

**National University of Computer & Emerging Sciences, Karachi**  
**Department of Computer Science**  
**Task # 3**



Course Code: CS3005	Course Name: Theory of Automata
Instructor Name / Names: Bakhtawer Abbasi	
Student Roll No:	Sections:

**Find the regular expression for the following set of languages:**

**L7** = having exactly one pair of consecutive zeros.

**L8** = having exactly one a.

**L9** = strings containing no more than 3 a's

**L10** = all strings that contain at least one occurrence of each symbol in alphabet

**L11** = all strings ending in 0, 1.

**L12** = all string not ending in 0, 1

**L13** = All strings containing even number of zeros.

**L14** = all string having at least two occurrences of substring 00.

**L15** = all strings not containing 101.

**L18** = The language of all strings containing exactly two a's.

**L19** = The language of all strings containing at least two a's.

**L20** = The language of all strings that do not end with ab.

**L21** = The language of all strings that begin or end with aa or bb.

**L22** = The language of all strings not containing the substring aa.

**L23** = The language of all strings in which the number of a's is even.

**L24** = The language of all strings in which both the number of a's and the number of b's are even.

**L25** = The language of all strings containing no more than one occurrence of the string aa. (The aaa string contains two occurrences of aa.)

**L26** = The language of all strings in which every a (if there are any) is followed immediately by bb.

**L27** = The language of all strings containing both bb and aa as substrings.

**L28** = The language of all strings containing both aba and bab as substring.

***Good Luck***