Fast

**National University of Computer and Emerging Sciences, Karachi**

**FAST School of Computing  
Quiz # 1  
February 28, 2022**

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| **Course Code: CS3005** | **Course Name: Theory of Automata** | |
| **Instructor Name: Mr. Musawar Ali** | | |
| **Student Roll No:** | | **Section No:** |

**Instructions:**

* Read each question completely before answering it. There are **5 questions** on **2 pages.**
* In case of any ambiguity, you may make assumption. But your assumption should not contradict any statement in the question paper.
* **Cutting and over-writing is strictly discouraged.**

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**Total Time**: 30 minutes **Maximum Points**: 35

**Question # 1 (5 Points)**

CACb would create ambiguity while parsing

**Question # 2 (5 Points)**

Let’s assume that we have a language what would be union of these languages.

**Question # 3 (5+5 Points)**

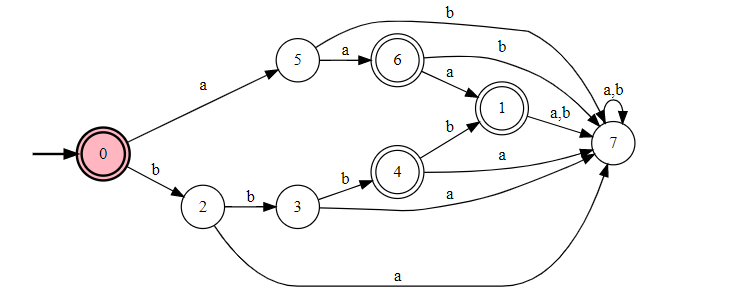
Write down the RE for following languages.

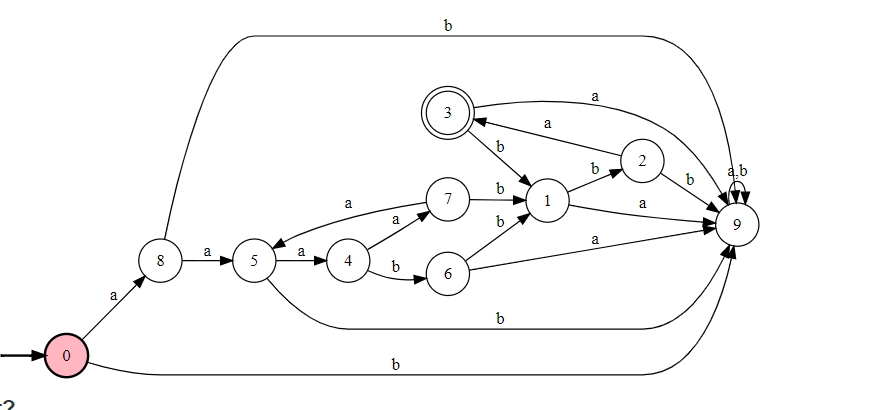
Note: w is already >3

1. {
2. Language of the words that **start and end with different double letters** and have **aaa** as a substring.

**Question # 4 (5+5 Points)**

Design the FA for following languages





**Question # 5 (5 Points)**

Convert the following NFA to DFA.

Send the missing transition to the dead state it would become DFA

