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(c) These is no dog which can talk
P(x) x can talk
$\rightarrow \exists x\, P(x)$ Domain = Dogs

(c)(iii) These is no dog which Domain = All Animals
$\rightarrow \exists x\,(Q(x) \rightarrow P(x))$

Bhut si cheez ma → use Karta hain

Q F(P) = Prints P is at Same job

A(P) - Prints P is busy

L(j) - Prints Job j is lost

Q(j) - Print Job is Que'd

(a) $\exists p\,(F(p) \wedge A(p)) \rightarrow \exists j\, L(j)$

(b) $\forall p\ A p \rightarrow \exists j\, Q(j)$

(c) $\exists j\,(Q(j) \wedge L(j)) \rightarrow \exists p\, F(p)$

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Nested Quantifiers 1.4

Sum of Two +ve integer is +ve

$[\forall x\ \forall y]\ ((x>0) \wedge (y>0) \rightarrow (x+y>0))$

(a) $\forall x\ \exists y\ (x<y)$ Domain is Real Nos.

(b) $\forall x\ \forall y\ ((x\geq 0) \wedge (y\geq 0)) \rightarrow (xy \geq 0)$

(c) $\forall x \forall y \exists z\ (xy = z)$

Q $c(x,y)$ x is enrolled in course y

Domain of x: enrolled

(a) $c(Ali, CS2)$ Domain of y: course

(b) $\exists x\ c(x, Math)$

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(c) $\exists x\ C(Asad, x)$

Asad in enrolled in x

(d) $\exists x \exists y \forall z \left((x \neq y) \wedge (C(x,z) \rightarrow C(y,z)) \right)$

There exist two different student namely if x enrolled all the cause then y also inrolled

(e) $\exists x \exists y \forall z ((x \neq y) \wedge C(x,z) \leftrightarrow C(y,z))$

Domain = integers

$\exists n \exists m (n^2 + m^2 = 5)$

T for $n=1$ $m=2$

$\exists n \exists m (n^2 + m^2 = 6)$

F

$\exists n \exists m (n + m = 4 \wedge n - m = 1)$

T for $n=3$ $m=1$

$\forall n \forall m \exists p \left(p = \frac{m+n}{2}\right)$ F

$\exists m \exists n \exists p \left(p = \frac{m+n}{2}\right)$ T