	Course Name:	Theory of Automata	Course Code:	
	Degree Program:	BS(CS)	Semester:	Spring 2024
	Section:	BCS-6D	Marks:	100
	Assignment	2	Deadline	

Q1: Generate (Context Free Grammar)CFG for the following:

a) (ab+ba)*.bba
b) L={$a^n b^m c^m d^n$; n,m>=2}
c) A language with words that have equal of as and bs (in no particular order)
d) { a i b j c k | i, j, k ≥ 0, and i = j or i = k }
e) { x ∈ {0, 1} ∗ | the length of w is odd and the middle symbol is 1 }
f) { i^a j^b k^c | a,b,c ≥ 0 and a+b = c }
g) {x ∈ {0, 1}∗ | symbol at position i is same as symbol at position i+2 and |x |≥ 2}
h) L={ $ai\ bj\ ck$; j=i+k;i≥0;k≥0 ; }
i) L={ $ai\ bj\ ck$; i≤2j; i≥0;k≥0 ; }
j) L={ $ai\ bj\ ck$; i≥2j; i≥0;k≥0 ; }