of Panda

Cg!	For two variables Pand Co, there are 2= 5 minterms
	PAQ TT
	PATRIF
	7Price FT
	TPATCE EF
1	a sais
	Procedure à Fox every truth table T.
No.	Procedure: 1: For every truth table Tinke truth table of the given statement Choose
	mintreorm which also has the value T for the
	Samuel Miller allow Massive Marger and A
	Same combination of truth values of pants
	The sum of these minterns will then be equivaled
	to the given statement
-	P a la cal
	Pray
	THE THEORETICS
	TFT -> All Three true values
1	FIT TEONSIDERES as PONF
	(PAQ) U(PA-TQ) V GPMQ)-PONE
	Gron trel
	obtain the PDNF of 7 PV ce
	7PVU - Boolean Sum
	Sum of Aralia
	a p
1.1	[7PA (0×70)] V [cen(Pu7P)
	(7 PNO)V(7PN 70) V (PNCe)V(7PNCe)
	in some of the solution of the
444	PDNF= IminI, mino, ming
	$=\sum_{i}o_{i}l_{i}Q_{i}$

(mi

e1	(P->a) A-(7PA@)
mi dudul	(7p v a) 1 (7p a)
IX A	= (7PACO) N (7PV Ce)
E 1000	~ (7pn(Qn7t) V (1pnQnQ)
	= (7PA7PACE) V (7PACEACE)
	- (7Pnce) v (7Pnce)
	1 CPCUE
	Principal Conjunctive normal form (PCNF)
	A STATE OF THE STA
Ans!	Oproduct of sums canonical form.
	For a given formula, an equivalent formula
	consisting of conjunctions of maxterns only.
	form is not unique for the given Stateme
بالع ليل	The state of the s
	Max ferms
<u>(r</u>	Let P and & be two propositional variables
(2)	All possible formulas which consist of sum of
	orits negation and sum of a orits negat
	but should not contain both the variable
	and its negation in any one of the formula
	calle & Maxterms of Pand Ce
4	e la
Pg.	Fortwo variables Pand of there are 2=1
J	PVa
67	PV 74
B	7PVa
6	7PV70
	I Samuel Andrew March Control

Capable Capable

	Procedure 1: For every truth table F in truth toble
<u></u>	man diva of La - I al valle of P wall XTCV will
-	CONCOLLAR LAR NOTICE TOX THE NAME C
	I DE ELE TYLE VAILED AT PLANT IN THE PYOLIT
	of these maxterms will then be equivalent to the
	given Statement
	P D D D D D D D D D D D D D D D D D D D
100	Pa Pray
	TITIT TO DIL Home false Values will some
	THE CALL STATE OF THE CONTRACT
- A	The state of the s
	The second secon
You was	(TPVQ) N(PV-7CR) N(PVQ) - PCNF
20.1	Districte Paristalant Com C Con Cillian A
	and obtain PCNF.
- 1	7 (P-> co)
a Straktor, dail	
ANS	767P vc@ \ 1
FING	D. 100
	[PV(QUAZQ)] N[ZQV(PAZQ)]
	(1)
Υ -	(P V 4) 1 (P V 70) 1 (70 VP) 1 (70 V7P)
27	7(Pvu)
9	
AN	79176
51,0	
	7 P V (Q 17 a) n 7 Q V (P17P) (7 P V a) N (7 PV 7 a) N (7 Ce V P) N (7 Ce V)
	(1 P V V) 1 (7 Ce V P) 1 (7 Ce V P) 1 (7 Ce V P)

