

# 23 Lecture - CS402

## Important Mcqs

1. Which of the following is a regular language?

- a)  $\{anbn \mid n \geq 0\}$
- b)  $\{anbn \mid n > 0\}$
- c)  $\{anbm \mid n \geq m\}$
- d)  $\{an \mid n \text{ is prime}\}$

Answer: a)  $\{anbn \mid n \geq 0\}$

Which of the following operations does not result in a regular language?

- a) Union
- b) Concatenation
- c) Kleene star
- d) Intersection

Answer: d) Intersection

Which of the following is a regular expression for the language consisting of all strings of 0's and 1's that do not contain the substring 11?

- a)  $(0+1)11(0+1)$
- b)  $(0+1)0(0+10)$
- c)  $(0+1)(1+01)$
- d)  $(0+1)1(0+01)$

Answer: d)  $(0+1)1(0+01)$

Which of the following is not a regular language?

- a)  $\{0n1n \mid n \geq 0\}$
- b)  $\{0n1n \mid n > 0\}$
- c)  $\{0n1m \mid n, m \geq 0\}$
- d)  $\{0n \mid n \text{ is a perfect square}\}$

Answer: d)  $\{0n \mid n \text{ is a perfect square}\}$

Which of the following is a regular expression for the language consisting of all strings of 0's and 1's that end with 01?

- a)  $(0+1)^*01$
- b)  $(0+1)^*0(1+01)$
- c)  $(0+1)^*1(0+1)^*01$
- d)  $(0+1)1(1+01)$

Answer: c)  $(0+1)^*1(0+1)^*01$

Which of the following is a regular expression for the language consisting of all strings of 0's and 1's that contain at least one 0 and one 1?

- a)  $(0+1)01(0+1)$
- b)  $(0+1)^*0(0+1)1(0+1)$
- c)  $(0+1)^*0+(0+1)1+$
- d)  $(0+1)$

Answer: b)  $(0+1)^*0(0+1)1(0+1)$

Which of the following is a regular language?

- a)  $\{w \mid w \text{ contains an equal number of 0's and 1's}\}$

- b)  $\{w \mid \text{the length of } w \text{ is a prime number}\}$
- c)  $\{w \mid w \text{ contains a substring of three 0's}\}$
- d)  $\{w \mid \text{the number of 0's in } w \text{ is equal to the number of 1's in } w\}$

Answer: d)  $\{w \mid \text{the number of 0's in } w \text{ is equal to the number of 1's in } w\}$

Which of the following is a regular expression for the language consisting of all strings of 0's and 1's with an even number of 0's and an odd number of 1's?

- a)  $(0+1)^*00(0+1)11(0+1)$
- b)  $(0+1)^*01(0+1)10(0+1)$
- c)  $(0+1)^*0(0+1)^*1(0+1)^*1$
- d)  $(0+1)^*0(0+1)^*1+$

Answer: c)  $(0+1)^*0(0+1)^*1(0+1)^*1$

Which of the following is not a regular language