convert cylindrical to spherical r=psho >2=pcoso, 0=0. where p= tr2+22, 8 = tan ( // ) > 0 = cos ( /2/p). partial derivatives of above egus are : 3/2 - 3/2 - 3/2 + 3/2 · 3/4 - sind 3/3/ 1/2 2/3/2 3/4 3/2 = 3/2. 3/p+3/4. 3/4 - cos(\$ 3/p + 12 - 2-1/3/2) Now, Ur = Upsiho + 40 1 1 12 = Upcost + 40 12 Tr= 2-p3/2 40 = Uo. > ep = 34x = sind (3/p (up sho) + 4/p 22 p 3/2) + 1/2-22 P3/2 3/0 (Upsino + 40 12 p3/2). = 24p sin20 + (240. 1 + 40 + 24p . 1 ) 125/20 + (4pcost) + 240 · 1 2 122 122 122  $\Rightarrow \hat{e}_{\phi} = \frac{2412}{22} = \cos\phi^{2}/_{2p} \left[ 4p\cos\phi + 4\phi \frac{n}{p^{3}/_{2}} \right] + \frac{n^{2}}{p^{2}/_{2}} + \frac{n^{2}}{p^{2}/_{2}}$ 3/20 [ Up cost) + 4/9 1/2 p3/2  $\frac{80}{3p} = \frac{34p}{3p} \cos^2 0 + \left( \frac{310}{3p} \cdot \frac{1}{p^{-9}2} + \frac{40}{3p} + \frac{34p}{p^{-9}2} \right)$ COS() 12 + ( 240 12 - Upsho) 12 - 12 1/2 22

therefore strain displacement repation becomes  $ep = \frac{\partial l}{\partial r}$ ,  $e\phi = \frac{1}{p} \left( ll + \frac{\partial l}{\partial \phi} \right)$ eo = 1 (240 + shour + coso 42) epo = 1/2 (1/2 30 + 31/2 - 1/2) epo = 1 (10 3/12 + 340 - cot440) eop = = = = ( | PSILO = 200 - 40 )