lecture 12:- proporties of Relations. A,B R. C ANB. [ANBIZIAIN]BI. 1- Pollexue. 2- Symmetric. SWASAS of ANB. HareA in (a,b)ER [7] (b,a)ER. Ex7 P462. Az \$1,2,3,43. R₁₂ S(1,1), (1,1), (2,1), (2,1), (3,14), (4,1), (4,11), (4,14) }. Not Symmetric. if (1,1) ER -> (1,1) ER V. Ruz & (1,2)} 16 (212) ER → (2,2) ER 1 R22 } } Symmetric 2? R32 & (2:1)}. R327(21219.

P
Y.

3- Anti Symmetric. 1) taib EA 1/ (aib) ERA (bia) ER -> (azb).

E Ex7 P462. Az \$1,2,3,43. R, z & (2,1), (1,2), (2,1), (2,2), (3,4), (4,1), (4,1), (4,1) }. KANISymmeterZ, ab. ab. $(1,1)^{\epsilon R} \wedge (1,1) \epsilon R \rightarrow 1 = 1.$ Rz & F.V (1; 2) ER 1 (2, 1) ER -> 1 & 2. R2 S(2,2), (1,2)3. (12) ER N (2,1) ER Do the remaining Example on \$462. Yourself. Ex 12. PU63:- Di vides Relation on Set of the Dutyces.

D. Symmetriz.

2) Autisymmetriz. Yaib EA if (aib) ERA (bid) ER -> azb

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1) Symmetric.
2) Autisymmetric.

Yaib EA if (aib) ERA (bia) ER - azb Rig(aib) a dividus bog. Zt. HaseA in (aib) ER -7 (bia) ER. Symmetric: Harb EA if (ab) ER -> (b, a) ER. a divided by b = a ib Yaıb € Z+ if a dividus b → b dividus a. a dividus b = b; a= b $\begin{array}{cccc} (2,2) & \in \mathbb{R} & \longrightarrow & (2,1) & \notin \mathbb{R} & \mathbb{R} \\ (2,4) & \in \mathbb{R} & \longrightarrow & (4,2) & \notin \mathbb{R} & \mathbb{R} \end{array}$ Anti Symmetric: Yaib EA of (a16) ERA(bia) ER-> azb. Haib € Z+ if a divides b 1 b divides a > azb. Ot is Auti Symmetric. but Not Symmetric. 4-transitive. Harbic Et i) (aib) ER 1 (aic) ER. Exis P464? Refaib) a dividus bo Zt. Yabe EA 1) (ab) ER 1 (bic) ER -> (aic) ER. table EZT if a divides b 1 b divides C - a divides C. Ex7 $Az\{2,2,3,4\}$. $Rz\{(2^{x},0),(2^{x},0^{x}),(2^{x},0^{x}),(3,4),(4,2),(4,4)\}$. XPro 3. Pro(1,1), (1,2)}. Ridabla763. Azz. 1- Ha EA (a) ER, Hall and it is the for all all A 2- Haib EA y (aib) ER -> (bia) ER. Ha15 EZ if a7, b → 57/a. (2, 1) 27,1 → 272. X. 3. Haib EA 1) (a,b) ERN(b,a) ER -> azb.

18 azhabza zazh

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Haib 82

3. Haib EA 1) (a,b) ERA(b,a) ER 7 azb.

Haib EZ 1) a7,b A b7,a >azb.

H- Haibic EA 1) (a,b) ERA(b,c) ER > Cald ER.

Haibic EZ 1) a7,b A b7,c, -7 a7,c.

37,2 A 27,1 -> 37,1