	Name: Sanket Chandrashekhar Harvande
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	TCS - Assignment No. 04
	To a such that a factor and a such that a
	in F = Finite, set of ilmol afakes = c co
0.1	Define PDA:-
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	> Definition: - PDA is used for recognizing CFL which
2.5	is generated by CFG.
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	the property of beat and beat all and the property of the beat and the beat and beat all and the beat and beat and beat all and the beat and beat and beat all and beat and be
	finite with the last
	State
	Control
	stack push/down state
	Components of PDA
	PDA consists of finite set of states, input tape
	and read head and stack.
-	Working:
	representation and it is defined as follows
	representation and ILIS actives wo retross
	M = (Q, E, [, 8, 20, Zo, F)
	where,
	g = finite set af states
	5 = i/p alphabet
_	[= Stack alphabet
	6 = Transition Function
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	δ = Q x \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	q = startistate q FQ
	zo = Initial stack top symbol Zo E F F = Finite set of final states F = Q
	· Add shipme
9.2	Write a short note on Applications of PDA.
	The applications of Pushdown automata are as follows
	- Used in the syntax Analysis phase.
	- Implementation of stack applications
	- Used in evaluating of the arithmetic expressions
	- Used for solving the Tower of Hanoi Problem.
	tus) l'estads
9.3	Design PDA for the following.
i)	L= {a^m b^n n < m }
- Santa	core solute to the stand is some and
ii)	L = {a^n b^n c^m d^m n, m>= 1}
iii	$L = \{a^n b^m a^n n, m = 1\}$
1	at never gaiser between the stage great the
	$L = \{a^m b^n \mid n < m\}$
	= 20 b 112 mg
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Office of the second $\delta(20, a, Z_0) = (20, A Z_0)$ $\delta(20, b, A) = (2, E)$ $\delta(q_0, a, A) = (q_0, AA)$ $\delta(q_1, b, A) = (q_1, E)$ $\delta(q_1, E, A) = (q_2, A) \circ R(q_2, E)$ M = ({ 90,9,9, 9, } , {a,b}, {A,B, Zo}, o, 90, Zo, {92}) a, Zo AZO a A I A A E,AIE $(\epsilon, z_0 | \epsilon)$ or $\epsilon, z_0 | z_0$ (empty stack) $\mathcal{L} = \{ a^{\eta} b^{\eta} c^{m} d^{m} \mid n, m \geq 1 \}$ $a_1z_0|Az_0$ $b_1A|E$ $c_1C|CC$ $c_1C|CC$ $c_1C|E$ $c_1C|E$ $c_2|E$ $c_3|E$ $c_1Z_0|CZ_0$ $c_1Z_0|CZ_0$ $c_1Z_0|CZ_0$ $c_1Z_0|CZ_0$ M=({90,91,92,93}, {a,b,c,d}, {A,B,c,D}, 8,90, Zo, \$) iii) L={anbman |m,n>1} CAR E :. M = ({ 90, 9, 92}, {a,b}, {A, Zo}, S, 90, Zo, \$)

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