

BRAC UNIVERSITY

ASSIGNMENT

CSE 420 (SECTIONS 1 - 11)

SPRING 2021

MARKS 30

(TIME : 28 MARCH 12 PM - 29 MARCH 6 PM)

- 1.** Remove left recursion from the following grammar: 3

$S \rightarrow (A) \mid a$

$A \rightarrow A,S \mid S$

- 2.** Given the following grammar, calculate the First of S, A, B, C, D: 7

$S \rightarrow Ad$

$A \rightarrow Bb \mid CD$

$B \rightarrow (B) \mid a \mid \epsilon$

$C \rightarrow bCc \mid \epsilon$

$D \rightarrow cBc \mid B$

- 3.** Convert the regular expression $(x|y)^*xy(xy|xx)^*$ over $\Sigma=\{x, y\}$ into its equivalent DFA using Direct method by describing each intermediate step very clearly. 10

- 4.** Convert the regular expression $a(a|b)^*a(a|ab)$ over $\Sigma=\{a, b\}$ into its equivalent DFA using Direct method by describing each intermediate step very clearly 10