

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

Roll no: _____

Signature: _____

MCS (WeekEnd) - 3rd semester

Subject: Automata Theory

Course Instructor: Dr. Nadeem Akhtar

Time: 16min.

Q1.	Encircle the appropriate choice	10 Marks
1.	A binary relation of two sets A and B is a) A superset of A x B b) A subset of A x B c) An empty set d) Both a and b	
2.	A finite state machine where for each pair of state and input symbol there may be several possible next states a) DFA b) Regex c) NFA d) Both a and b	
3.	Allows a transformation to a new state without consuming any input symbols a) Epsilon transition b) Transition Function (δ) c) Both a and b	
4.	Concatenates each string in L zero or more times a) Kleene Closure (L*) b) Positive Closure (L+) c) Concatenation (L1.L2)	
5.	In case of DFA a) There is only one transition per input per state b) There are no ϵ -transitions c) There can be more than one transition per input per state d) Both a and b	
6.	If Σ is an alphabet, then Σ^* is equal to a) $\{\epsilon\} \cup \Sigma^+$ b) $\Sigma^+ \cup \{\epsilon\}$ c) $\Sigma^* \Sigma^+$ d) Both a and b	
7.	Let x is a string then a) $x^+ = xx^*$ b) $x^+ = x \cup x^*$ c) Both a and b	
8.	Concatenation of Strings a) Kleene closure (*) is the identity for concatenation b) Epsilon (ϵ) is the identity for concatenation c) Positive closure(+) is the identity for concatenation	
9.	Define a Transition function(δ) ? Give a simple example	(2 marks)