(1)	DISCRETE MATHEMATICS
	Unit - I Page No.:
	PROPOSITIONAL CALCULUS —
0	A DUDDITION OF THE COLOS
	A proposition is a sentence which is either trule or false but not both.
→	the use lotting in a continue.
	Rusposition
For	proposition.
	D = 0101: 11 0001 100
	Di The Mark of India.
	and it the sam of the odd integers is an
	eg:- P: 2+3=5 2: Deshi is capital of India. R: The sum of two odd integers is an odd integer.
	10 GUEDI DOFFOTODO
	LOGICAL OPERATORS -
	augual speratores are used to join tuo more
	proposition to four a new proposition.
	Logical operatores are used to join two more proposition to form a new proposition.
	Megation (~)
	The negation of a peroposition p is
	Negation (~) The negation of a phoposition p is denoted by ~p(not p)
	P: I go to market
	~ P: I do not go to market.
	Truth Table (Negation)
	PINPI
	TE
	FT
(9) N	O'llunation (DO /V)
(a)	asjunction (CR) V)
	The disjunction of two purposition P & Q
1	Oisjunction (OR/V) The disjunction of two purposition P & 9 is denoted by PV9
	P: I go to market
	9: I play football
P	va: I go to market or I play football. SAHYOG
	SAHYOG

PANP = TA(T) = TAT = T

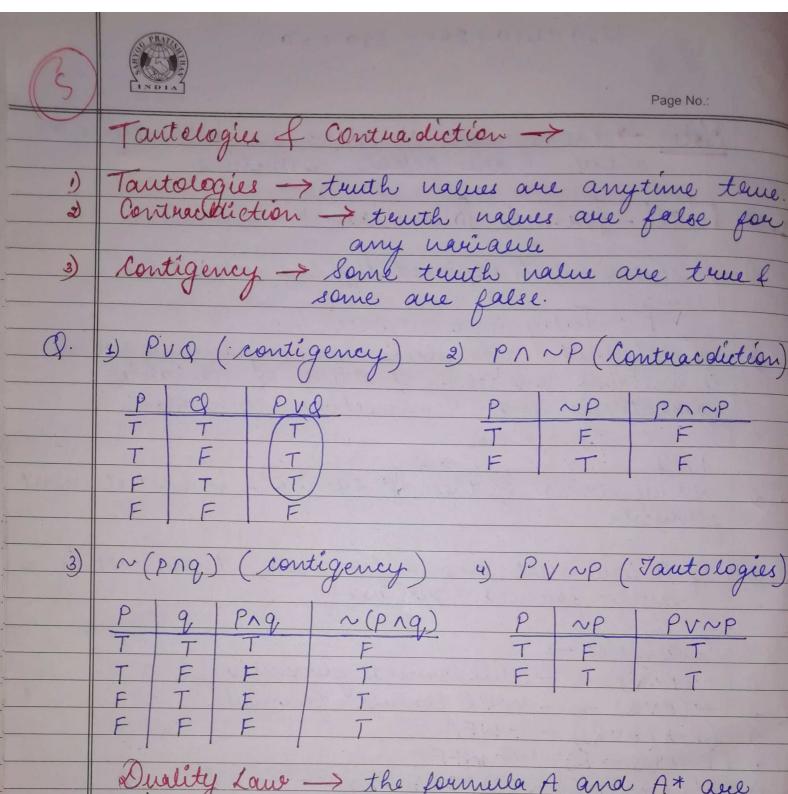
SAHYOG

~QA~R = ~TA~F = FAT = F

	Touth	Talele	, of leid	conditional	statement ->
	IP	19,	1 6009		
	T	T	T		
	IT	F	F		
	F	TI	F		NE 2 . 2 . 2
1	F	F	T		CATIV

Some ravialle should be their lufore 'or'

aprenator like (PAQ)



Duality Land -> the formula A and A* and Said to be duals of each other if either one can be obtained from another by suplacting 1 by v and V by 1.