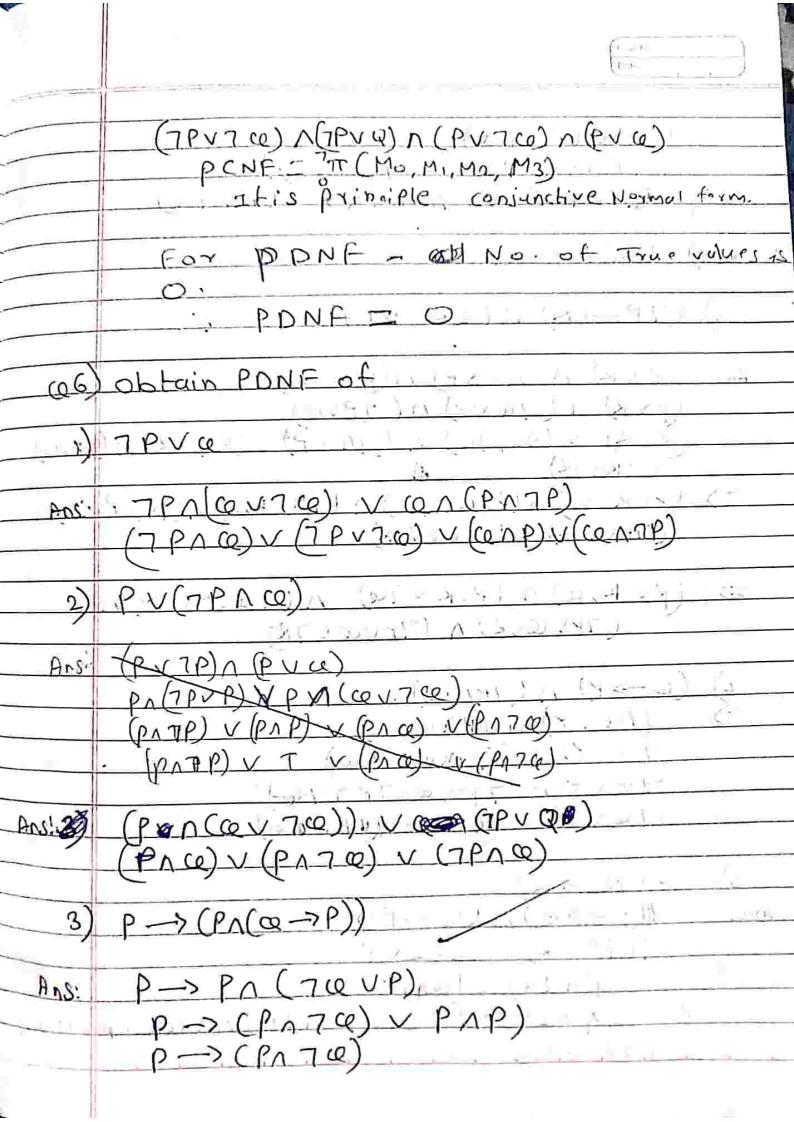
Localing And T(P=Q) Ich And T(P=Q) \((Q > P) \) Linearly Porce \(\text{V} \) \(\text{Q} \) \(\text{V} \) Linearly Porce \(\text{V} \) \(\text{Q} \) \(\text{V} \) Linearly Porce \(\text{V} \) \(\text{Q} \) \(\text{V} \) \(\text{P} \) \(\text{P} \) \(\text{Q} \) \(\text{P} \) \(\text{Q} \) \(\text{P} \) \(\text{Q} \) \(\text{P} \				
Lich has T(P > Q) \ (Q > P)) In prop \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ble	3	7(PE'Ce)	=
thination ANS 7(P => Q) N (Q > P) TO P V Q) V (ICQ V P) TO P V Q) V (ICQ V P) TO P V Q N P V (QN P) TO P V Q N P V (QN P) TO P V Q N P V TQ N (IQVP) N (IQN P) N (IQVP) N	ich			=
TOPVON V (TOV) ANTO V CONTR PNTO V CONTR A (TPO) V (ONTO) - PVON PV TO A (TOVP) A (TONTP) A CONP) A (ONTR) A (TPVON) A (TPVTO) TO TOPO A (ONTO) A (TPVON) (ONTO) A (TPVON) A (TPVON) (ONTR) V (TPARAR) V (TPATO ATR) ANTITE F F T F F F F F F F F F F F F F F F F		AN!	7(p->a) ~ (a->f))	
PATCE V CATP PV CANTA) N (7 CO V (PATP) N CO V (PATP) A (TPO) V (CANTO) CAVP) N (AVTP N (TOVA) N (TOVA) CAVP) N (AVTP N (TPVA) N (TPVTC) TO SHAIN PRODUCT OF COMMONICAL NORMAL FORMS FOR THE FOLLOWING 1) (PACE NR) V (TPARAR) V (TPATE ATR) AND THE F F T F F F F F F F F F F F F F F F F	F		76 pv (e) v (1 ce v P)	_
TO PRIVE (QNTQ) TO PVEN PV TO NOTONITAL NOVIMAL FORMS TO STAIN PROJUCT OF CONNONITAL NOVIMAL FORMS FOR THE FOLLOWING 1) (PNO NR) V (7PARAR) V (7PATQ ATR) AN: POR TP TO TR PACOND TPAPAR TPATANTR A MO TITTE FETTE FETE MY TETETE FETE MY TETETE FETE MY TETETE FETE MY TETETE FETE MY FETTETE FETE MY FETTET FETE MY FETTET FETE MY FETTET FETE MY FETTET TETETE MY FORMAL MY	the		DATCE V CENTA	_
COUP) N (QV7P) N (7QN7P) N (7QN7P) N (QV7P) N (Q	/		OVCQATQ) N (7 COV (PATP) N COV(PAT	-1
COUP NO PYTO A (TOVP) A (TONTP) A COUP A (QVTP A (TPVQ) A (TPVTQ) THE COS) Obtain Product of Cannonical Normal Forms for the following 1) (PAQAR) V (TPARAR) V (TPATQATR) ANTITE F F T F F F T MO TITE F F T F F F F MA FITT F F F F F F F F F MA FITT F F F F F F F F F MA FITT F F F F F F F F F MA FITT F F F F F F F F F MA FITT T F F F F F F F F MA FITT T F F F F F F F F MA FITT T F F F F F F F F F MA FITT T F F F F F F F F F MA FITT T F F F F F F F F F MA FITT T F F F F F F F F F F MA FITT T F F F F F F F F F F F MA FITT T F F F F F F F F F F F F F F F F			1/7PQV(Q17Q)	_
