PHY 212 General Physics II - Electricity, Magnetism and Light
Summer 2007

Quiz 5 Tuesday, July 24

Name:

1. (4 points) Consider the equation $\overrightarrow{\mathbf{F}} = q\overrightarrow{\mathbf{v}} \times \overrightarrow{\mathbf{B}}$. (i) Which vector quantities always are perpendicular to each other? (ii) Which are not necessarily perpendicular to each other?

2. (4 points) A charge q is moving with velocity $\overrightarrow{\mathbf{v}}$ in a magnetic field, yet experiences zero magnetic force. Indicate in a sketch and with a short explanation how can this happen.

3. (7 points) The current in a charging RC circuit is given by $i = I_0\, e^{-t/RC}$. How long does it take for current i to decay to half its value? Express your result in terms of the time constant of the circuit.