

CS 302

20 May, 2021

**REMOTE QUIZ 9**

**Duration : 20 minutes**

***Closed Notes , Books and all Electronic Devices***

***Do not forget to write your name on your paper !***

**QUESTION**

Given a CFG  $G = (\{S, X, Y\}, \{a, b\}, R, S)$  where the productions in  $R$  are given as :

$S \rightarrow a X S \mid b Y S \mid e ; X \rightarrow a X X \mid b ; Y \rightarrow b Y Y \mid a . ;$

**(a)** (5 pts) Construct in detail a PDA  $P$  that accepts the language generated by  $G$  above. Is your PDA a DPDA ? Explain.

**(b)** (5 pts) Using **look-ahead techniques** by introducing extra states construct a new PDA  $P'$  that - at least partially - overcomes non-deterministic transitions.