CS 302
REMOTE QUIZ 7

22 April, 2021

Duration : 20 minutes

Closed Notes , Books and all Electronic Devices

Do not forget to write your name on your paper !

QUESTION

(a) *(3 pts) What are the conditions for a PDA* **P** *to be a deterministic PDA (DPDA) ?*

(b) *Consider the PDA* $P=(Q=\{q_0,q,q'\} ,\Sigma=\{a,b\} , \Gamma=\{a,b,Z_0\} ,\delta , q_0 ,Z_0)$ *where the transitions of* δ *are :*

$(q_0, a, Z_0) \rightarrow \{(q_0, Z_0),(q, aZ_0)\}$
$(q, a, a) \rightarrow (q, aa)$
$(q, b, a) \rightarrow (q', e)$
$(q', b, a) \rightarrow (q', e)$
$(q', e, Z_0) \rightarrow (q', e)$

(i) *(3 pts) State the language* **L** *accepted by empty stack by* **P** *above.*

(ii) *(1 pt) Is* **P** *a DPDA ?*

(iii) *(3 pts) Can you construct a DPDA* **P'** *that accepts* **L** *by empty stack ?*

*Explain (*Hint : does **L** have the ***prefix property*** ?*).*