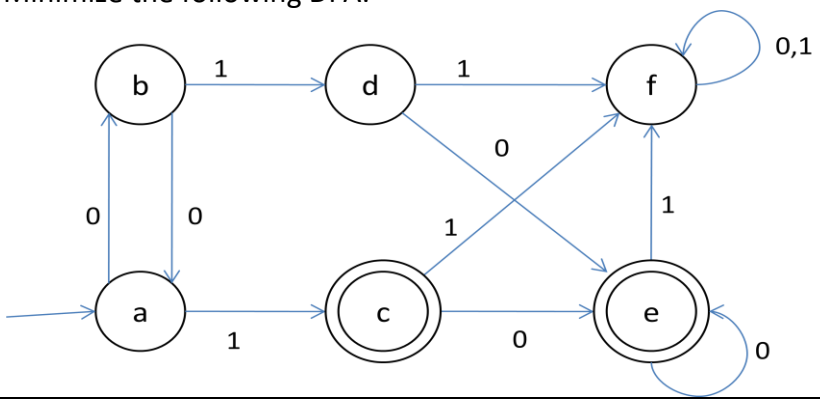
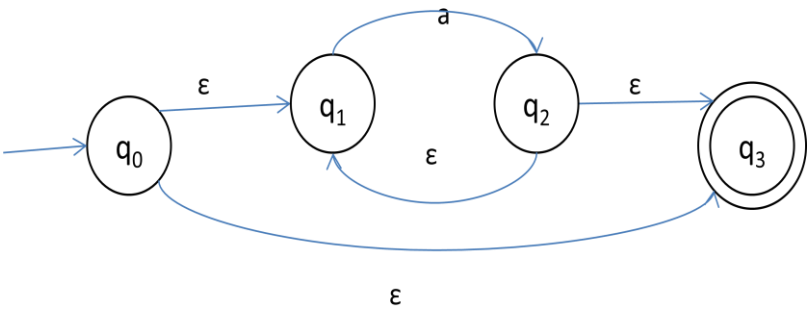
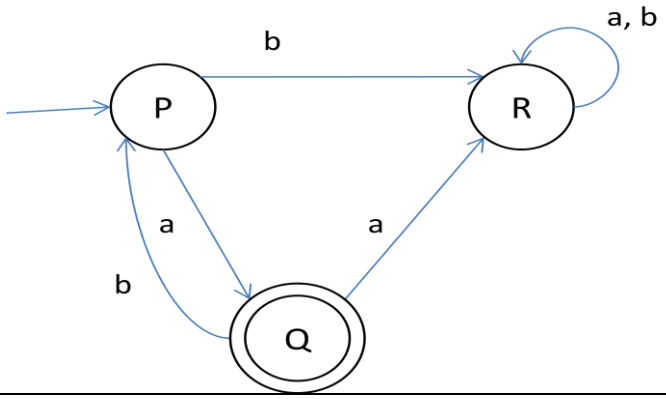
United College of Engineering & Research, Prayagraj

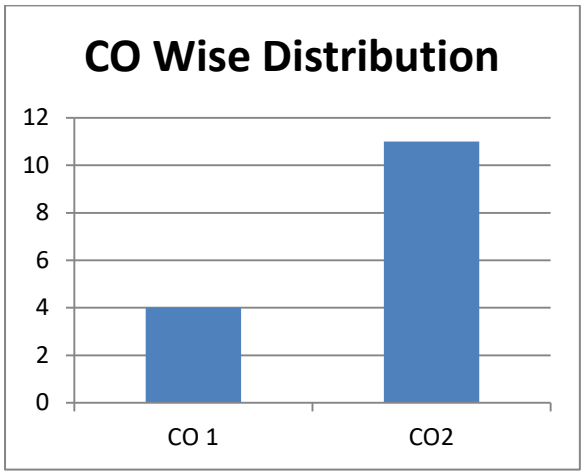
Department of Computer Science & Engineering

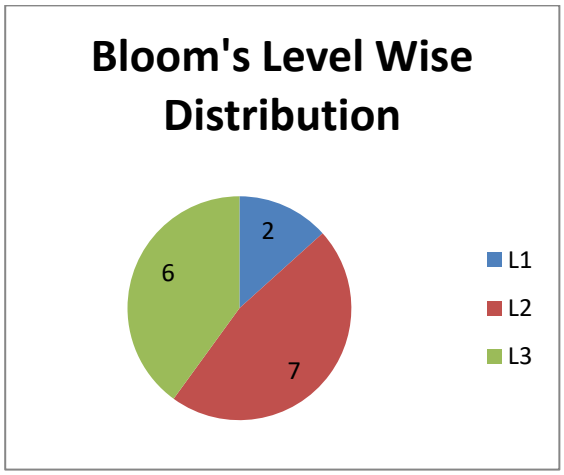
Automata Theory(KCS-402)

Assignment-1

Q. No.	Question	CO	Bloom's level
	Section-A		
1	Define Alphabet and String in Automata Theory.	CO1	L1
2	Give the definition of Deterministic Finite Automata (DFA).	CO2	L1
3	For the given language $L_1 = \varepsilon$, $L_2 = \{a\}$, $L_3 = \emptyset$. Compute $L_1 L_2^* \cup L_3^*$.	CO1	L2
4	Design a FA to accept the string that always ends with 101.	CO2	L2
5	Design the DFA that accepts an even number of a's and even number of b's.	CO2	L2
	Section-B		
6	Give the complete description about the Chomsky's Hierarchy.	CO1	L2
7	Minimize the following DFA:- 	CO2	L3
8	Design FA for ternary number divisible by 5.	CO2	L3
9	Construct DFA which accepts all the strings of a and b, in which number of a is divisible by 3 and number of b is divisible by 5.	CO2	L3
10	Compute the epsilon-closure for the given NFA. Convert it into DFA. 	CO2	L3
11	Let L_1 be some language over $\sum$ and $L_2 = \emptyset$. Then prove that (a) $L_1.L_2 \neq L_1$ (b) $L_1+L_2 \neq \emptyset$	CO1	L2
12	Construct a DFA accepting all strings over alphabet set $\sum = \{0,1\}$ that are ended with 00.	CO2	L2

13	Describe the language accepted by following finite automata:-  	CO2	L2
14	Draw DFA of the following languages over {0, 1}? (a) All strings with even number of 0's and even number of 1's. (b) All strings of length at most 5.	CO2	L3
15	Draw DFA for the following over set ∑ = {0, 1}. (a) L = { w ! |w| mode 3 = 0 } (b) L = { w ! |w| mode 3 > 1 }	CO2	L3





CO - Course Outcome

Bloom's Levels

1- Remembering 2-Understanding 3-Applying

4-Analyzing 5-Evaluating 6-Creating