Symbolic Logic –II
सांकेतिक तर्कशास्त्र – 2

eyHkr rkfdd l;ktd
Basic Logical Connectives

- 1. And - . vkf.k] o] i.k] ijr
- 2. Or - $\vee$ vFkok] fdok
- 3. Not - ~ ukgh] vl ukgh dh
- 4. Implies - $\supset$ tj rj]
- 5. Equivalence - $\equiv$ tj vkf.k tjp] rj vkf.k rjp

ifrfuo”kkp fu;e

(Rules of Replacement)

1.	D.Morgon -	$\sim (p \,.\, q) \equiv \sim p \vee \sim q$ $\sim (p \vee q) \equiv \sim p \,.\, \sim q$
2.	Transposition -	$(p \supset q) \equiv \sim q \supset \sim p$
3.	M. Implication -	$(p \supset q) \equiv \sim p \vee q$
4.	Double Negation -	$p \equiv \sim\sim p$
5.	Tautology -	$p \,.\, p \equiv p$ $p \vee p \equiv p$

ifrfuo”kkp fu;e

(Rules of Replacement)

6.	Commutation -	$p \cdot q \equiv q \cdot p$
		$p \vee q \equiv q \vee p$
7.	Association -	$p \cdot (q \cdot r) \equiv (p \cdot q) \cdot r$
		$p \vee (q \vee r) \equiv (p \vee q) \vee r$
8.	Distribution -	$p \cdot (q \vee r) \equiv (p \cdot q) \vee (p \cdot r)$
		$p \vee (q \cdot r) \equiv (p \vee q) \cdot (p \vee r)$
9.	Equivalence -	$(p \equiv q) \equiv (p \supset q) \cdot (q \supset p)$
10.	Exportation -	$[(p \cdot q) \supset r] \equiv [p \supset (q \supset r)]$

l[;kiuh; rd”kkL=

(Quantificational Logic)

- l[;kiuh; fo/kku rhu idkjph vlrkr·
- ,dokph fo/kku & T;kr doG ,d 0;Drh] oLr]?kVupk fun”k vlrk· T;kp fpUgkdu djrkuk R;k 0;Drh] oLr]?kVupk lkekU; ox dfiVy v{kjku rj fo”k’kkpk ox Leky v{kjku n”koyk tkrk·
  mnk & jke lnx.kh vkg· (Rx, Sx) = Sr
- dkghokph fo/kku & T;kr dkgh 0;Drh] oLr]?kVukpk fun”k vlrk· T;kp fpUgkdu djrkuk R;k 0;Drh] oLr]?kVupk fun”k (∃x) vlk d:u i<hy dlkr fpUgkdu dy tkr· ;kr doG l/kh okijrkr·
  mnk% dkgh 0;Drh ikekf.kd vlrkr· (Px, Hx) = (∃x) (Px . Hx)

lookph fo/kku & T;kr lo 0;Drh] oLr]?kVukpk fun"k vlrk- T;kp fpUgkdu djrkuk R;k 0;Drh] oLr]?kVupk fun"k (X) vlk d:u i<hy dlkr fpUgkdu dy tkr- ;kr doG 0; td okijrkr-

mnk% lo 0;Drh ikekf.kd vlrkr- (Px, Hx) = (X) (Px ⊃ Hx)

- **fpUgkdu djk-**

1- **lo lki fo'kkjh vlrkr-**

2- **dkgh QG xkM vlrkr-**

3- **gek ufrdk ukgh-**

4- **,dgh xjk[kh lf"kf{kr ulrk-**

5- **dkgh fon;kFkh vH;kl ulrkr-**

6- **dkgh Qy lx/kh ulrkr-**