E
E F	В	F
F	F	F

- a)
- b)
- Draw the directed graph for the above table. Prove or disprove that  $\delta^*(A, 001(111)^*10) = F$ . Check whether  $00110^*1$  is accepted or not. (Start from the initial state). c)
- d) Implement the machine M.

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