Preparation Activity PA08 – Context-Free Grammars (CFGs) and Pushdown Automata (PDAs)

1. Consider the following grammar G:

   $S \rightarrow A1B$
   $A \rightarrow 0A \mid \varepsilon$
   $B \rightarrow 0B \mid 1B \mid \varepsilon$

   a) Draw a PDA that accepts the strings of L(G) by empty stack (use the method to convert CFGs into PDAs).
   b) Give the formal definition of the PDA.
   c) Show the trace of computation of the PDA when the input string is 10 (present only the trace to accept the string).
   d) Is the PDA deterministic or non-deterministic? Justify your answer.
   e) Transform the PDA into a PDA that accepts the strings of L(G) by final state.