DEPARTMENT OF MATHEMATICS AND PHYSICS
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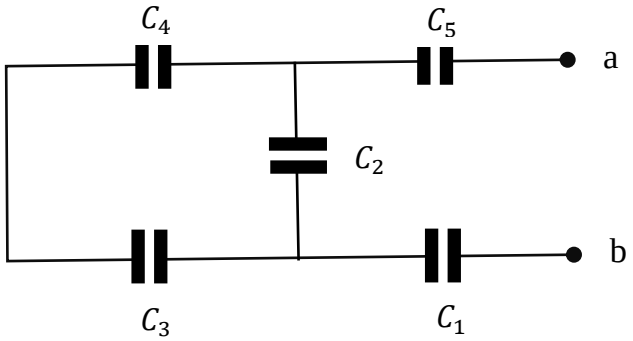
NAME: _____LRN: _____
CLASS TIME: _____Date Submitted:_____

20 pts

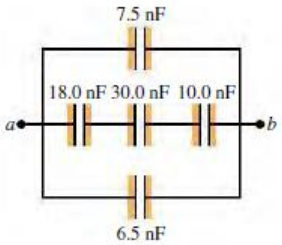
GPhys 122 **Online Quiz # 1**
March 17, 2020 9:00AM

*For those students who can submit online **on or before** the extended deadline @ 5:00AM March 18, 2020, choose only **ONE OUT OF FOUR** problems (if you answered all, it's OK, and I'll choose only one of your correct answer). Beyond 5:00AM or until resume of classes, **SOLVE ALL**. Your score are based on your answers. The lowest score can be obtain is 3pts out of 20pts. Note: **HAND WRITTEN AND STEP-BY STEP SOLUTIONS** and send to email: mfsacedon@gmail.com.*

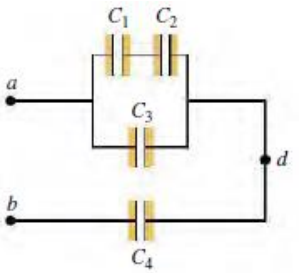
Problem 1: In **Figure below**, $C_1 = 8\mu F$, $C_2 = 4\mu F$, $C_3 = 4.4\mu F$, $C_4 = 5\mu F$, and $C_5 = 9\mu F$. The applied potential is V_{ab} = 220 V. (a) What is the equivalent capacitance of the network between points *a* and *b*? (b) Calculate the charge on each capacitor and the potential difference across each capacitor.



Problem 2: For the system of capacitors shown in Figure right, a potential difference of 25 V is maintained across *ab*. (a) What is the equivalent capacitance of this system between *a* and *b*? (b) How much charge is stored by this system? (c) How much charge does the 6.5-nF capacitor store? (d) What is the potential difference across the 7.5-nF capacitor?



Problem 3: In Figure, each capacitor has C = 4.00 μF and V_{ab} = +28.0 V. Calculate (a) the charge on each capacitor; (b) the potential difference across each capacitor; (c) the potential difference between points *a* and *d*.



Problem 4: A capacitor is formed from two concentric spherical conducting shells separated by vacuum. The inner sphere has radius 15.5 cm, and the outer sphere has radius 15.8 cm. A potential difference of 220 V is applied to the capacitor. (a) What is the energy density at r = 13.6 cm, just outside the inner sphere? (b) What is the energy density at r = 15.7 cm, just inside the outer sphere? (c) For a parallel-plate capacitor the energy density is uniform in the region between the plates, except near the edges of the plates. Is this also true for a spherical capacitor?

Show your step-by step solutions.
Deadline of Submission: March 18, 2020 5:00AM
Note: HAND WRITTEN SOLUTIONS
Picture your solutions then send to email: mfsacedon@gmail.com