Pre-Lab Questions set #2

1. How do you calculate the capacitance of these capacitors? ① Two parallel circular conductor plane. Suppose the radius of the plane is \( r \), the distance between two planes is \( d \). ② Cylindrical coaxial capacitor. Suppose the inner and outer radius are \( a \) and \( b \) respectively, the length is \( l \). ③ Two concentric spherical electrodes? Suppose the inner and outer radius are \( a \) and \( b \) respectively.

2. Calculate the capacitance \( C \) of two parallel/series connected capacitors. Suppose the capacitances of them are \( C_1 \) and \( C_2 \).

3. There are two capacitors with capacitance of \( C_1 \) and \( C_2 \). The first is discharged and the second is charged to a voltage \( V \). After connecting them in parallel, what is the final voltage \( V_f \).

4. If I want to measure the voltage of one capacitor, should I choose voltmeter or electrometer, if ① the capacitance is \( C=1mF \), ② the capacitance is \( C=1\mu F \).