

## Section - 3

Q1 Construct a PDA from the following CFG.

$G = (\{S, X\}, \{a, b\}, \{P, S\})$  where production are:

$S \rightarrow XS \mid \epsilon, A \rightarrow aXb \mid Ab \mid ab$

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Let's the equivalent PDA

$P = (\{q\}, \{a, b\}, \{a, b, X, S\}, \delta, q, S)$

where  $\delta \rightarrow$

$\delta(q, \epsilon, S) = \{(q, XS), (q, \epsilon)\}$

$\delta(q, \epsilon, X) = \{(q, aXb), (q, Xb), (q, ab)\}$

$\delta(q, a, a) = \{(q, \epsilon)\}$

$\delta(q, b, b) = \{(q, \epsilon)\}$

Notes

Call

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Q2(ii) All strings of length at most 5.

DFA should accept the strings of length 5 such as 10110, 00000, 11111, 01101, ... etc. The transition diagram given by.

