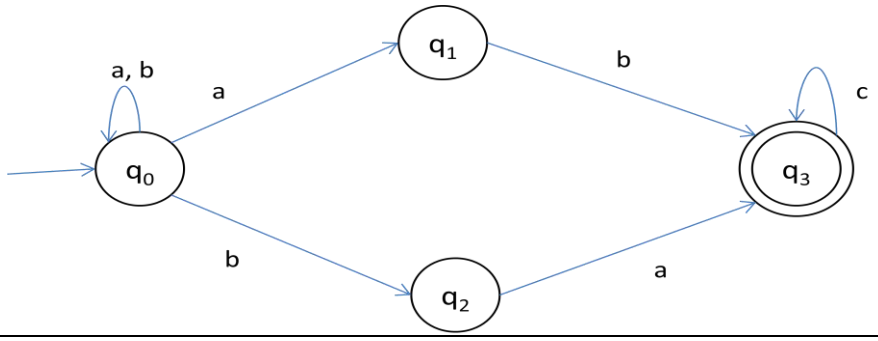
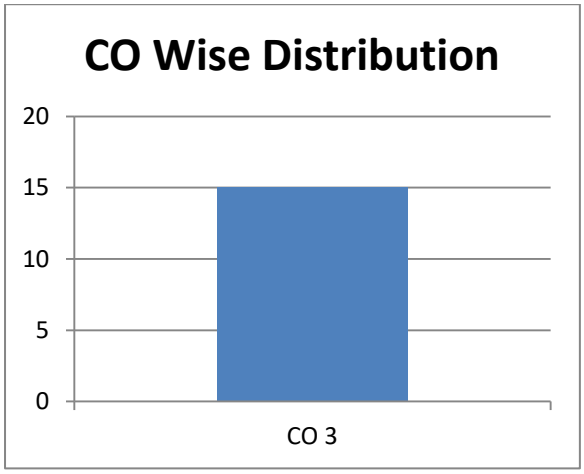
United College of Engineering & Research, Prayagraj

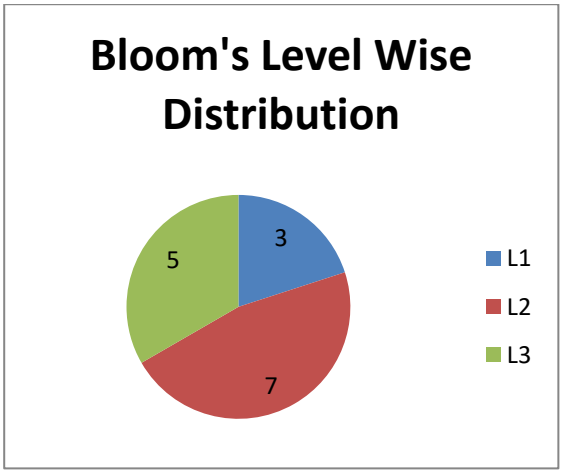
Department of Computer Science & Engineering

Automata Theory(KCS-402)

Assignment-2

Q. No.	Question	CO	Bloom's level
	Section-A		
1	Explain in brief about the Kleen's Theorem.	CO3	L1
2	State the pumping lemma theorem for regular languages.	CO3	L1
3	Write regular expression for set of all strings such that number of a's divisible by 3 over Σ = {a,b}.	CO3	L2
4	Find regular expression for the set, L = {$a^m b^n$! m >1, n >2 and mn >7}.	CO3	L2
5	What do you mean by ε-Closure in FA?	CO3	L1
	Section-B		
6	Prove that the compliment, homomorphism, inverse homomorphism, and closure of a regular language is also regular.	CO3	L2
7	Explain Myhill-Nerode Theorem using suitable example.	CO3	L2
8	Prove that the language L={$a^n b^n$! n ≥1} is not regular language.	CO3	L3
9	Write regular expression for each of the following languages over the alphabet {a,b}:- (a) The set of all strings in which every pair of adjacent 0's appears before any pair of adjacent 1's. (b) The set of all strings not containing 101 as a substring.	CO3	L3
10	Design a NFA to recognize following set of strings 0101, 101 and 011. Alphabet set is {0, 1}. Find the equivalent regular expression.	CO3	L2
11	Find the regular expression corresponding to the finite automata given bellow: 	CO3	L3
12	Show that L={a^p ! p is prime) is not regular?	CO3	L3
13	For regular expression, prove that (a+b)* ≠ a*+b*.	CO3	L2
14	Describe the language to the given regular expression:- (1+01)*(0+01)*	CO3	L2
15	What is regular expression? Construct regular expression for the regular expression, (00+001)*1.	CO3	L3





CO - Course Outcome

Bloom's Levels

1- Remembering	2-Understanding	3-Applying
4-Analyzing	5-Evaluating	6-Creating