

Homework 07**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. CFG = PDA (20 points)

- (10 points) Convert the given CFG to its CNF
- (10 points) Construct a PDA that accepts the same language generated by the given CFG using the algorithm of Theorem 30:

$$S \rightarrow XaaX$$

$$X \rightarrow aX \mid bX \mid \Lambda$$

P02. CFL (10 points)

Find a CFG for this language: All words that start with an a or are of the form $a^n b^n$