COS) Obtain Product of Cannonical Normal Forms for the following 1) (PNO NR) V (7PARAR) V (7PATO ATR) AN: POR TP 70 TR PACOARD) TPAPAR TANGARA A MO TITT F F F T F F F MY TF TF TF F F F F MY TF TF TF F F F F F MY FT TT F F F F T F F F MY FT TT F F F F T F F F MY FT TT T F F F T F F F MY FT TT T F F F T F F F T MY FT TT T F F F T F F T MY FF TT T T F F F T F T MY FF TT T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T T F F F T T MY FIFT T T T T T T T T T T T MY FIFT T T T T T T T T T T MY FIFT T T T T T T T T T T T T T T T T T			= prenprie 1 (70 VP) 1 (70 17P)1	_
COS) Obtain Product of Cannonical Normal Forms for the following 1) (PNO NR) V (7PARAR) V (7PATO ATR) AN: POR TP 70 TR PACOAR) TPAPAR TATOMAR A MO TITTE F F T F F F MY TETF TE F F F MY TETF TE F F F MY TETEF F T F F F MY FITT TE F F F T MY FITT TE F F T MY FIFT T T T F F F T MY FIFT T T T F F F T MY FIFT T T T F F F T MY FIFT T T T F F F T MY FIFT T T T F F F T MY FIFT T T T T F F F T MY FIFT T T T T F F F T MY FIFT T T T T F F F T MY FIFT T T T T F F F T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T T F F F T T MY FIFT T T T T F F F T T MY FIFT T T T T T F F F T T MY FIFT T T T T T T T T T T MY FIFT T T T T T T T T T T MY FIFT T T T T T T T T T T T T T T T T T			CUVP) A (QV7PA (7PVQ) A (7PV7Ce)	-
I) (PN@NR) V (7PARAR) V (7PAT@NTR) ANS: POR TP 70 TR PN(QNR) TPAPAR TPATANTR A MO TITT F F F T F F F MO T F T F F F F F F F F F MO T F T F F F F F F F F F F MO T F T F T F F F F F F F F F F F MO F F T T T F F F F F F F F F F F F F F	rel			_
I) (PN@NR) V (7PARAR) V (7PAT@NTR) ANS: POR TP 70 TR PN(QNR) TPAPAR TPATANTR A MO TITT F F F T F F F MO T F T F F F F F F F F F MO T F T F F F F F F F F F F MO T F T F T F F F F F F F F F F F MO F F T T T F F F F F F F F F F F F F F		(03)	Obtain product of Cannionical Normal Forms	_