If a formula A sontains special nativable Tou F then A*, its dual is obtained by suplacing T by F and F by T

lig: 1 (PVQ) 1 R (PAQ)VR





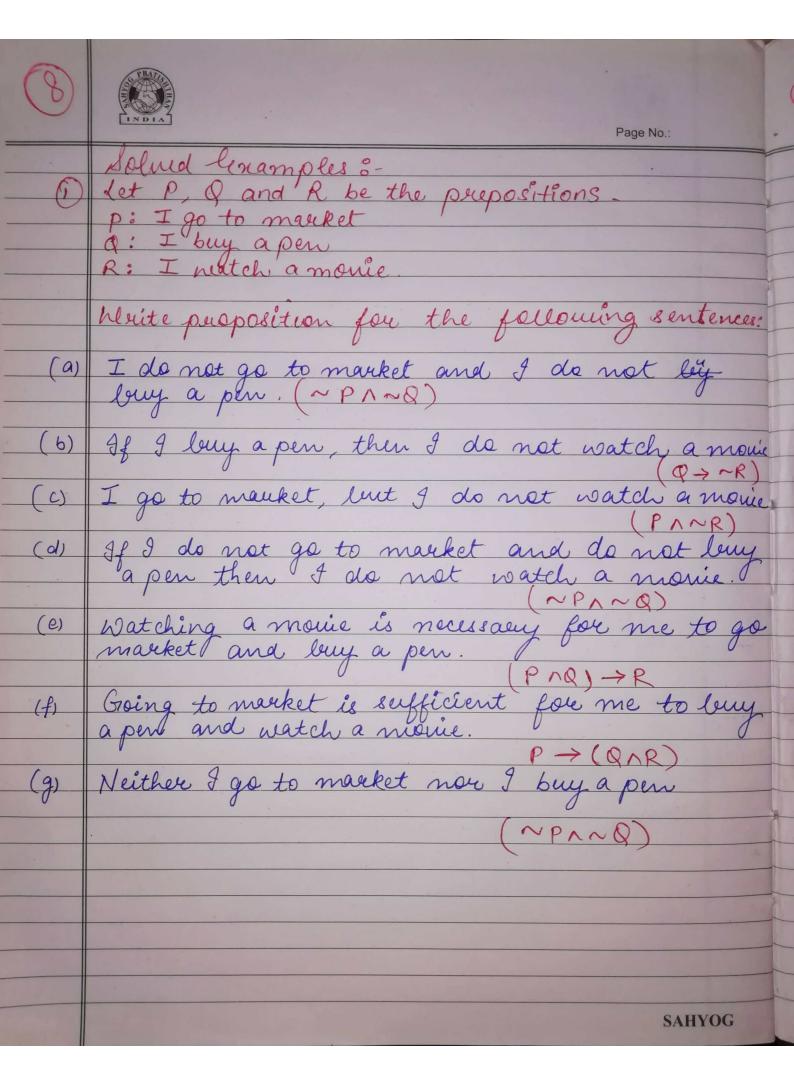
- s) Commutative laus :
 - (a) P v 9, = 9, v p
 - (b) prg = grp

- (b) (paq) ~ = pa(q ~ r)
- 7 Distributine lams:
 - (a) pv(q, rY) = (q, vq) ~ (pvr)
 - $(b) p \land (q, vr) \equiv (q, \land q) \lor (p \land r)$
- e) De Morgan's laus:
 - a) 7 (PAQ) = 7pv7q
 - (b) 7(PVQ) = 7P179
- a) Absorption laws:

 - (b) p ~ (p vq) = p
- 10) Negation laus:

 (a) PV7P = T

 (b) P^7P = F





lexample of leiconditional Statement ->

Let Plue a purposition "You get purmoted" and let q be a purposition "Yeu have connection.

p: You get promoted q: You have connection.

then P=>q is the statement: "You get promoted if and only if you have connection"

Show that NPVq and P->q are logically

ı	1.5				
	P	q	NP	~pvq	$p \rightarrow q$
	T	T	F	T	T
	T	F	F	F	F
	F	T	T	T	T
	F	F	T	T	T
ı					

 $p = p \rightarrow q$

Show that N(pvq) & NPANG are logically equivalen

P	9	~p	Ng	pvq	~(pvq)	NPANG
T	T	F	,F	T	F	F
+	F	F	T	T	F	F
F	T	T	F	T	F	F
C	F	T	T	F	T	T

~ (pvq) = ~p ~ ~q