

1. Suppose $C = \{w \mid w \text{ has an equal no. of 0s and 1s}\}$ is regular. Consider $s = 0^p 1^p$, where p is the pumping length for C . Suppose $s = xyz$, where x is ϵ . Which of the strings below would still be in C ?

(3 points)

- ✓ 1. xyz
- 2. $xyyz$
- 3. $xyyyz$
- 4. all of the above

2. Suppose $C = \{w \mid w \text{ has an equal no. of 0s and 1s}\}$ is regular. Consider $s = 0^p 1^p$, where p is the pumping length for C . Suppose $s = xyz$, where x is ϵ . Which of the strings below would still be in C ?

(3 points)

1. xz
2. $xyyz$
3. $xyyyz$
- ✓ 4. none of the above

3. The **minimum pumping length** (mpl) for a language A is the smallest integer p that is a pumping length for A. It can be shown that the mpl is the **maximum** number of transitions you can take in a minimized DFA for the language without repeating a state. For the language A defined by the reg. expression 01^* , the mpl is 2. What would be the mpl of the language B defined by the reg. expression 0001^* ?

(3 points)

- A. 5
- ✓ B. 4
- C. 3
- D. 2