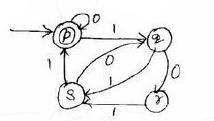
# DON BOSCO INSTITUTE OF TECHNOLOGY,BANGALORE-74 DEPARTMENT OF COMPUTER SCIENCE AND ENGG

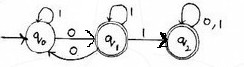
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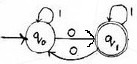
**ASSIGNMENT-II GROUP-I**

1. Define Regular Expression. Also write the regular expression for the following languages.
   1. The set of all strings ending in the substring '00' on ∑={0,1}
   2. L={anbm| n≥4,m≤3}
   3. L= {w € (a, b)\* with at most one a}
2. Prove that for every language defined by regular expression is also defined by a finite automation
3. Write the €-NFA for the Regular Expression ab(a+b)\*
4. Obtain the Regular Expression/ Write Equivalent Regular Expression for the FSM



1. Show that the language L={ anbn | n≥0 } is not regular
2. Define Context Free Grammar? Obtain CFG for the language to generate an Integer?
3. Obtain the Left Most Derivation and LMD Parse tree for the Grammar E→ +EE|\*EE|-EE| x | y for the string “+ \* - xyxy”.
4. State and Prove Pumping Lemma for Regular Languages
5. Define Regular Expression.Also write the regular expression for the following languages.over ∑={a,b,c}
   1. all strings containing exactly one a
   2. all strings containing no more than three a's
   3. all strings that containg atleast one occurance of each symbol in ∑={a,b,c}
6. Write the €-NFA for the Regular Expression (a+b)\* ab (a+b)\*
7. Obtain the Regular Expression for the FSM



1. Show that the language L={ 0n | n is prime } is not regular
2. Define Context Free Grammar and Obtain CFG to generate L={aibj| i=j+1}
3. Define Context Free Grammar and Obtain CFG to generate **L= { W € {a,b}\* | Na(w) = Nb(w)**
4. Obtain the Left Most Derivation and LMD Parse tree for the Grammar E→ +EE|\*EE|-EE|x|y for the string “+ \* - xyxy”.
5. State and Prove Pumping Lemma for Regular Languages
6. Define Regular Expression.Also write the regular expression for the following languages.
   1. L={anbm| | n≥1, m≥1 and nm≥3}
   2. L={anbm | n+m is even}
   3. L={ W: |W| mod 3 = 0 , W € (a,b)\* }
7. Design NDFSM for the regular expression which accepts the Language L(aa\*(a+b))
8. Convert the Regular Expression (0+1)\* 1 (0+1) to NDFSM
9. Obtain the Regular Expression for the FSM 
10. Show that the language L={ 0n! } is not regular
11. Design a melay machine that takes binary as input and produce 2's compliment of that number as output. Assume that string is read from LSB to MSB and end carry is discarded
12. Obtain the Left Most Derivation and LMD Parse tree for the Grammar E→ +EE|\*EE|-EE|x|y for the string “+ \* - xyxy”.
13. State and Prove Pumping Lemma for Regular Languages
14. Define Regular Expression. Also write the regular expression for the following languages.
    1. L= {w € (a,b)\* which does not end with ab}
    2. L= {w € (0,1)\* has substring 001}
    3. L= {w € (0,1)\* , |w| is even}
15. Construct the mealy and Moore machine for a binary input sequence such that if it has substring 101,the machine outputs A. if input has substring 110 the machine outputs B, otherwise outputs C
16. C:\Users\Basavaraj\Desktop\11.jpgobtain the Regular Expression for the FSM
17. Convert RE into €-NFA **0\*+1\*+2\*** ?
18. Prove that **L={WCWR| W € (0,1)\*}** is not regular language?
19. Define Context Free Grammar and Obtain CFG to generate **L= { aibjck |i=k+j,k,j≥1}**
20. Obtain the Left Most Derivation and LMD Parse tree for the Grammar E→ +EE|\*EE|-EE|x|y for the string “+ \* - xyxy”.
21. State and Prove Pumping Lemma for Regular Languages