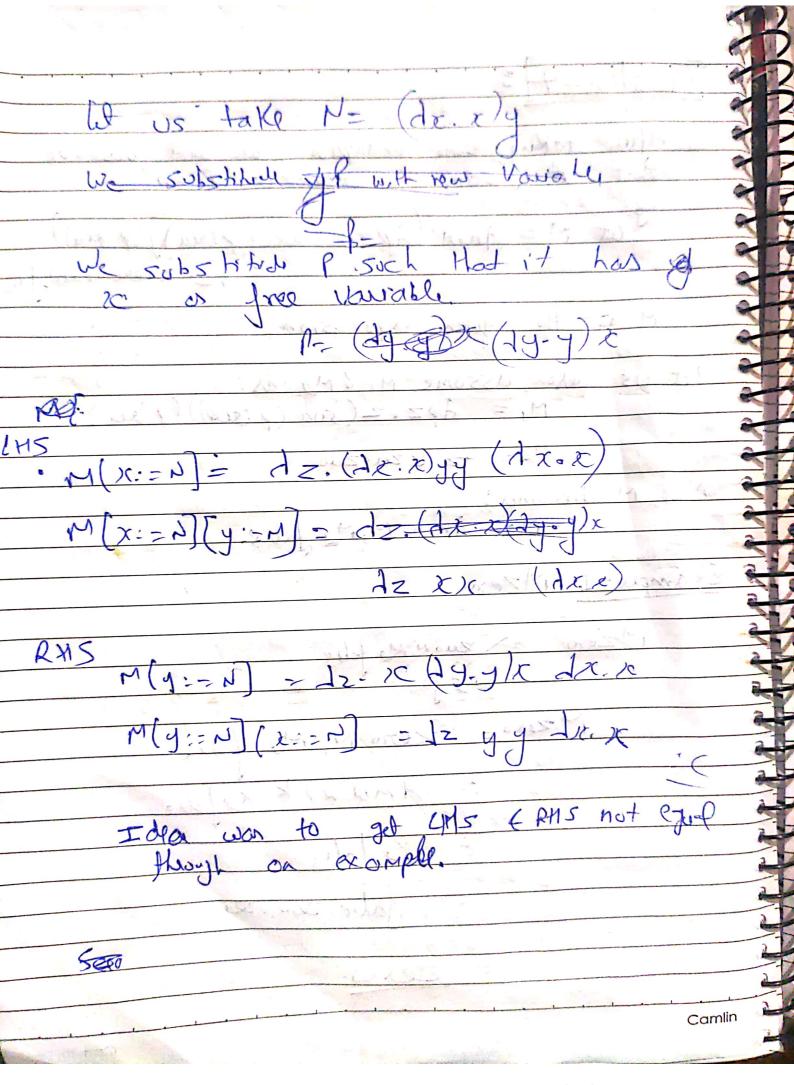
(5-350, Nikhil Mehta, 190549 I dea: We will trus to construct example whom 1st way takes 2 same term. As they do not seach to same term in 2 stops diamong TYPE : TX.XX) Camlin Question-2 In general = M[x:= N][y:= P] = M[y:= P] [x:= N] This con be shown if we find two examples 5.4. in one associative property holds and quarentee of it holds or not Example -1: Associative substitution $M = (\lambda R. x)(\lambda y. y)$ $N = \lambda U. zu$ P= Avoyv. We can su that their all no fry M(x:=N)(y:=P)=M(y:+D)(x:=N) Example-2: Non-Associative substitution let us take an example in which both

x 41 are free Variables in one turn and as

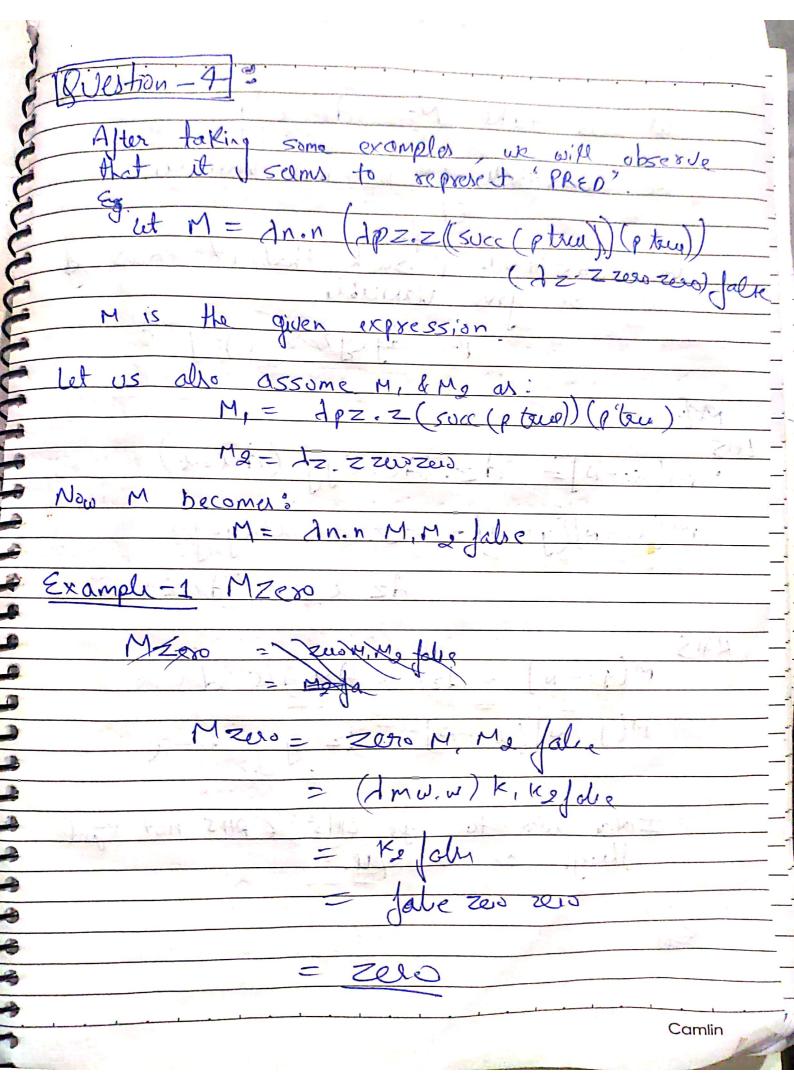
bound in signal term let us take M= Azozy (Axoz) There will be no change in 1x. x term We taky N which has y in its Sobiti to hox Camlin

