41 Lecture - CS402

Important Mcqs

- 1. Which of the following languages is non-context-free?
 - a) {a^n b^n c^n | n ? 1}
 - b) {a^n b^n | n ? 1}
 - c) {a^n b^m c^n | n, m ? 1}
 - d) {a^n b^m c^k | n ? m or m ? k}

Solution: a) {a^n b^n c^n | n ? 1}

Which of the following grammars can generate non-context-free languages?

- a) Regular grammar
- b) Context-free grammar
- c) Context-sensitive grammar
- d) Unrestricted grammar

Solution: c) Context-sensitive grammar and d) Unrestricted grammar

Which of the following is an example of a non-context-free language?

- a) The language of regular expressions
- b) The language of context-free grammars
- c) The language of Turing machines
- d) The language of palindromes

Solution: d) The language of palindromes

Which of the following is an example of a context-sensitive grammar?

- a) S?aSb!?
- b) S? aB | bA
- A ? aAa | ?
- B ? bBb | ?
- c) S ? AB
- A ? aAa | ?
- B ? bBb | ?
- d) S?aSb |?
- S ? bSa | ?

Solution: c) S? AB, A? aAa | ?, B? bBb | ?

Which of the following is true about non-context-free languages?

- a) They can be recognized by a finite automaton.
- b) They can be generated by a regular grammar.
- c) They can be generated by a context-free grammar.
- d) They require more powerful formalisms than context-free grammars.

Solution: d) They require more powerful formalisms than context-free grammars.

Which of the following is an example of a non-context-free language?

- a) The language of all strings that contain an equal number of 0s and 1s
- b) The language of all strings that contain at least two consecutive 1s

- c) The language of all strings that are palindromes
- d) The language of all strings that begin and end with the same symbol

Solution: c) The language of all strings that are palindromes

Which of the following is an example of a context-sensitive grammar?

a) S?aSb |?

b) S ? AB

A ? aAa | ?

B ? bBb | ?

c) S? aAaBb | bBbAa

A ? aA | ?

B?bB|?

d) S ? aBc | Bc

B?bB|?

Solution: c) S? aAaBb | bBbAa, A? aA | ?, B? bB | ?

Which of the following is true about the Chomsky hierarchy?

- a) Non-context-free languages are a subset of context-free languages.
- b) Context-free languages are a subset of regular languages.
- c) Regular languages are a subset of non-context-free languages.
- d) Unrestricted languages are a subset of context-sensitive languages.

Solution: b) Context-free languages are a subset of regular languages.

Which of the following is an example of a non-context-free language?

- a) The language of all strings of the form a^nb^n
- b) The language of all strings of the form a^nb^