

Department of Computer Science & IT, The Islamia University of Bahawalpur (IUB)

MCS (WeekEnd) - 3rd Semester
Course Instructor: Dr. Nadeem Akhtar

Marks 20

Subject: Automata Theory
Time: 75 min.

Q2.	Short questions	
	a) Define Extended Transition function? Give an example NFA	4
	b) Differentiate between NFA and DFA? Give an example of NFA and DFA	4
	c) Define a Cartesian product and Binary Relation? Give examples	4
	d) The alphabet is $\Sigma = \{0, 1\}$. Draw an NFA which accepts language $L = \{01\}^*00$	4
		(16 marks)
Q3.	The alphabet is $\Sigma = \{0, 1\}$, Draw an NFA which accepts/recognizes the language which contains the substring 0011 with exactly five states. $\{w \in \Sigma^* \mid w \text{ contains the substring } 0011, \text{ i.e., } w = x0011y \text{ for some } x, y \in \Sigma^* \}$	4