

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