

**B. TECH (CSE) & B. TECH (CSE) + MBA****FOURTH SEMESTER END TERM EXAMINATION :****APRIL – 2012****THEORY OF AUTOMATA & COMPUTATION***Time : 3 Hrs.**Maximum Marks : 70**Note: Attempt questions from all sections as directed.***SECTION – A (30 Marks)***Attempt any 5 questions.**Each question carries 6 marks.*

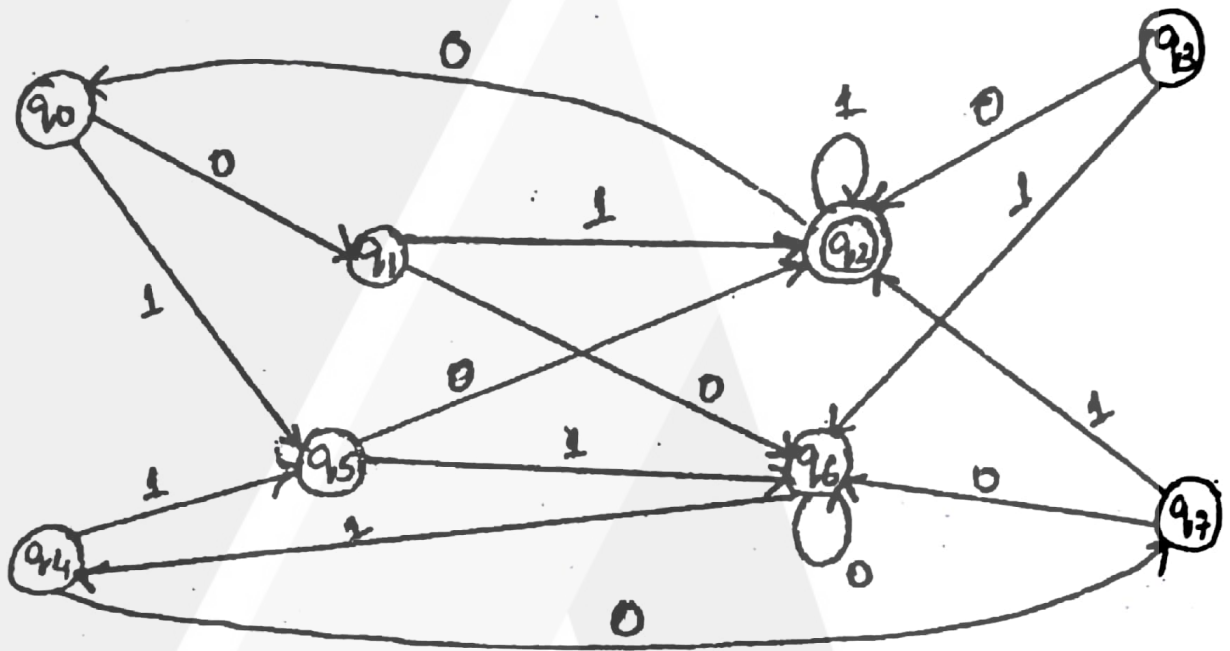
1. What do you mean by automata ? Explain Chomsky hierarchy for formal language.
2. State Post Correspondence Problem (PCP). Prove that the following instance of PCP has no solution over  $\Sigma = \{0,1\}$ , X and Y be lists of three strings as follows :

	List X	List Y
I	$w_i$	$x_i$
1	10	101
2	011	11
3	101	011

**SECTION – C**  
(Compulsory)

(20 Marks)

10. (a) Minimize the given DFA.



(b) Construct a Push Down Automata for the grammar  
 $G = (V, T, P, S)$  where  $V = \{S\}$ ,  $T = \{a, b, c\}$  and  $P$   
 is defined as :

$S \rightarrow aSa$

$S \rightarrow bSb$

$S \rightarrow c$

Also check whether the string  $abbcbbba$  is accepted or not.

(c) State properties of regular sets.

(8+8+4)