

**PHYS 2326 University Physics II – Class number -49903**

**9:00 AM – 12:15 PM**

**QUIZ#1**

**CHAPTERS: 23, 24, 25, 26**

**JULY 15, 2013**

1. Each of two small non-conducting spheres is charged positively, the combined charge being  $40 \mu\text{C}$ . When the two spheres are 50 cm apart, each sphere is repelled from the other by a force of magnitude 2.0 N. Determine the magnitude of the smaller of the two charges.
- a.  $1.4 \mu\text{C}$
  - b.  $1.1 \mu\text{C}$
  - c.  $2.0 \mu\text{C}$
  - d.  $3.3 \mu\text{C}$
  - e.  $17 \mu\text{C}$

**ANS=a.**

2. A uniformly charged rod (length = 2.0 m, charge per unit length =  $5.0 \text{ nC/m}$ ) is bent to form one quadrant of a circle. What is the magnitude of the electric field at the center of the circle?
- a. 62 N/C
  - b. 56 N/C
  - c. 50 N/C
  - d. 44 N/C
  - e. 25 N/C

**ANS=c.**

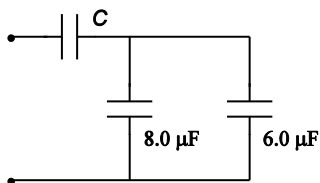
3. A long cylindrical shell (radius = 2.0 cm) has a charge uniformly distributed on its surface. If the magnitude of the electric field at a point 8.0 cm radially outward from the axis of the shell is 85 N/C, how much charge is distributed on a 2.0-m length of the charged cylindrical surface?
- a. 0.38 nC
  - b. 0.76 nC
  - c. 0.19 nC
  - d. 0.57 nC
  - e. 0.98 nC

**ANS=b.**

4. A particle ( $m = 2.0 \mu\text{g}$ ,  $q = -5.0 \text{ nC}$ ) has a speed of 30 m/s at point A and moves (with only electric forces acting on it) to point B where its speed is 80 m/s. Determine the electric potential difference  $V_A - V_B$ .
- a. -2.2 kV
  - b. +1.1 kV
  - c. -1.1 kV
  - d. +2.2 kV
  - e. +1.3 kV

**ANS=c.**

5. If  $C = 10 \mu\text{F}$ , what is the equivalent capacitance for the combination shown?



- a.  $7.5 \mu\text{F}$
- b.  $6.5 \mu\text{F}$
- c.  $7.0 \mu\text{F}$
- d.  $5.8 \mu\text{F}$
- e.  $13 \mu\text{F}$

**ANS=d.**