Lab Session: 11 K. Suya Peakarl (a) (Emelidian distance materies @ Given 210 = 11Pi-Pill ; iearn 24 · 119:11 - 2 PiPs 1 P:[Pr - Pn] = yii + yii - 2 yü ct. His prop > Y= pTp By company x to 4: X can be written as X= diag (x) 1 + (diag(x) 1) = 2) Y is a PSD . Programme of Consider any arbitrary u veitoi utyu = utptpu Est = (Pu)TPu = 11 Pull 20

>) | Y is a PSD [

we showed that x = diag(y) 1 + (diag(y) 17) T- 24 Linear combination of y wie PSD We know that set of conventiones is a conven une. Let P be set of all PID Act XIT EP OX+[1-0]X) sa should belong to P Conies sud be PSD consider arbitrary vectore 2 x (Y(0-11+ XO) Tx Sti = 0 2 xx + (100) x x xx . >0 @ 201 OR+(1-0)7 is a PSD & conven set

From Matrix:
$$Y = 0$$
 $y^{T}Xyy \ge 0$

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=> We can write that; X21 = 11P1-P3112 & je121-- my PiTPj = diag (Yzz) · Xalo diag (Yez) () Similary we can se wrête n Y22 (1,1) = p[p] , inj = ??, m) Using result obtained in (1). => \x = diag(Y22) 1 - 2(Y22) + 1 diay (722) -101 Replace (1) in Cy => X22 = X21 T - 2 Y22 + 1 X21 24222 X21 T + 1 X21 - X22

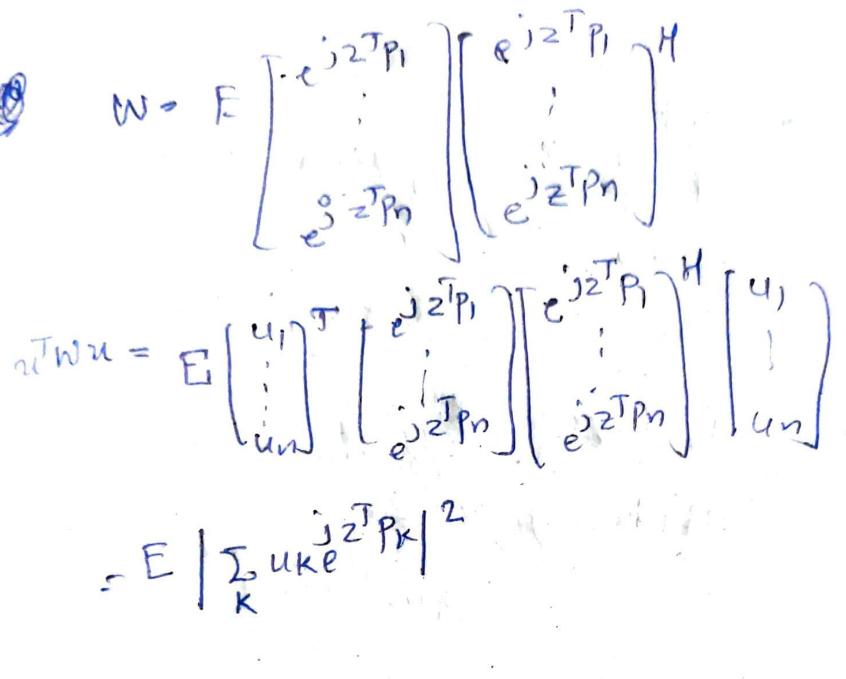
we know Het (mm n-1xm-1) (lam matrix Y21 30 a) X21 17 + 1 X21 - X22 > 0 X22 - X21 T-1 X2T 50 Prove diag(x) = 0 je Peroved earlier (I- 711) X (I- 711) 50 of Quo Let / H

We know that

X z diag(Y) 17-24 + 1 diag (7)

* XI = (YIT + 1yI-2Y) 1 = my + (ITy) 1

y= = (x1-(Ty)1),



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