

Submit all extra sheet(s) with the quiz with Roll number/Name clearly written. Show complete working.

Instructions: Divide your roll number by 4: if remainder is 0, do 1a, if remainder is 1, do 1b, if remainder is 2, do 1c, and if remainder is 3, do 1d. Everyone should do 1e and question 2.

1. [15] Use CYK Algorithm to determine whether the given string belong to the language or not. The grammar is already in CNF form, so no need to further simplify the grammar.

$S \rightarrow AB \mid AX \mid BX$ $X \rightarrow ZY$ $Y \rightarrow BB$ $Z \rightarrow AB \mid AX$ $A \rightarrow a$ $B \rightarrow b$ a) aabbb b) abaab	$S \rightarrow XY$ $T \rightarrow ZT \mid a$ $X \rightarrow TY$ $Y \rightarrow YT \mid b$ $Z \rightarrow TZ \mid b$ c) ababa d) abbab
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- e) [5] You have implemented CYK algorithm in Project 2. Give the big-oh of the algorithm and explain why the algorithm has this complexity.