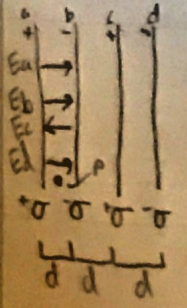
1) ★ Answered correctly ★

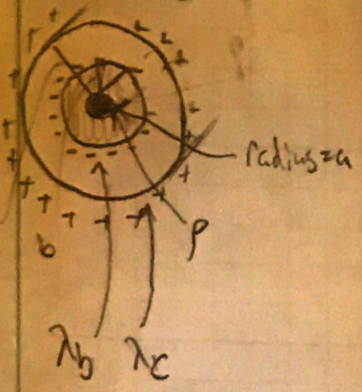
2) 

$|E_a| = |E_b| = |E_c| = |E_d| = \sigma/2\epsilon_0 = E$

$E_p = E_a + E_b - E_c + E_d = 3E - E = 2E = 2\frac{\sigma}{2\epsilon_0} = \frac{\sigma}{\epsilon_0}$

$E_p = \frac{(15E7)}{(8.85E-12)} = 1.69E18\ N/C$

$\sigma = 15E7\ C/m^2$
$d = 2E-5\ m$
$\epsilon_0 = 8.85E^{-12}$

3) 

$\rho = 50\ C/m^3$
$\lambda_b = ?\ C/m$
$\lambda_c = ?\ C/m$

$a = 0.1m$
$b = 0.2m$
$c = 0.3m$

$\lambda_b = -\lambda_c$

$R = 0.$

Let l be the length of the cylinders.
Let inner cylinder = A

$\lambda_b = \frac{-\text{total charge}(A)}{l}$

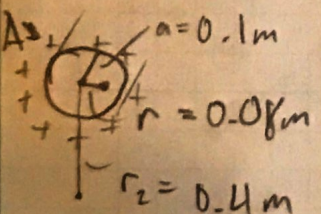
$\lambda_b = \frac{-\rho \cdot \text{vol}(A)}{l}$

$\lambda_b = \frac{-\rho \cdot \pi l a^2}{l}$

$\lambda_b = -\rho\pi a^2 = -1.57\ C/m$

4) $\lambda_b = -\lambda_c$

$\lambda_c = -(-1.57) = 1.57\ C/m$

5) 

$E \cdot A = \frac{Q_{enc}}{\epsilon_0}$

$\Downarrow$

$E 2\pi r l = \frac{\rho r^2 l \pi}{\epsilon_0}$

$E = \frac{\rho r}{2\epsilon_0} = 2.26E11\ N/C$

6) $E_2 \cdot A = \frac{Q_{enc}}{\epsilon_0}$

$E_2(2\pi r l) = \frac{\rho \pi a^2 l}{\epsilon_0}$

$E_2 = \frac{\rho a^2}{2r\epsilon_0} = 7.06E10\ N/C$