Name = Mian Taimoor Shah
ID = 13829
Subject = Compiler Construction.

Q1: Construct regular expression defining each of the following language over the alphabet $\Sigma = \{a, b\}$

(1) All words having odd length.

$(a+b)((a+b)(a+b))^*$

(2) All words having atleast two a's & two b's

$(a+b)^*(aa)(bb)(a+b)^*$

(3) All words having atleast tripple a's or double b's

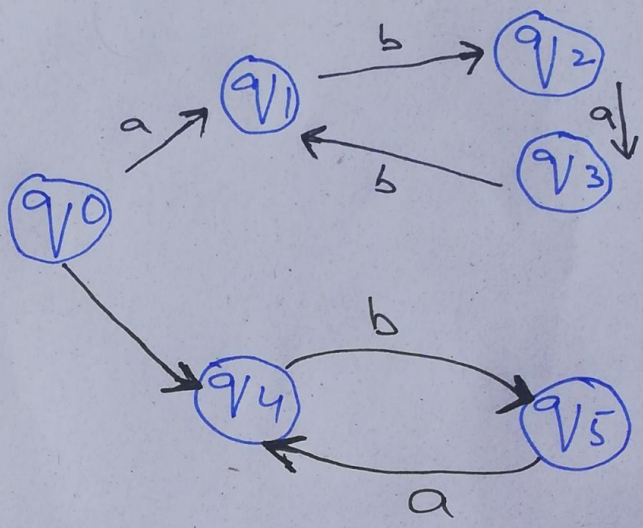
$(a+b)^*(aaa)(a+b)^* + (a+b)^*(bb)(a+b)^*$

(4) All words start with double a's or tripple b's

$aa(a+b)^* + bbb(a+b)^*$

Question 2:

For figure 3 if q0 is Initial, then draw a transition table for it.



Answer:

	a	b
Q_0	Q_4	Q_1
Q_1		Q_2
Q_2	Q_3	
Q_3		Q_1
Q_4		Q_5
Q_5	Q_4	

Question:- 3

Define What is finite Automaton. What can be the regular expression of given diagram

A finite automaton (FA) is a simple idealized machine used to recognize patterns with input taken from some character set (or alphabet) C. The job of an (FA) is to accept or reject an input depending on wheather the pattern defined by the FA.

A Finite Automaton Consist of

$(Q, \Sigma, q_0, F, \delta)$

* $Q \rightarrow$ It is a finite set of states
* $\Sigma \rightarrow$ finite set of the input symbol
* $q_0 \rightarrow$ Initial state.
* $F \rightarrow$ Final state
* $\delta \rightarrow$ transition function.

Regular Expression Figure

$b(a+b)^* + a(a+b)^*$