1) (PN@NR) V (7PARAR) V (7PA7@ATR) AN: POR TP 70 TR PN(QND) 7PAPAR 7PATONIR A MOTIT F F F T F F F TYTY F F F T F F F M3 T F T F T F F F F M4 F T T T F F F T F M5 F T F T F F F T M6 F F T T T F F F F M6 F F T T T F F F T M7 P F F T T T F F F T M8 P T T T T F F F T M9 P F T T T T F F F T M9 P F T T T T T F F F T M1 P F T T T T T F F T M1 P F T T T T T F F T M2 P F T T T T T T T T T M3 P F T T T T T T T T T T T M4 P F T T T T T T T T T T T M8 P T T T T T T T T T T T T T T T T T T		£	or the following	=
AN: POR TP 70 TR PN(QND) TPNPAR TONTONTR A MO TIT F F F T F F F MO TOT F F F T F F F MO TOT F F F F T F F MO TOT F F F F T F F MO TOT F F F F F F MO TOT F F F F F F MO TOT F F F F F F MO FOR TOT F F F F F F MO F F T T T T F F F F T MO F F T T T T T F F F T MO F F T T T T T F F F T MO F F T T T T T F F F T MO F F T T T T T F F F T MO F F T T T T T F F F T MO F F T T T T T F F F T MO F F T T T T T T T T T MO TOT MANAGEMENT TO THE TOT T MO TOT MANAGEMENT TO T MO TOT MANAGEMENT T MO TOT MANAGE			12 manya se (mayali	_
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MS FT. FT FT FT F F F T M6 FFTT T F F T M7 FFFT T T F F M8 FFTT T T M9 FFFT T T M9 FFFT T M1 => (NPVNq) UY) A M2 -> (NPVNq) UY) A M3 -> (ON PV QVY) A		F		
M6 FFTT TF F T T T T T T T T T T T T T T		F		_
MOPEFTTTE FTTT JT (M, M2, M3, M5). Product of Sun, M1 => (NP VNQ) UY) A M2 -> (NP VQ NY) A M3 -> (ON PV QVY) A				-
Tr (M, M2, M3, M5). Product of Sum M1 => (NP VNQ) UY) A M2 -> (NP V Q NY) A M3 -> (ON PV QVY) A			FITTE CTT	
$M_1 \Rightarrow (NPVNQ)UY) \Lambda$ $M_2 \Rightarrow (NPVQVY) \Lambda$ $M_3 \Rightarrow (PNPVQVY) \Lambda$	~	MO		_
$M_1 \Rightarrow (NPVNQ)UY) \Lambda$ $M_2 \Rightarrow (NPVQVY) \Lambda$ $M_3 \Rightarrow (PNPVQVY) \Lambda$			Later Commence to the commence of the commence	-
$M_1 \Rightarrow (NPVNQ)UY) \Lambda$ $M_2 \Rightarrow (NPVQVY) \Lambda$ $M_3 \Rightarrow (PNPVQVY) \Lambda$	~		TT (M, M2, M3, M5) · Product of Sun	-
M3 -> (ONPV GVY) N				
M3 -> (ONPV GVY) N		<u> </u>	2 -> (NPYQNY)A	
			•	
	-	~	1 -> (PV7QVY)	

