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^