Homework 04

Guidelines for homework assignments:
- All homework assignments should be neatly written with answers to questions presented in numerical order. Make sure that you attempt problems starting at the top of the sheet proceeding downward. Have enough empty space between one problem and the next.
- Be sure to answer all parts of each question.
- Your answers must contain detailed work and explanations for your steps. This is a MUST. 50% of credit will be deducted from your score if no detailed work is shown. To get full credit, you must show all your work.
- Your submission must be in PDF format, any other formats will not be accepted on Canvas.
- Late submission is not accepted.
- Email submission is not accepted. You must submit your homework assignments on Canvas.
- Your instructor will deduct points if your answer is hard to understand because of poor grammar or poor handwriting.

P01. Regular Language (20 points)

For the following pair of regular expressions, find the Finite Automaton that defines $L_1 \cap L_2$:

$$L_1 : (a+b)^* a$$
$$L_2 : (a+b)^* aa (a+b)^*$$

P02. Non-regular Language (10 points)

Use the pumping lemma to show that the following language is non-regular: $\{a^n b^{2n}, n > 1\}$