	(been
2) (PAQ) V (PAZQ)	
PQ 7P 7Ce PACE 7PACE P M. T F F T F F T M. T F F T F F F M. T F F T F F F M. F T T F F F F	A70 A
Jr (Mg) - Product of Suns M3 = (PVar)	in to find the
3) (Præ) v (7Prænr) Pær 7Ppræ 7prørr	Δ Δ Ι
MO TTT F T F MO TTT F F F F	
MIFTTTF F	
MOFIFIT F F I	F I
$M_2 = (7P \vee (0 \vee 7R) \wedge 1)$ $M_3 = (7P \vee (0 \vee 7R) \wedge 1)$	luck of sum
$M3 = (7pVQUR)\Lambda$ $M5 = (PVVQVR)\Lambda$ $M6 = (PVVQVR)\Lambda$ $M7 = (PVQVR)$	

م له د 05) Obtain the principal disjunctive and conjunct Normal form formulas a) (7PV7@) -> (P=>7070) 7 (7PV700) V ((P->700) N (700->P)) Pra) v ((7Pv7a)) r (a vP)) PAQ) V ((7PA (QVP)) V (7QA (QVP) PNCE) V ((7PnCe) V (7PNP)) V (7C/Q/Q) V (7C/P) (Price) V ((7Price) V (7CerP)) - Sun of Product Disjunctive Normal form. (7PV70) -> (P=>70) 7(7PV70) V((P→76) N(76→P) (PNO) v ((7PV70) N (QVP)) (PV ((7PV7@) N (@VP)) N (@V((7PV7@) N (@VP) (PV(7PV70)) n(PV(QVP)) n((QV(7PV7 Cavarp PV (7PV7@)) A (QVP) A (QV(7PV7@)-PC Conjunctive Normal form. P->(@AR)) A (7P->(7@A7R)) MAN. (7 PV GAR) A (POV(7GATR) (TPVQ) n (TPVR) n (PVZQ) n (PVZR) - product of sum conjunctive Normal form TPVONR) A (PV(70 A7R) IPAR) V FPMB) V(7PN7E) V(EN7CE) TPAR) V (7PATR) Disjunctive Normal form - Sum of Product

