King Abdulaziz University	Faculty of Science	Department of Physics
PHYSICS 202: CA	Summer term 2010	Quiz#2

Answers

1. Two charges q_1=4 μC and q_2=1 μC are separated by 6 cm. A third charge is placed where the electric force on it is zero. The distance from q_2 where the third charge being placed is:
(a) 1 cm **(b)** 2 cm **(c)** 3 cm **(d)** 4 cm **(e)** 5 cm

2. The number of electrons in a metal of charge 3.2 nC is:
(a) 2×10^{6} **(b)** 2×10^{10} **(c)** 5.12×10^{-38} **(d)** 5×10^{27} **(e)** 5×10^{10}

3. A proton is mechanically balanced under the influence of a uniform electric field. The magnitude of the electric field (in N/C) is:
(a) 10.2×10^{-8} **(b)** 10.2×10^{10} **(c)** 5×10^{-8} **(d)** 5×10^{10} **(e)** 5×10^{-7}

4. Two charges q_1=8 nC and q_2=-1 nC are separated by 6 cm. The magnitude of the electric field at the mid-point is:
(a) 7 N/C **(b)** 7×10^{4} N/C **(c)** 9×10^{4} N/C **(d)** 9 N/C **(e)** zero

5. The electric field at a distance 3 cm from a wire is 3600 N/C. The linear charge density of the wire is:
(a) 6 nC/m **(b)** 12 nC/m **(c)** 3 nC/m **(d)** 9 nC/m **(e)** 1 nC/m

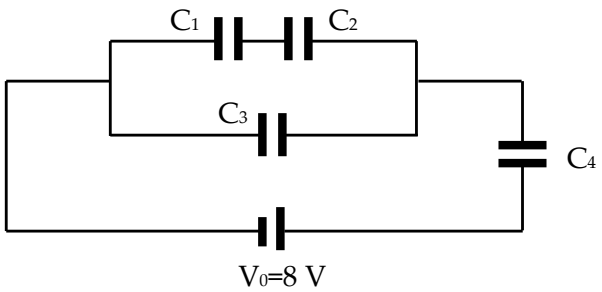
6. The electric flux through a Gaussian surface is 2000 $N.m^2/C$. The total charge enclosed within the surface is:
(a) 8.85 nC **(b)** 17.7 nC **(c)** 35 nC **(d)** 2.6 nC **(e)** 10 nC

7. The electric potential at center of a conducting sphere of radius 5 cm is 360 V. The magnitude of the electric field at the center of the sphere is:
(a) 7200 N/C **(b)** 72 N/C **(c)** 18 N/C **(d)** 1800 N/C **(e)** zero

8. The electric potential at 2 mm away along the axis of an electric dipole is 4500 V. The dipole moment is:
(a) 1 nC.m **(b)** 2 pC.m **(c)** 1 pC.m **(d)** 2 nC.m **(e)** 3 nC.m

9. An isolated sphere of surface area 0.5 m^2 is connected to a potential difference of 12 V. The charge on the sphere is:
(a) 3.76 pC **(b)** 2.66 pC **(c)** 376 pC **(d)** 1.85 pC **(e)** 266 pC

10. As shown in the figure (C_1= C_3=2μF and C_2= C_4=3μF), the voltage across the capacitor C_2 is:
(a) 4.62 V **(b)** 2.77 V **(c)** 3.87 V **(d)** 1.55 V **(e)** 8.0 V



Constants: $m_e=9.11\times10^{-31}$ kg, $m_p=1.67\times10^{-27}$ kg, $e=1.6\times10^{-19}$ C, $\varepsilon=8.85\times10^{-12}$ $C^2/N.m^2$