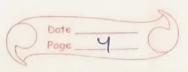
	Practice CFG	Page O
		U20CS110 Krishna Panday
Ous	I Convert the following gra	mmer into CNF
(.	$S \rightarrow BAB B E$ $B \rightarrow 001E$	
	$S \rightarrow B \mid E$ remove $B \rightarrow 00 \mid E$	al of useless symbol
	$S \rightarrow B _{\xi}$ (semo	val of E product?)
	S→ 001E (K	moval of unit product)
	$S \rightarrow XY \mid \mathcal{E}$ $X \rightarrow 0$ $Y \rightarrow 0$ CNF	restricting it to one-) terminal or 2 non-terminals
2.	$S \rightarrow a AbB$ $A \rightarrow aA a$ $B \rightarrow bB b$	$\begin{array}{c} \Rightarrow & S \rightarrow X \\ A \rightarrow PA q \\ B \rightarrow & \theta B \end{array}$
	$S \rightarrow PABB \qquad P \rightarrow q$ $0 \rightarrow b$	$P \rightarrow Q$ $Q \rightarrow b$ $X \rightarrow PA$ CNF
	$\begin{array}{c} A \longrightarrow PA q \\ B \longrightarrow BB b \end{array}$	Y→ 0B



		Page 2
3-	S -> IAlos	- CI. S-+ ASA I GB.
	20 IAAI CA	10
	$B \rightarrow OBB S$	
-	S -> XALYB	(mixed string -> solid NT) -
Tib	A -> XAALY	510
	B -> YBB 1	1/2×
-	S - XA YB	0100 000 000
	A - PA /YS	10 (n length -> 2 length -
	B - OBIXS	II NT NT
	$\rho \rightarrow \times A$	
	$0 \rightarrow \lambda B$	CNFIX AZA Z
		plaxlazald - a
	Max + Krim?	1 - 2
4-	$S \rightarrow qAD$	5 t- Y
	A - aB/bAB	
	$\beta \rightarrow b$	D 8X 103 4-3 6
Binzi	$b \rightarrow d$	ALANIAALA - A
Trie	- process	d - A
=)	$S \rightarrow X A B$	h - x
	A - XB BAB	(mixed -> Solid
	$\beta \rightarrow b$	8thing NT)
	$D \rightarrow d$	
		3 (2) 22 -2 +3 -
=)	$S \rightarrow PD$	(a lia Lange 2
17/1/2	A -> XBIBB	
	$A \times \leftarrow Q$	(n length > 2 length) -
	$\theta \to BA$	
	$\beta \rightarrow b$	(. (-)
	$D \rightarrow d$	CNE
	Hould of	1 + 1 21 - 15 to T
	mide / Ap	

		Date Page 3
	0 000	
5.	$S \rightarrow ASA \mid aB$	
	$A \rightarrow B1S$	
	B -> 6/8	1 211800 + 3
→	S - ASA aB a	OVJAX e- 2 c.
	A - BIS	(semoval 'E' product)
	B -> 6	12x 1 8x V a- 3
⇒	S - ASA a B a	3 Y A X + 2 G
a to	A -> 6/ASA/aB/a	(removal of unit produces)
	В → Ь	14 3x (0) + 0
		AYT
•>	S - ASA /XB/a	9140
	A > 6/ ASA/XB/a	
	В → Р	(mixed > solid) string NT
	$\chi \rightarrow q$	
	a halamala	9AJ 90 1- A
→	S - PA XB Q	
	A - b I PA I XB q	(n length -> 2 length)
	B → b	string NT)
	$\gamma \rightarrow q$ $P \rightarrow AS$ (NF	2001000
	P AS CNF	INA LUX - A
6 7	S → SS (S) E	P = U
		0910-26
£	$S \rightarrow SS \mid CS \mid C$	(removal of E product)
ANTONIA .	$S \rightarrow SS LSRILR$ $L \rightarrow C$	4149
	R)	(mixed - solid) string NT
		NI J
	S + SS/VR/LR	Co Length 2 langer
	V -> LS	CNF (n length -> 2 length) String 8tring
	L+(R+)=	
4		



	Page 9
Ques	Convert the following CFG into GNF
1000	S-ABBLA
1	$A \rightarrow aaA1b$
	B - 6A6 BB ABB 9
	S S S S S S S S S S S S S S S S S S S
=	S - ABY Q
	A - XX A I B
	B - YAY YBB ABB a
	$X \rightarrow \alpha$ (mixed \rightarrow solid NT)
1	Y -> 6 8tring
-	ALABE + 18
	$S \rightarrow AP q$
	$A \rightarrow \times 8/1$ $B \rightarrow \times 1 \times$
-	$X \rightarrow Q$
-	
-	P -> BY (Convented to CNF)
-	0 -> XA CNF
-	$R \rightarrow AY$
	T -> BB
	(3) 16: + 1
	S-6P19
	$A \rightarrow a0/6$
	B - bRIBTIG
	X - a (Convented to GNF)
1944	Carlotte To the state of the st
	P - ax (GNF)
-	$0 \rightarrow aA$
	$R \rightarrow b y$ $T \rightarrow a B$
	T -> Q B
1000	time & loreness) The Table of

	Date		
(Page_	5	
4			

	Page 5
2-	\rightarrow S \rightarrow AB
	$A \rightarrow BS \mid b$
	$B \rightarrow SA q$
	planaterilia - 8
	$S \rightarrow AB$
	A -> BAB/b (removal of left recursion)
	$B \rightarrow ABA q$
	plasa lasy Ivay = 3
19 14	S -> bB
14	A -> a AB / b (converted to GNF)
	$B \rightarrow bBA a$
	0199 4-2
3.	E→ E+T/T
	T -> T*F/F
	F > id(E)
ユ	モ→ † モ'
	31 137+ 4-13
	T -> FT'
	F - id/(E) (removal of left recursion)
	F -> 1d/(E)
	all days
	E -> TE'IT
	E + TE 1 + T
Allel	7 → F71 /F
	TI -> *FT 1 *F (semoval of Null produce)
	F -> id (E)
7	$E \rightarrow TE' FT' id (E)$
	$E^{1} \rightarrow +TE^{1}+T$
	T -> FT' id/(E) T' -> *FT' *F Cremoral of unit product
	T' -> *FT *F Cremoral of unit product
	F → 1d [(E)

TE' FT' I JP ILER I I DI LER [xmoval of mixed string and working into solid NT → JDILER FT' | ID | LX (Converted into CNF)

