40 Lecture - CS402

Important Mcqs

1. Which of the following is true about the conversion from a CFG to a PDA?

a) It is always possible to convert any CFG to an equivalent PDA.

b) It is not possible to convert any CFG to an equivalent PDA.

c) The resulting PDA will have fewer states than the original CFG.

d) The resulting PDA will have more states than the original CFG.

Answer: a

What is the purpose of converting a CFG to a PDA?

a) To reduce the number of rules in the grammar.

b) To make it easier to parse input strings.

c) To recognize the same language as the CFG.

d) To improve the efficiency of the parsing algorithm.

Answer: c

Which of the following is true about the stack used by the PDA?

a) It can only contain terminal symbols.

b) It can only contain nonterminal symbols.

c) It can contain both terminal and nonterminal symbols.

d) It does not play a role in the conversion process.

Answer: c

Which type of PDA is used for the conversion from a CFG?

a) Deterministic PDA (DPDA)

b) Non-deterministic PDA (NPDA)

c) Both DPDA and NPDA can be used

d) None of the above

Answer: b

Which of the following is true about the acceptance condition of the PDA?

a) The PDA must reach the final state to accept the input.

b) The PDA must reach the final state and the stack must be empty to accept the input.

c) The PDA must reach the final state and the stack must contain at least one symbol to accept the input.

d) The PDA must reach the final state and the stack must contain only terminal symbols to accept the input.

Answer: b

Which of the following is NOT a step in the conversion process?

- a) Create a start state and a final state for the PDA.
- b) Create a transition for each rule in the CFG.
- c) Assign each nonterminal symbol to a unique state in the PDA.
- d) Remove all nonterminal symbols from the grammar.

Answer: d

What is the purpose of the transition function in the PDA?

a) To move to a new state based on the current input symbol and the top symbol on the stack.

- b) To generate new symbols to add to the stack.
- c) To remove symbols from the stack.
- d) To determine whether the input string is valid or not.

Answer: a

Which of the following is true about the number of transitions in the PDA?

- a) The number of transitions is always equal to the number of rules in the grammar.
- b) The number of transitions can be greater or less than the number of rules in the grammar.
- c) The number of transitions is always less than the number of rules in the grammar.
- d) The number of transitions is not related to the number of rules in the grammar.

Answer: b

Which of the following is true about the conversion from a CFG to a PDA?

- a) It can only be done for regular languages.
- b) It can only be done for context-free languages.
- c) It can be done for any formal language.
- d) It cannot be done for any formal language.

Answer: b

Which of the following is true about the role of the stack in the PDA?

- a) It is used to keep track of the input symbols.
- b) It is used to keep track of the state of the PDA.
- c) It is used to keep track of the nonterminal symbols in the input string.
- d) It is not used in the conversion process