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Yohandi (120040025)
  Assignment 1
                                            Q5.i . 3x (C(x) ^ D(x) ^ F(x))
                                              11. 73x(C(X)^D(X)^F(X))
al.i. pag >r
                                              ((x)7 xE)^((x)0 xE)^((x)2 xE) iti
  ir.r spra
                                           06, i. 7 (2x3y (a(x,y) 4> a(y, x)))
                      p # mg
                                                = 4x 4y -1/( a(x,y) -) a(y,x)) ^(a(y,x) -)
Q2. P
                        T
                 T
                                                  Q(x(y)))
                 F
           T
     F
                       F
                                                = Ax Ar (-(orx, 1) > or(2,x)) ~ -( or(3,x) -)
                       T
                                                  OTX19))
                p-sa p^cp-sa) [p^cp-sa) -sa = xx +y((c(x,y)^-10(y,x)) v (aly,x)^
Q32. P
                                                70(xiy)))
                 T
     F
                                             ii · T( by 3x 3 = (T(x,y, Z) Valx,y))
                         F
           T
     C.
                         F
                                               = 34. Vx VZ 7 (Tix,y, 2) ~ Q(x,y))
     T
                         T
     T
                                               = Ty XX VE (7T(x,y,2) ^ 7Q(x,y))
                                (tautology)
                                           Q7. let A= {x3 where x is an element
 b. [p^cp→a)]→q
                                               & B= 2x, 2x33.
   =[p^(-1p van)] >q
                                               these sets are true as {x} = B
   "[(p^np) v(p^q)]>q
                                               and xEBo
    : (p^qn) → qu
                                          (28 j. A x B x C = {(a, x, 0), (a, x, 1), (a, y, 0), (a, y, 1)
    = 7 (pag) van
                                                          , (b, x,0), (b, x,1), (b, y,0), (b,y,1)
   = (-1p v-qu) van
                                                           , (c, x, 0), (c, x, 1), (k, y, 0), (c, y, 1)}
                                            in. CXAXB = {10,2,X), (0,2,4), (0,6,X), (0,6,y)
   = 7p vi-quy
   =7p V T
                                                         ,(0, (, x), (0, (, 4), (1, 2, x), (1, 2, 4)
                                                         , (1, b, x), (1, b, y), (1, c, x), (1, c, y) }
   = T (tautology)
all assume that:
                                          iii · D= AxB = } (a,x), (a,y), (b,x), (b,y),
        いかなりか=こりかりへいんかト)
                                                          (c,x), (c,y) 2
     consider a case where p=F, qn=T,
                                              DxC = > ((a,x),0), ((a,x),1), ((a,y),0),
     and r=F, we have "
                                                       ((2,4),1), ((b,x),0), ((b,x),1),
     LHS:
       (F^T) >F=T
                                                      ((b, y), 0), ((b, y), 1), ((c, x), 0),
       (F-)F)-(T-)F)=F
                                                       ((c,x),1), ((c,y),0), ((c,y),1) }
     both sides have a different result ,
                            (contradicting)
     hence proved
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Q.G. consider AUCANB) and A:

»XEAU(ANB) implies XEA or XE(ANB)

implies XEA

therefore, AU(ANB) CA

implies XEA or XE(ANB)

implies XEA or XE(ANB)

implies XEA or XE(ANB)

therefore, ACAUCANB)

hence AU(AMB) = A (proved)

Q.O.i. XEANBAC implies XEANB and XEC
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Q10.7. XEAnBAC implies XEANB and XEC implies XEANB trerefores AnBAC & ANB

in the (A-B)-c implies x EA-B and x & c implies x & A and x & B and x & C implies x & A and x & C implies x & A and x & C implies x & A -C

trerefore, (A-B)-C & A-C

ini. xe(B-A)u(C-A) implies xe(B-A) or xe(C-A)

case xfB-A:

xfB and xfA implies xfBuC and xfA

implies xf(BuC)-A

case xEc-A:

xec and xela implies xeBuc and xela

implies xe(Buc)-A

therefore, (B-A) u CC-A) = (Buc)-A

KE(BUC)-A implies XEBUC and XEA)
implies (XEB and XEA) or (XEC and XEA)
implies XE(B-A) or XECC-A)
implies XE(B-A) u(C-A)
therefore, (BUC)-A C (B-A) u (C-A)
hence (B-A) u(C-A)= (BuC)-A (proved)