


# National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Theory of Automata	Course Code:	CS301
	Degree Program:	BS(CS)	Semester:	Spring 2024
	Section:	6A	Marks:	
	Assignment	3	Deadline	27 <sup>th</sup> March 2024

**Q1: Convert the following CFG to CNF:(CLO-3)**

**(3\*10)**

**A)**  $S \rightarrow T U \mid V$   
 $T \rightarrow aT b \mid \epsilon$   
 $U \rightarrow cU \mid \epsilon$   
 $V \rightarrow aV c \mid W$   
 $W \rightarrow bW \mid \epsilon$

**B)**  $S \rightarrow ASA \mid aB$   
 $A \rightarrow B \mid S$   
 $B \rightarrow b \mid \epsilon$   
 $X \rightarrow A$

**C)**  $S \rightarrow a \mid aA \mid aB$   
 $A \rightarrow aBB \mid \epsilon$   
 $B \rightarrow Aa \mid b$