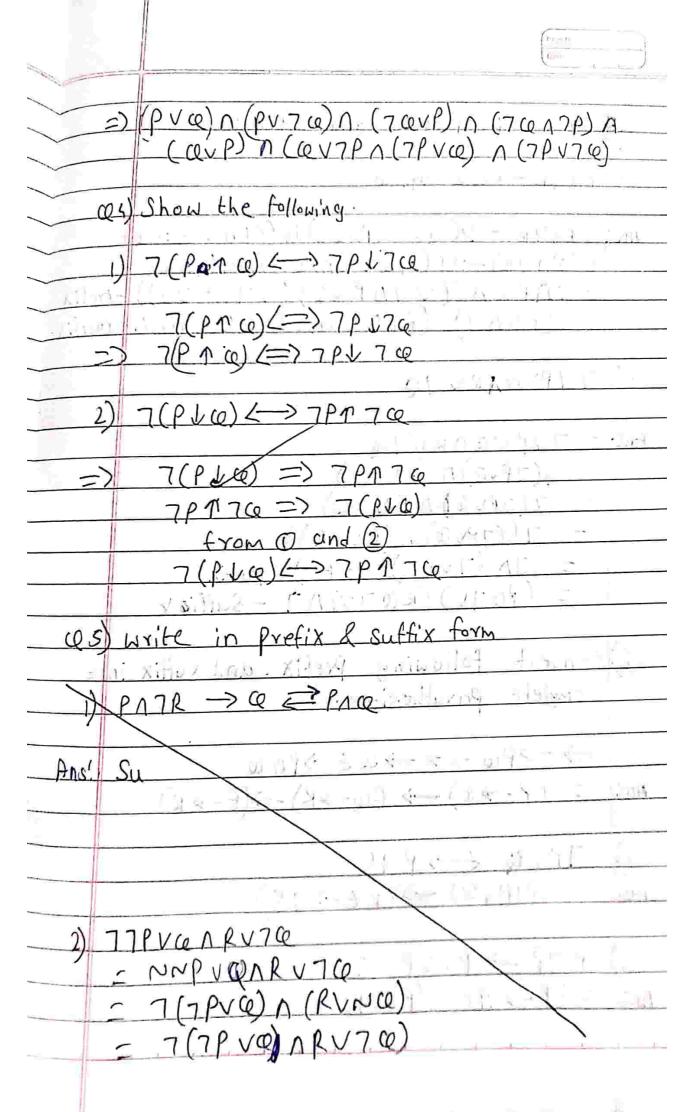
Dorto

0.5	Obtain PDNF/PCNF of using Truth Toble
(1)	7(Pnce)
Ans: A)	P ce 1 (Proc) 7 (Proc)
Mo	
,	T F F TI BU True Value
,	Concidence - Concidence
+i Ms	
- the same	(PA7Q) V (7PA7Q) V (7PA7Q)
	PDNF= 5 mi, ma, ma
	It is the Principle disjunctive
	Normal Form
B)	
) NA	Ce (Pna) 7(Pna)
1M.	TELE
PA ₂	FT F T AIL Falso values
Ma	E E CONSIDER DE NE
	(7PaV76)
	PCNE - TT (MO)
	It is the principle conjunctive Normal form
2)	7 P. 1 0
1	e grant to the State No. 1981
Ans'	Plo 7P 17Pn co
Mo	TIFF
M,	TFF All False values
Ma	FTT F CONSider as PCNF
Ma	FIFIT



Progrates (Sakar

(7PV(PN7@)) (7PN(@V7@) V(PN7@)))) (7PN(e) V(7PN7@) V(PN7@) Ce3) obtain PCNF of (7P→R) N(Q←>P) (PVR) 1 (Q->P) 1 (P->CO) PVR) n (7@VP) N (7PV@) 2 VR) V (@17@) N (7@VP) V (R17R) N (7PVG) V (RAZR) PURVO) A (PURVTO) A (TOUPUR) A (70EVPVTR)A (TPVOUR) A (70EVPVTR) (PV RUCE) N (PVR V7Ce) N (7CVPV7P) N (7PVCVR) N (7PVCV7R) A (7PAQ) 700 P) 1 (7P16) TPN(QV7Q) 7PAQ 7PA 700 76 VP) 1 (TO PUTE) NOPV 80) -> œ) P->@) n (@->P)) ALS' 7PVQ) V (7QVP) PATQ) U(QATP) PV (QA7CO) N(7QV(PN7P) N (CQV (PN7P) (7PV(Cen7ce)



Charge ha

COB) write in prefix and suffix form) PATR -> Ce COPACE Ans = (PN7R) -> (a -> (PNO)) N ((PNO)-> Ce) = (PN7R) -> ((70V (PNO)) N(7(PNO)) - prefix = 7PPRN((V7NP(O)) (V7NP(O)) - prefix = (PRN7) (PQ(OV7N) (POQV7N)N-POSHi) 2) 77PVCCARV70 Ans: = 77PVQNRV70 = 7(7PVG) n (RV7CO) 7 (7PVQ) 1 RV7Q) 7 ((7PVQ) n (RV7Q)) 71 (TVPC)(TVPC) - prefix (POTV) (ROTV) N7 - Suffice x cos) Convert following prefix and suffix into Complete payathesize. > -> pa -> -> ce (-> Pn a

Ans: = $(P \rightarrow Q) \rightarrow (Q \rightarrow R) \rightarrow (P \rightarrow R)$

2) 7PV@ (>) P7S PN: = (7PV@) ->(RE>>7S)

3) P7P→P→P→ ANS. = (P→7P)→(P→P)