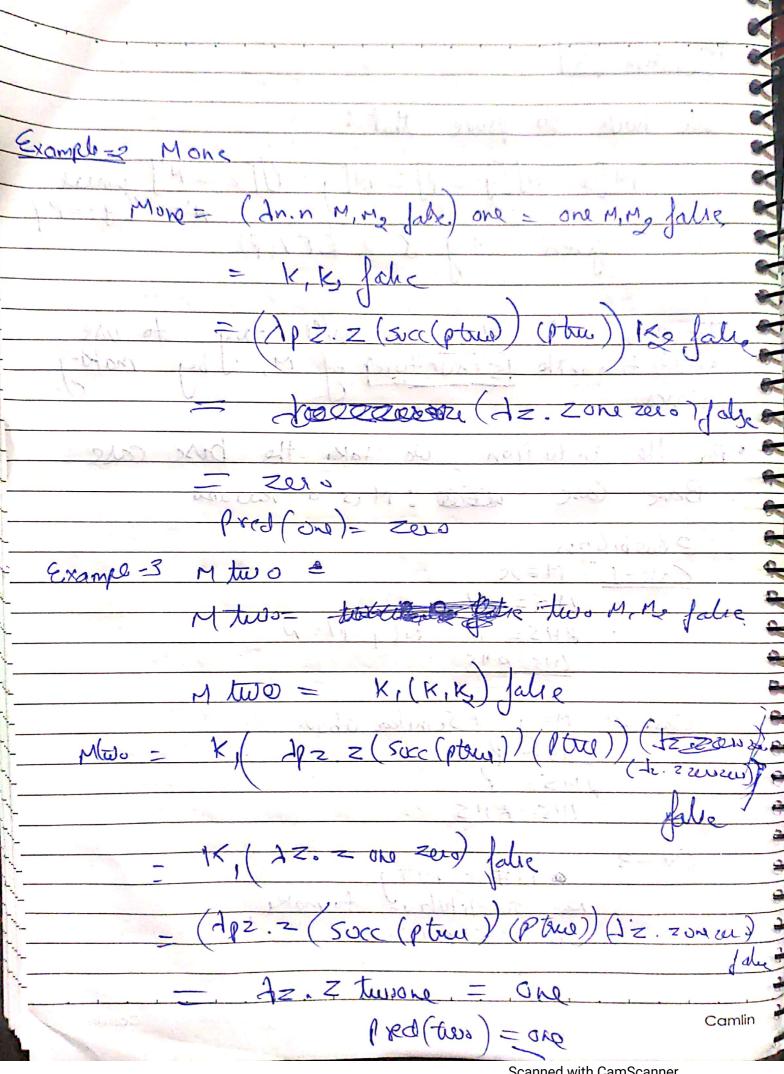


Question: 3
We have to prove that:
AND THE TOWN TO SHOW THE STATE OF THE STATE
M[x:=N][y:=P] = M[y:=P][x:=N] where
given $x \neq y \notin 2 \notin FV(R)$ w'= $P(y:=P)$
given x+y & 2 EFV(R)
To prove the above we will tay to use
induction on the Istructurer of M, Jby making
Card no 2. Els Messes 200
II . I N' H. bake color
· For the induction, we take the base case:
Base Case acceso: Mis a variable
3 Posibilition M=20
145 = N RHS = N = N [q := 17 = N
RHS= N = N(9)=11-10
LMS-RMS
5 NAT (-X 7) 1 A
Case 2 M= y (Similar abov)
MS = Provided to St
R115= P
L115= A115
Cae-3
a MIRA MITA
No substitution to make
SO LHS: RHS
The state of the s
Camlin

Induction step: in Struction of M C-1 Who Mis of the form Mi Mo where M, and Me are Lambda teams. M[x:=N[y:=P] = (N,[x:=N](y::P]) (M, [x:=N] · Using distribution property Now by industry hypothelis = (M, [y:-P][x:-N] (Mp[y:-P)[2:-N]] = M[y:=[][)c:= N'] LZ when H 15 of the form A. Jw. M, assumy with Smaller- stor the thom M. By Induction MypHus.

N' [x:=N) [y:=1] = M'[q:=1][x:=N'] M[xi=N](g:-P)= dw. m'(q:=P)(x:-N' = (AWN')(y:=P)[x:=N' = M(y:=1)[0:= N'] Menu-Proved Camlin





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