# 24 Lecture - CS402

# **Important Mcqs**

1.	What is the complement of the language {a, b} over the alphabet {a, b, c}?  a) {a, b, c}  b) {c}  c) {aa, bb, ab, ba, ac, bc, ca, cb}  d) {?}  Answer: c) {aa, bb, ab, ba, ac, bc, ca, cb}
	Which of the following is true about the complement of a regular language?  a) It is always regular. b) It is never regular. c) It can be regular or non-regular. d) None of the above. Answer: a) It is always regular.
	What is the complement of the language {?} over the alphabet {0, 1}? a) {?} b) {0, 1} c) ? d) {00, 11} Answer: c) ?
	Which of the following is true about the complement of a context-free language?  a) It is always context-free. b) It is never context-free. c) It can be context-free or non-context-free. d) None of the above.  Answer: c) It can be context-free or non-context-free.
	What is the complement of the language {a^n b^n   n ? 0} over the alphabet {a, b}?  a) {a^n b^m   n ? m}  b) {a^n b^m   n = m}  c) {a^m b^n   n ? m}  d) {a^m b^n   n = m}  Answer: a) {a^n b^m   n ? m}

Which of the following is true about the complement of the empty language?

- a) It is the empty language itself.
- b) It is the universal language.
- c) It is both the empty language and the universal language.
- d) It is neither the empty language nor the universal language.

Answer: b) It is the universal language.

What is the complement of the language  $\{a^n \mid n ? 0\}$  over the alphabet  $\{a, b\}$ ?

a) {a^n b^m | n?m}

- b)  $\{a^n b^m | n = m\}$
- c) {b^n | n ? 0}
- d) {a}

Answer: c) {b^n | n ? 0}

## Which of the following is true about the complement of a regular language?

- a) It is always a context-free language.
- b) It is always a regular language.
- c) It can be a context-free language or a non-context-free language.
- d) It can be a regular language or a non-regular language.

Answer: d) It can be a regular language or a non-regular language.

### What is the complement of the language {a^n b^n c^n | n ? 0} over the alphabet {a, b, c}?

- a) {a^n b^m c^k | n ? m or n ? k}
- b)  $\{a^n b^m c^k \mid n = m \text{ and } n = k\}$
- c) {a^n b^n c^n | n ? 0}
- d) {a^n | n ? 0}

Answer: a) {a^n b^m c^k | n ? m or n ? k}

### Which of the following is true about the complement of a non-regular language?

- a) It is always a regular language.
- b) It is never a regular language.
- c) It can be a regular language or a non-regular language.
- d) None