LNCT University Bhopal

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Enroll No..... **Class Roll No.....**

Second Mid Semester Examination, 2024

Subject Name: THEORY OF COMPUTATION [CS303]

Branch: CS Semester: 3rd

Max. Marks 20

Time 1:30 Hrs

Note: All questions are compulsory and have internal choice

Q.1 What is grammar. Explain types of grammar with example **(CO 3 MARKS 7)**

Or

Q.1 Derivethestring"aabbabba"forleftmostderivationandrig htmostderivationusingaCFG given by,

S→aB|bA

A→a|aS|bAA

B→b|bS|aBB

Q.2 Convert following Left linear Grammar to FA. (CO 4 MARKS 7)

S->Ca/Aa/Bb

A->Ab/Ca/Bb/a

B->Bb/b

C->Aa

Or

Q.2 Convert the given CFG to CNF. Consider the given grammar G:

S → ABA

A → aA | ε

B → bB | ε

(CO 4 MARKS 7)

Q3. *Construct a PDA for language* $L=\{a^n,b^n \mid n>=1\}$ **(CO 5 MARKS 6)**

OR

Q3. Explain Turing Machine and Universal Turing machine.